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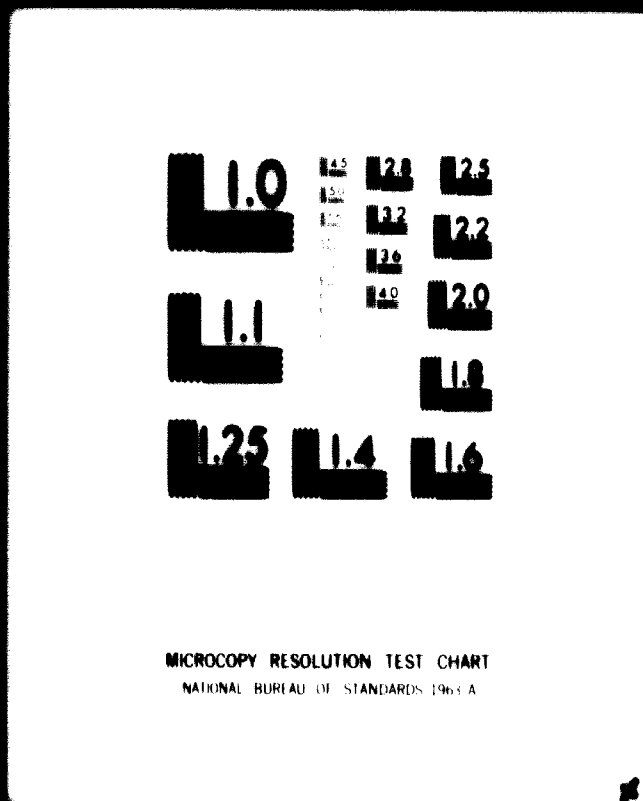
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1 OF 4  
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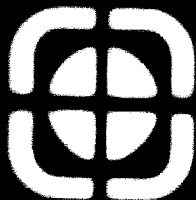
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(1 of 3)

WORLDWIDE STUDY OF AGRO-INDUSTRIES

588



UN-K- 12623- 380  
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**01982**  
(1 of 3)

WORLDWIDE STUDY OF AGRO-INDUSTRIES

500

Prepared for:

Sectoral Studies Section (ICIS)  
UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION  
Vienna, Austria

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November 1976

## TABLE OF CONTENTS

|                 | <u>Page</u> |
|-----------------|-------------|
| A. Introduction | 1           |
| B. Methodology  | 2           |

### PART I. SURVEY ANALYSIS

#### Chapter I: Investing in LDCs: Company Criteria

|  |      |
|--|------|
| 1. Company Experience  | I-1  |
| 2. Types of Cooperation Preferred                                  | I-2  |
| a. Forms of Investment   | I-2  |
| Meat-Processing Companies' Experience<br>with Management Contracts | I-7  |
| b. Supply and Technology   | I-8  |
| 3. Important Issues to be Resolved                                 | I-8  |
| 4. Major Factors Determining Investment                            | I-10 |
| a. Where the Emphasis Lies   | I-10 |
| b. Weighing Country Incentives                                     | I-12 |
| 5. New Role of Companies in LDCs                                   | I-13 |

#### Chapter II: How Companies Rate LDCs

|  |      |
|--|------|
| Introduction   | I-16 |
| A. Where Companies Are Currently Processing  | I-18 |
| B. Countries Presently Meeting Company Criteria<br>for Investment                    | I-31 |
| C. Countries Not Currently Meeting Company<br>Investment Criteria in the Short Term. | I-47 |
| D. Countries in Which Companies Plan Future<br>Investments.                          | I-55 |

Table of Contents (continued)

Page

Chapter III: Company Views on Future Technological Trends

|   |      |
|---|------|
| Overview  | I-65 |
| Supplying Modern Technology to Developing Countries | I-68 |

Chapter IV: Case Histories

|  |      |
|--|------|
| 1. Fish-Processing Project That Failed   | I-71 |
| 2. A Feed Milling, Dairy and Meat Company's Participation in a Government-Sponsored Consortium | I-78 |
| 3. A Company's Reinvestment Solution in an LDC   | I-81 |
| 4. An Animal Feed Company's Approach to Investments in LDCs                                    | I-82 |

PART II. SUMMARY OF COMPANY RESPONSE TO QUESTIONNAIRE

|                 |       |
|-----------------|-------|
| Question No. 3  | II-1  |
| Question No. 4  | II-22 |
| Question No. 5  | II-25 |
| Question No. 6  | II-28 |
| Question No. 7  | II-30 |
| Question No. 8  | II-35 |
| Question No. 9  | II-38 |
| Question No. 10 | II-44 |
| Question No. 11 | II-58 |
| Question No. 12 | II-66 |
| Question No. 15 | II-69 |
| Question No. 16 | II-77 |

Table of Contents (continued) Page

**PART III. PRODUCT PROFILES**

|  |         |
|--|---------|
| A. Cereal Grains                                       | III-2   |
| B. Cane and Beet Sugar and Products                    | III-34  |
| C. Starch and Starch Derivatives                       | III-51  |
| D. Meat and Meat Products (Inc. Poultry & Animal Fats) | III-56  |
| E. Fish and Fish Products                              | III-82  |
| F. Milk and Milk Products                              | III-91  |
| G. Coffee and Products                                 | III-97  |
| H. Cocoa and Products                                  | III-116 |
| I. Tea and Products                                    | III-130 |
| J. Animal Feedstuff                                    | III-140 |

**ANNEXES**

|  |         |
|--|---------|
| A. Principal Countries Surveyed in UNIBO Study                                   | III-194 |
| B. Sample of Covering Letter and Questionnaire Mailed to International Companies |         |

## A. Introduction

This report summarizes the results of a survey conducted by Business International of investment potentials for 13 product groups of the agro-industries sector in the developing countries of Africa, Asia and Latin America, particularly in the 42 countries listed in Annex A. The study, which was commissioned by the Industry Sectoral Studies Section of the United Nations Industrial Development Organization, (UNIDO) has been formulated with a view to providing UNIDO with information required by governments of developing countries, which would assist them when making policies for the establishment and expansion of viable agro-industrial enterprises.

The main objective of the survey was to ascertain company views on the investment possibilities for further processing of the product included in the following groups in developing countries:

- cereal grains
- cane and beet sugar
- starch and starch derivatives
- meat and meat products
- fish and fish products
- poultry products



- milk and milk products
- edible animal fats
- coffee and products
- cocoa and products
- tea and products
- animal feedstuff
- liquid feedstuff additives.

The results of this survey presented in this report have been grouped in three parts:

- an analysis of company responses to the questionnaire and results of interviews conducted with company officials.
- a statistical summary of responses to the questionnaire.
- current production, consumption and foreign trade aggregates for each of the product groups and expected trends to 1965.

#### Company Response

Of the 250 international companies that received BE's questionnaire, 70 companies (or 28%) responded. In-depth interviews were held with 35 companies, 19 of which are members of FAO's Industry Cooperative Program (ICP).

With the 70 responses, the vast majority of food-processing companies with current or planned operations in the LDCs have been accounted for, in BI's view. The 70 food-processing companies that participated in BI's survey currently operate 241 subsidiary, joint-venture or licensed manufacturing food-processing companies in 61 LDC countries. Their food-processing operations in LDCs by product category are presented below:

| <u>Processing<br/>Units</u> |                                 |
|-----------------------------|---------------------------------|
| 63                          | Cereal grain                    |
| 13                          | Starch                          |
| 20                          | Sugar & confectionery           |
| 30                          | Meat, poultry and animal fat    |
| 12                          | Fish                            |
| 10                          | Dairy products                  |
| 8                           | Coffee                          |
| 7                           | Cocoa and chocolate             |
| 3                           | Tea                             |
| 26                          | Animal feed                     |
| 19                          | Various finished consumer foods |
| <hr/> 241                   |                                 |

As BI has promised to keep confidential all information provided by the companies, their names have been kept anonymous throughout the report. The fact that the report would be confidential, BI feels, has been a major factor in the wide acceptance and willingness of companies to participate.

**B. Methodology**

In conducting this study, Business International employed the following steps:

1. Product profiles for each of the product groups were prepared based on statistical data on production, consumption and foreign trade as well as views on future trends and processing possibilities in LDCs, from the following organisations:

- The Food and Agriculture Organization (Rome)
- The Organization for Economic Cooperation and Development (Paris)
- The Tropical Products Institute (London)
- The International Wheat Council (London)
- The Commonwealth Secretariat (London)
- The International Coffee Association (London)
- The International Tea Committee (London)
- The International Sugar Organization (London)
- The International Cocoa Association (London)
- The National Renderers Association (Brussels)
- Pan-American Coffee Bureau (New York)
- The Foreign Agricultural Service of the U.S. Department of Agriculture (Washington, D.C.)
- The International Trade Centre UNCTAD/GATT (Geneva)

2. At the same time, interviews were held with several major food-processing companies with investments in developing countries as well as Industry Cooperative Program officials to obtain their reaction, comments and suggestions on the questionnaire to be mailed to the target companies.
  
3. The questionnaire that was prepared for mailing to leading food-processing companies was designed to elicit the following data:
  - Company views on investing in developing countries, the form of investment they prefer, the factors determining their future investments and possible areas of concern in terms of host government policies.
  
  - Company assessment of investment possibilities for each product group by individual country.
  
  - Company plans for future investments for each product group by individual country.
  
  - Company assessment of new processing technologies likely to be implemented during the next decade.

- Company forecasts of market growth and the 1985 potential market for the products of interest.

The questionnaire was mailed to 250 leading international companies\*involved in processing the products covered in this study, located in North America, Europe and Japan. (See Annex B, for a sample of the questionnaire and covering letter.)

4. BI researchers conducted in-depth interviews with 35 companies (19 of which are members of ICP) in Japan, North America and Europe.

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\* The names of the 250 companies were mailed by BI to UNIDO on September 20, 1976.

PART I

ENVY ANALYSIS

Chapter 1

INVESTING IN LDCs: COMPANY CRITERIA

1. Company Experience

Most companies answering the questionnaire - even those that have had some of their projects in LDCs fail - consider that their overall experience in developing countries has been favorable. Only a few have rated their overall experience as unfavorable.

The major reasons for failure were nationalization, disruptions due to military action or the lack of LDC government support. Several European companies mentioned nationalization of their investments in former colonial territories as being examples of investments that ultimately failed. Other causes included: insufficient feasibility study prior to investment, drastic decrease in demand following changes in the world economic situation, a commercially unsound operation and an uneconomically based export company.

For one major multinational food processor with over 60 years of experience in production and marketing in numerous LDCs worldwide, its only divestments - which have been few - were in the East European countries following World War II. A number of firms complained about the difficulties caused by the Iranian divestment decree and in doing business in such capricious climates.



2. Types of Cooperation Preferred

a. Forms of Investment

The multinational companies are overwhelmingly open to new forms of cooperation in LDCs. Most are receptive to participation in equity-sharing consortiums and joint ventures with government participation. Only a few are dogmatically opposed to government equity ventures or multi-company consortiums.

More than half of the responding companies are willing to accept a minority share in a LDC-based company even if they do not have management control. The remainder are willing to engage in joint ventures only in cases where they maintain control.

For those companies willing to accept minority equity shares without management control, only a few are categorically against management contracts on a fee basis once the plant is operational. Roughly one third would never accept marketing demands by LDCs for products locally processed.

In general European and Japanese companies are much more receptive to equity sharing and management contract forms of cooperation than US companies. This is mainly due to the nature of their business: The participating European Companies are mostly engaged in first-stage processing, such as grain milling, dairy processing, poultry farming and hatcheries, sugar refining, starch manufacturing, and cocoa processing.

As primary processing operations generally require heavy capital outlays, European companies (many of which suffer from poor capital reserve positions and a paranoia about nationalization stemming from earlier colonial experiences) are prepared to accept minority share positions and management contracts, and actively promote turnkey operations in place of capital investments in LDCs.

The Japanese companies, because of their predominantly "trading company" orientation, are mainly interested in investing in LDC operations in order to "secure" supplies at reasonable terms and conditions. They therefore are not

looking exclusively for return on investments from their equity positions (although once they invest they are as interested as any shareholder in reasonable returns), but their major criterion is that the capital investment assure them preferential treatment for supplies.

On the other hand, US companies are more interested in maintaining majority ownership, or minority ownership with management control. This is especially true for companies producing branded consumer products. Because these products often involve marketing and advertising expenditures in building brand name franchises or "trademarks," these companies prefer to maintain strong equity positions and especially management control.

One company's two-fold approach toward equity participation illustrates the divergent investment policies between first-stage processors and producers of finished branded food products. For this company, its investment policy depends on the form of production - i.e. whether

the investment is in flour milling or in production of finished branded goods. Its policy is outlined below:

1. Branded consumer goods - The company's policy is that any investment in production facilities in LDCs requires 100% equity ownership in which it has full control and assurance that its trademark will not be jeopardized or requires manufacturing under license in which the trademarks and technology are protected by air-tight manufacturing contracts.
  
2. Flour milling operations - Company policy allows for joint ventures with majority and minority share positions and even minority equity position without management control.

Nevertheless, US as well as European and Japanese food processors are willing to review each situation on its own merit and would be open to other forms of investment cooperation. After equity positions, most companies state that they prefer licensed manufacturing agreements as the most

desirable, followed by management and consulting contracts. In general, where equity positions are not possible or because of high risk factors, companies with special trademark or technologies prefer licensing agreements.

Turnkey, or the outright sale of technology, know-how, training programs and machinery for cost plus commission or a fee, is preferred by companies with low capital reserves and companies that have had negative experiences in LDCs such as nationalization or government abrogation of incentives and protection of their investments.

**MEAT PROCESSING COMPANIES'**  
**EXPERIENCE WITH MANAGEMENT CONTRACTS**

In general, few multinational meat processing companies maintain equity positions in meat plants in developing countries. As a result of nationalizations in Latin America, most meat processors prefer to provide management services or turnkey operations. Many have created subsidiary companies that sell technology, machinery, management expertise and complete turnkey projects at a fee plus commission.

However, most companies directly involved in meat processing and marketing are no longer receptive to supplying management expertise on a management contract basis. This stems basically from two reasons:

1. Bad experiences in which the total cost in displaced manpower, actual costs and company image have far exceeded the initial contract fees and ultimate remuneration, and
2. The lack of available, trained personnel for such contract durations required to startup or reorganize a meat processing and packaging operation.

One company related a story in which its management personnel was imprisoned because they disagreed with the local manager's handling of the business. They had been hired to operate, direct and manage the business, yet when they voiced their opinion they were sent to jail. Obviously, the company's image was marred and in the long run the total costs far outstripped the remuneration.

b. Supply and Technology

Long-term supply contracts at fixed prices would be considered by only a very few participating companies, their main condition being that the prices either be pegged to an inflation index (in one firm's case, to the UK retail price index) or be fixed at a future date on the basis of a cost formula specified in the contract. As one company put it, such a contract would be considered "only if there were a price advantage or supply shortage and the contract would guarantee its supplies."

Practically all companies expect the conditions guaranteeing the protection of their technology, patents and trademarks to follow international practice. Several of the companies would also expect additional protection and guarantees from the LDC government.

3. Important Issues To Be Resolved

By far the most important issue that companies would like to discuss with developing countries is the creation of a long-term investment and socioeconomic climate that would

be receptive to generating an acceptable return on investment. In order of importance, the specific points to be raised concern the following:

- Repatriation of profit guarantees
- Guarantees against nationalization and other investment protection
- Government incentive schemes and protection against imported competitive products
- Availability of raw materials and duty-free import rights
- Assurances that internal political matters will not negatively affect the company's activity
- Assurances that there will be no unreasonable restrictions on the importation of foreign personnel or management
- Availability of local labor and training programs
- Available local technology.



4. Major Factors Determining Investment

a. Where the Emphasis Lies

One international executive summed up his company's LDC investment philosophy and in so doing echoed the majority of companies' policies in reviewing equity share investments in the LDCs:

"We look first for a positive market potential. We never look for government incentives; we look for present or historical government disincentives, such as inhibitive price controls, uneconomic limits on capital repatriation, or threats of equity nationalization. If we find evidence of these, we weigh the inherent risks for the present, medium- and long-range with the economics and market potential. If the net result is positive we invest; if not we look elsewhere or consider lower-risk participation such as turnkey, management contracts or licensing manufacturing."

The vast majority of companies participating in this survey maintained that when they are making a decision to invest in an LDC, they lay the heaviest emphasis on the long-term local or regional market potential, which takes into consideration the market size, level of economic development and economic growth rate.

Only after the market potential is determined positive for investment do companies then weigh other mitigating or potentially enhancing factors such as the likely role internal politics may play and the availability of raw material. After these first three most important issues, companies consider the following factors in order of importance:

- Government incentives and protection
- Availability of qualified management or trained personnel
- Investment and financing guarantees and availability of low-interest loans
- Good infrastructure and availability of ancillary services
- Availability of low-cost labor
- Government support on agricultural development programs
- Stable labor climate

b. Weighing Country Incentives

Although the existence of government incentives were placed fourth in order of importance, they play an important overall role in assessing the economic feasibility of whether or not to invest. All companies with the exception of a few stated that government incentives modify their assessment of investment potential in each LDC. The following were most often cited as interesting incentives (listed in order of importance):

- Lower or no tariffs on imported raw materials and capital goods
- Protective tariffs on competitive imported products
- Tax holidays
- Low-interest loans or government guarantees
- Low-cost or free land grants.

5. New Role of Companies in LDCs

Multinational firms have modified their objectives toward investing in LDCs over the last decade. Many have come to realize that their obligations go beyond efficiency and return on investment and also must include a contribution to the nutritional, labor, agricultural, trade and general economic and ecological policies of host countries. In addition, many have decided that the most effective way that they can participate in the processing of food in developing countries is to provide technology, knowhow, machinery and management as part of technical assistance programs, or turn-key operations rather than taking an equity position.

Below are a few selected cases that illustrate some of the new roles and arrangements of multinational agribusinesses in developing countries:

- A major international firm has teamed up with a local firm in Indonesia to develop new lands and at the same time provide new production for the local and export market. The crop selected, corn, proved to be inappropriate for the area, but a new crop has been planted and the objective of providing increased production in what was once a jungle area has been successful.

- In its partnership with Pakistan, another multinational has helped develop the inputs to increase maize production in the country because of a lack of local supplies. It provided new seed varieties, an extension service for the use of seed, fertilizer, pesticides, etc. together with a guaranteed price system and a handling, drying, storage, and grading system for both small-scale and large-scale farming operations. As a result of the company's success, the government has requested its services to develop a sorghum system for the country, which is beyond the firm's primary operation.

- A major Western firm, through its distribution relationships, has been developing nutritional analysis of human needs in specific developing countries. Its most recent program in an LDC consists of finding the most appropriate ways to introduce improved nutrition, given the local diet preferences, applying the technology developed by the company.

In taking a different strategy, an international food processor entered into a joint venture with the local government development bank and local private investors to set up a dairy processing plant in a Latin American country. The company provided

capital managerial skills and processing technology as well as procurement expertise. It worked with small farmers to develop more productive dairying techniques and provided them with a new, nearby market outlet for their milk production.

Another firm focuses on the other end of the food chain - i.e. food preparation and distribution - and has helped an LDC government through a technical assistance contract achieve significant economies and increased effectiveness of the country's school and preschool feeding programs.

An international grain company has entered into a partnership with the government of an LDC whereby the equity ownership of the flour mill would over a specified period of time be transferred to the government with the role of the multinational shifting from owner to paid manager under a management contract from the government. And in the feed sector, companies are agreeing to supply technological and veterinarian knowhow for pig, poultry and cattle breeding.

CHAPTER II

HOW COMPANIES RATE LDCs

Introduction

This chapter analyzes the participating companies' present processing operations in developing countries and the main factors influencing their investment decisions; their evaluation of LDCs in terms of whether the countries presently meet or do not meet their criteria for investing and the major reasons why or why not; and lists the countries in which they are planning investments in the future.

This analysis is based on the questionnaire and interview responses to Question Nos. 3, 10, 11 and 15, which were formulated as follows:

- "3. If any of the products are being produced or processed by your company in any of the countries listed in Annex A or other developing countries (LDCs), on the next page please list the LDC countries, products being processed in that country, type of ownership (joint venture, partnership, limited liability, etc.)

or whether on a contract manufacturing basis or a licensing venture, and reasons for such investments in each LDC."

"10. In your opinion, which developing countries, particularly those with sufficient raw material supplies, do you feel currently meet your company's criteria for expanding or setting up a processing operation for any of the products surveyed?"

"11. Which developing countries do not presently meet your company's criteria, but which you feel have the potential to develop new capacity for processing any of the products surveyed in the long-term (1985) and beyond?"

"15. In addition to present projects, does your company consider processing any products in a developing country or region over the next 10 years, or even the longer term? If yes, in which countries (in order of priority) or regions and describe the envisaged operation (s)."

The questionnaire results are summarized in Part II, according to product category and country.



A. Where Companies Are Currently Processing

Of the 241 subsidiary, joint-venture and licensed manufacturing facilities operated by the 70 companies in LDCs, 56% (134) are located in Latin America, 29% (70) are located in Asia and 15% (37) are located in Africa. Below, the major regions and countries are analysed according to present food-processing operations and the reasons why companies initially set up operations there.

LATIN AMERICA

Of the 134 processing operations in Latin America, 89% (107) are located in nine of the total 21 countries in which the participating companies are now operating. (See Table 1 for listing of the Latin American countries in which companies presently process food and agricultural products and the number of processing operations according to product category and country and the major reasons for investing.) The nine

Favored countries for past investments are summarized below:

| <u>Country</u> | <u>No. of Companies</u> | <u>No. of Operations</u> | <u>No. of Products</u> | <u>% of all L.A. Operations</u> |
|----------------|-------------------------|--------------------------|------------------------|---------------------------------|
| 1. Brazil      | 20                      | 29                       | 10                     | 22%                             |
| 2. Venezuela   | 14                      | 19                       | 8                      | 14%                             |
| 3. Argentina   | 10                      | 11                       | 7                      | 8%                              |
| 4. Mexico      | 10                      | 11                       | 7                      | 8%                              |
| 5. Colombia    | 7                       | 12                       | 6                      | 9%                              |
| 6. Peru        | 7                       | 8                        | 5                      | 6%                              |
| 7. Guatemala   | 7                       | 7                        | 5                      | 5%                              |
| 8. El Salvador | 3                       | 3                        | 4                      | 4%                              |
| 9. Ecuador     | 3                       | 3                        | 4                      | 4%                              |

Reasons for investing

Apart from acquisitions made over 10 years ago which were initiated mainly because the opportunity presented itself and were not based on a rationalized evaluation, the major reasons cited for investing in Latin America are given below, in order of importance:

3 Reasons

- 42% d) long-term local or regional market potential
- 24% i) raw material availability (good quality, low priced, proximity of source, guaranteed supply)
- 21% a) stable political climate
- 3% e) good infrastructure, ancillary services
- 4% f) availability of qualified management or trained personnel

- 2X g) availability of low-cost labor
- 2X h) stable labor/collective bargaining climate
- 0 b) government incentives
- 0 c) investment and financing guarantees

Practically all companies cited the long-term local or regional market potential as one of the three major reasons for investing in their respective Latin American operations. This factor was somewhat more influential in making their investment decision in Latin America than it was for deciding to set up operations in Asia or Africa. In terms of the type of operation, the country's market potential was of more importance for processors of such products as cereal grains, starch, dairy products, sugar and packaged foods that are marketed locally or regionally than for companies with operations producing primarily for export, e.g. fish products.

Companies currently established in Brazil, Venezuela, Argentina, Colombia, Peru, Mexico, Guatemala, El Salvador and Ecuador selected these countries as investment sites mainly to satisfy the potential local or regional market demand.

The availability of raw materials was most often cited as a reason for investing by companies processing poultry, fish, meat and animal feed.

Political stability, though given less weight in some cases, was a main reason for investing by companies processing all products covered in this survey. It was given more often as a major reason for investing in Brazil, Argentina, Mexico, Guatemala and El Salvador; and was cited least as a major reason for investing in Peru, Venezuela, Colombia and Chile.

Other reasons for investing

Good infrastructure, availability of qualified management, low-cost labor and a stable labor/collective bargaining climate were in some instances mentioned but not rated as a major reason for investing. Government incentives or investment and financing guarantees were not given as reasons for investing in Latin America.

| Country      | Cereals   | Meats     | Sugar    | Starch   | Rubber    | Wool     | Fish      | Milk     | Coffee   | Waxes    | Iron      | Lead      | Gold      | Various   | Reserves  | Open Operations |
|--------------|-----------|-----------|----------|----------|-----------|----------|-----------|----------|----------|----------|-----------|-----------|-----------|-----------|-----------|-----------------|
| Brazil       | 6         | 4.6 (1.3) | 3        | 1        | 2         | 1        | 1         | 3        | 4        | 2        | -         | 3         | -         | 6         | d.o. d.   | 20              |
| Venezuela    | 7         | 6.4       | 2        | 1        | 1         | -        | -         | 2        | -        | 1        | -         | 2         | -         | 3         | d.o.f. d. | 16              |
| Argentina    | 6         | 6.1       | 1        | 1        | 2         | -        | 1         | 1        | -        | 1        | -         | 2         | -         | -         | -         | 10              |
| Colombia     | 4         | 4.1       | 1        | 1        | 3         | -        | -         | -        | 1        | -        | -         | 2         | -         | -         | -         | 7               |
| Peru         | 3         | 4.1       | -        | 1        | -         | -        | 1         | 1        | -        | -        | -         | 2         | -         | -         | -         | 7               |
| Ecuador      | 1         | 4.1       | -        | -        | 1         | -        | 1         | 1        | -        | -        | -         | 2         | -         | -         | -         | 7               |
| Paraguay     | -         | -         | -        | -        | 1         | -        | 1         | 1        | -        | -        | -         | 1         | -         | -         | -         | 3               |
| Uruguay      | 2         | 4.1       | -        | 1        | -         | -        | -         | -        | -        | -        | -         | -         | -         | -         | -         | 2               |
| Chile        | 1         | 4.1       | -        | -        | -         | -        | -         | -        | -        | -        | -         | -         | -         | -         | -         | 1               |
| Yugoslavia   | -         | -         | -        | -        | 1         | -        | -         | -        | -        | -        | -         | -         | -         | -         | -         | 1               |
| Yugoslavia   | 6         | 6.4       | 1        | -        | 2         | -        | -         | 2        | -        | -        | -         | 1         | -         | 2         | d.o. d.   | 10              |
| Guatemala    | 2         | 6.4       | -        | -        | -         | -        | 1         | 1        | -        | -        | -         | 1         | -         | 2         | N.S.      | 7               |
| El Salvador  | 1         | 6.1       | -        | -        | 1         | -        | -         | 1        | -        | -        | -         | 1         | -         | 1         | d.o. d.   | 3               |
| Honduras     | 1         | 6.1       | -        | 1        | 1         | -        | -         | -        | -        | -        | -         | 1         | -         | -         | -         | 2               |
| Nicaragua    | 2         | 4.1       | -        | -        | -         | -        | -         | -        | -        | -        | -         | 1         | -         | -         | -         | 3               |
| Panama       | 1         | 4.1       | -        | -        | 1         | -        | -         | -        | -        | -        | -         | -         | -         | -         | -         | 1               |
| Cuba         | -         | -         | -        | -        | -         | -        | -         | -        | -        | -        | -         | -         | -         | -         | -         | 1               |
| Belize       | -         | -         | 1        | -        | -         | -        | -         | -        | -        | -        | -         | -         | -         | -         | -         | 1               |
| Barbados     | -         | -         | -        | -        | 1         | -        | -         | -        | -        | -        | -         | -         | -         | -         | -         | 1               |
| <b>TOTAL</b> | <b>40</b> |           | <b>9</b> | <b>7</b> | <b>17</b> | <b>5</b> | <b>14</b> | <b>5</b> | <b>4</b> | <b>4</b> | <b>10</b> | <b>15</b> | <b>15</b> | <b>15</b> | <b>15</b> | <b>13</b>       |

Code: a. stable political climate; b. government incentives (eg: special tax privileges); c. investment and financing guarantees; d. long-term local or regional market potential (ie, market size, level of economic development, rate of growth); e. good infrastructure, auxiliary services; f. availability of qualified management or technical personnel; g. availability of low cost labor; h. stable labor/collective bargaining climates; i. raw material availability (good quality, low priced, proximity of source, guaranteed supply); j. other.

ASIA

Of the 66 food-processing operations in the Middle East and the Far East, 80% (53) are located in eight of the total 19 countries in which the participating companies are now operating.

These eight countries are summarized below:

| <u>Country</u>     | <u>No. of Companies</u> | <u>No. of Operations</u> | <u>No. of Products</u> | <u>% of Total Asian Operations</u> |
|--------------------|-------------------------|--------------------------|------------------------|------------------------------------|
| 1. Indonesia       | 6                       | 10                       | 7                      | 15%                                |
| 2. Iran            | 6                       | 8                        | 4                      | 12%                                |
| 3. Philippines     | 7                       | 8                        | 4                      | 12%                                |
| 4. Thailand        | 7                       | 7                        | 3                      | 11%                                |
| 5. Korea (Rep. of) | 4                       | 7                        | 4                      | 11%                                |
| 6. Pakistan        | 3                       | 6                        | 4                      | 9%                                 |
| 7. Saudi Arabia    | 4                       | 4                        | 3                      | 6%                                 |
| 8. Malaysia        | 3                       | 3                        | 1                      | 5%                                 |

Reasons for investing

The major reasons cited for investing in Middle East or Far East food-processing operations were:

1 Response

- 38% d) long-term local or regional market potential
- 23% i) raw material availability (good quality, low priced, proximity to source, guaranteed supply, etc.)
- 22% a) stable political climate
- 3% e) good infrastructure

- 5% f) availability of qualified management or trained personnel
- 0 g) availability of low-cost labor
- 2% h) stable labor/collective bargaining climate
- 5% b) government incentives
- 3% c) investment and financing guarantees

The long-term local or regional market potential was one of the most important reasons for investing in Asian food-processing operations, though less important than it was in Latin America. Again, companies processing cereal grains, starch, dairy products, sugar and packaged foods are more concerned about the potential market than the other processors.

Indonesia, Iran, Philippines, Thailand, Korea (Rep.), Pakistan and Malaysia - the seven favored investment sites in Asia - were selected primarily because of their market potential, whereas political stability (5% of company response) was given a higher rating in Saudi Arabia, Indonesia and Iran.

As in Latin America, raw material availability was most often cited by companies processing poultry, meat, fish, animal food and tea, mainly in Pakistan, Sri Lanka, Thailand and Korea - countries with an ample supply of one or several of the needed raw materials.

Contrary to Latin America - where government incentives and investment/financial guarantees played a minor role, if any, in investment decisions - these factors played an influential role in company decisions in Asia. Government incentives, investment guarantees and availability of qualified management each accounted for 5% of total reasons given for Asian investments. An influential factor for choosing Saudi Arabia, Thailand and the Philippines as an investment site was government incentives; for selecting Iran, Saudi Arabia and Thailand, a determinant was the investment and financing guarantees. Stable labor-collective bargaining climate was mentioned as a reason in 2% of the cases.



| Country        | Cocoa | Sugar | Starch | Rubber | Peanut | Wool | Beeswax | Alum | Iron | Coal | Copper | Lead | Zinc | Nickel | Gold | Silver | Platinum | Iron Ore | Other Minerals | Power | Other |
|----------------|-------|-------|--------|--------|--------|------|---------|------|------|------|--------|------|------|--------|------|--------|----------|----------|----------------|-------|-------|
| <b>AFRICA:</b> |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Algeria        |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Angola         |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Cameroon       |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Cote d'Ivoire  |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Guinea         |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Kenya          |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Madagascar     |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Mali           |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Mali (2)       |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Niger          |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Nigeria        |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Senegal        |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Sierra Leone   |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Togo           |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Tunisia        |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Upper Volta    |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Zambia         |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Zimbabwe       |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| <b>ASIA:</b>   |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| India          |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| China          |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Japan          |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| South Korea    |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Malaysia       |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Philippines    |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Indonesia      |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Singapore      |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Thailand       |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Taiwan         |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| South Vietnam  |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Laos           |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Myanmar        |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Burma          |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Maldives       |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Sumatra        |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Sulu           |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Java           |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Sulawesi       |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Sumatra        |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Java           |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Sulawesi       |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Sumatra        |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Java           |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Sulawesi       |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Sumatra        |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Java           |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Sulawesi       |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Sumatra        |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Java           |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Sulawesi       |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Sumatra        |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Java           |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Sulawesi       |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Sumatra        |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |
| Java           |       |       |        |        |        |      |         |      |      |      |        |      |      |        |      |        |          |          |                |       |       |

1. raw material availability (country status, low priced);  
 2. proximity of water, low cost supply;  
 3. other.

4. good infrastructure, auxiliary services;  
 5. availability of qualified management or trained personnel;  
 6. availability of low cost labor;  
 7. stable labor/collective bargaining climate;

AFRICA

The African countries in which companies presently process food and agricultural products, the total number of processing operations according to product and country and the major reasons for investing are summarized in Table 3.

Of the 37 food-processing operations in Africa, 68% (25) are located in six of the 17 countries in which the participating companies have processing operations. These six are summarized below:

| <u>COUNTRY</u> | <u>No. of Companies</u> | <u>No. of Operations</u> | <u>No. of Products</u> | <u>% of Total African Operations</u> |
|----------------|-------------------------|--------------------------|------------------------|--------------------------------------|
| 1) Kenya       | 5                       | 7                        | 4                      | 19%                                  |
| 2) Nigeria     | 3                       | 6                        | 5                      | 16%                                  |
| 3) Morocco     | 4                       | 4                        | 3                      | 11%                                  |
| 4) Ivory Coast | 3                       | 3                        | 3                      | 8%                                   |
| 5) Ghana       | 2                       | 2                        | 1                      | 3%                                   |
| 6) Gabon       | 1                       | 3                        | 3                      | 8%                                   |

Reasons for investing

The major reasons cited for investing in African food-processing operations were:

X  
Response

- |     |   |
|-----|---|
| 30% | d) long-term local or regional market potential |
| 30% | i) raw material availability                    |
| 20% | a) political stability                          |
| 5%  | e) good infrastructure                          |
| 5%  | f) availability of qualified management         |
| 7%  | b) government incentives                        |
| 2%  | c) financial and investment guarantees          |
| 2%  | g) availability of low-cost labor               |
| 0%  | h) stable labor/collective bargaining climate   |

For the participating companies, long-term local or regional market potential and availability of raw materials were given equal importance in Africa - unlike in Asia and Latin America, where the market potential was an overriding influence in most companies' investment decisions. This may be explained by the fact that many of the companies with investments in Africa are involved in first-stage processing - rather than in the manufacture of "sophisticated" foods - and thus see investment opportunities based on already existing agricultural and animal products such as cereal grains, sugar, cocoa and fish for export processing.

The main attraction for the companies in Nigeria, Kenya and Ghana were these countries' market potential. Raw material availability was one of the major reasons for investing in the Ivory Coast, Ghana, Cameroon, Mauritania and Gambia.

Political stability ranked third as a major reason for establishing operations in Africa. It particularly played a decisive role in companies' investment decisions in Morocco and the Ivory Coast.

The incidence of government incentives cited as a major reason for investing was slightly higher in Africa than in Asia (7% of total reasons). Government incentives offered by the Ivory Coast, Ghana and Cameroon were the most attractive. Good infrastructure (5%), availability of qualified management (5%), financial and investment guarantees (2%) and availability of low-cost labor (2%) were also given as reasons for investing in some African countries. Kenya was mentioned as providing good infrastructure; Morocco and Kenya as providing qualified management and trained personnel; Ivory Coast as providing financial and investment guarantees; and Nigeria and Cameroon as providing low-cost labor.

| COUNTRIES WITH CURRENTS AND CURRENT RESOURCES - AFRICA |          |        |          |          |          |           |          |          |          |          |          |          |            | Total    |                    |
|--|----------|--------|----------|----------|----------|-----------|----------|----------|----------|----------|----------|----------|------------|----------|--------------------|
| Country  | Cereals  | Meat   | Sugar    | Wool     | Iron     | Other     | Gold     | Uranium  | Coffee   | Minerals | Timber   | Other    | Reserves   | Debt     | Number of Projects |
| Algeria  | 3        | d.i.d. | -        | 1        | d.i.f.   | 2         | d.       | -        | 1        | -        | -        | -        | -          | -        | 7                  |
| Senegal  | -        | -      | 1        | d.o.     | -        | 2         | d.       | -        | d.o.d.b. | -        | -        | -        | -          | -        | 6                  |
| Mali   | 1        | f.     | -        | -        | -        | -         | -        | 2        | d.i.     | 1        | d.o.     | -        | -          | -        | 4                  |
| Ivory Coast  | 1        | i.o.b. | -        | -        | -        | -         | -        | 1        | f.       | -        | -        | 1        | i.o.b.c.   | -        | 3                  |
| Ghana  | -        | -      | -        | -        | -        | -         | -        | 2        | d.i.e.   | -        | -        | -        | -          | -        | 2                  |
| Sierra Leone   | 1        | -      | 1        | -        | -        | -         | -        | -        | f.       | -        | -        | -        | -          | 1        | 3                  |
| Cameroon   | -        | -      | -        | -        | -        | -         | -        | -        | -        | -        | -        | 1        | i.o.b.c.g. | -        | 1                  |
| Chad   | -        | -      | 1        | -        | -        | -         | -        | -        | -        | -        | -        | -        | -          | -        | 1                  |
| Gambia   | -        | -      | -        | -        | -        | -         | -        | 1        | i.o.b.   | -        | -        | -        | -          | -        | 1                  |
| Mauritania   | -        | -      | 1        | -        | -        | -         | -        | -        | -        | -        | -        | -        | -          | -        | 1                  |
| Senegal  | -        | -      | -        | -        | -        | -         | -        | 1        | f.       | -        | -        | -        | -          | -        | 1                  |
| Sierra Leone   | -        | -      | -        | -        | -        | -         | -        | 1        | -        | -        | -        | -        | -          | -        | 1                  |
| Tanzania   | 1        | -      | -        | -        | -        | -         | -        | -        | -        | -        | -        | -        | 1          | -        | 2                  |
| Upper Volta  | -        | -      | -        | -        | -        | -         | -        | 1        | -        | -        | -        | -        | -          | -        | 1                  |
| Zaire  | 1        | d.     | -        | -        | -        | -         | -        | -        | -        | -        | -        | -        | -          | -        | 1                  |
| Zambia   | -        | -      | -        | -        | -        | 1         | -        | -        | -        | -        | -        | -        | -          | -        | 1                  |
| Congo Rep.   | -        | -      | -        | -        | -        | -         | -        | 1        | -        | -        | -        | -        | -          | -        | 1                  |
| <b>TOTAL AFRICA</b>                                    | <b>8</b> |        | <b>4</b> | <b>1</b> | <b>5</b> | <b>10</b> | <b>2</b> | <b>1</b> | <b>1</b> | <b>2</b> | <b>1</b> | <b>1</b> | <b>1</b>   | <b>1</b> | <b>1</b>           |

Note: a. stable political climate; b. government incentives (esp. special tax privileges); c. investment and financing guarantees; d. long-term local or regional market potential (ie, market size, level of economic development, rate of growth); e. good infrastructure, auxiliary services; f. availability of qualified management or technical personnel; g. availability of low cost labor; h. stable labor/collective bargaining climate; i. raw material availability (good quality, in price, proximity of source, guaranteed supply); j. other.

**B. Countries Presently Meeting Company  
Criteria for Investment**

The 70 companies responding to the questionnaire pinpointed 36 various LDC countries as meeting their investment criteria for 123 possible country operations: 30% (26) in Latin America, 44% (55) in Asia and 26% (32) in Africa. These potential operations are broken down by product category below:

| <u>No of<br/>potential<br/>processing<br/>operations</u> | <u>% of<br/>total</u> | <u>Product category</u>            |
|--|-----------------------|------------------------------------|
| 20   | 16%                   | Cereal grains                      |
| 21   | 17%                   | Sugar & confectionery              |
| 3  | 2%                    | Starch                             |
| 8  | 6%                    | Meat, poultry & animal fats        |
| 12   | 10%                   | Fish                               |
| 16   | 13%                   | Milk                               |
| 9  | 7%                    | Coffee                             |
| 9  | 7%                    | Cocoa                              |
| 1  | 1%                    | Tea                                |
| 14   | 11%                   | Animal feed                        |
| <u>11</u>  | <u>9%</u>             | Various consumer packaged products |
| 184  | 100%                  | Total                              |

An analysis of countries having the potential for further processing is given below by region:

LATIN AMERICA

Table 4 lists the Latin American countries (in order of importance and by product category) which companies cite as currently meeting their investment criteria and the reasons why that country meets their investment criteria for a processing operation. (See also Part II for statistical summary of questionnaire response, according to product category and LDC country.)

Of the total 123 processing possibilities given by companies, 30% (36) are located in Latin America and fall in the following product categories:

|            |                                |
|------------|--------------------------------|
| 17%        | Cereal grains                  |
| 14%        | Sugar & confectionery          |
| 3%         | Starch                         |
| 6%         | Meat, poultry & animal fats    |
| 8%         | Fish                           |
| 8%         | Milk                           |
| 11%        | Coffee                         |
| 11%        | Cocoa                          |
| --         | Tea                            |
| 8%         | Animal feedstuffs              |
| <u>14%</u> | <u>Consumer packaged goods</u> |
| 100%       | Total product categories       |

Of the total 36 potential processing operations cited in eight Latin American countries, 78% (28) are located in the following three countries:

|    | <u>Country</u> | <u>No. of companies</u> | <u>No. of pot. operations</u> | <u>% of total pot.oper.</u> | <u>Product categories</u>  |
|----|----------------|-------------------------|-------------------------------|-----------------------------|--|
| 1) | Brasil         | 12                      | 15                            | 42%                         | 9-cereal grains, sugar, starch, meat, fish, coffee, feeds, various |
| 2) | Venezuela      | 6                       | 8                             | 22%                         | 6-cereals, sugar, meat, dairy, cocoa, finished consumer products   |
| 3) | Argentina      | 5                       | 5                             | 14%                         | 5-cereals, sugar, fish, dairy, finished consumer products          |

### Brasil

By far the most interesting country for food processors is Brasil: 42% (15) of all the potential processing operations in Latin America cited by companies are in Brasil. Twelve participating companies rate Brasil as having potential to process their products.

Brasil's main attraction is its political stability, followed by market potential. The third most often cited reason is availability of raw material. Investment and financing guarantees, availability of qualified management or trained personnel, and stable labor/collective bargaining climate are also given as major reasons why Brasil meets their investment criteria.



Venezuela

Next to Brazil, Venezuela ranks second as having potential for processing in Latin America, with 22% of total potential operations in Latin America. According to six food processors, Venezuela meets their investment criteria for eight operations, which include processing of cereals, sugar or confectionery, meat, milk, cocoa and finished consumer food products.

The main drawing points for Venezuela are its political stability followed by market potential. Government incentives and investment/financing guarantees are also given as having a major influence on some companies' investment decisions.

Argentina

Argentina is the third most-favored investment site in Latin America. Its potential lies in the processing of cereals, confectionery, meat, dairy and consumer packaged goods.

In weighting the country's advantages, political stability (surprisingly) was most often given as the major reason, followed by market potential and availability of raw material.

Other Latin American countries with potential

Other Latin American countries which meet companies' investment criteria include Mexico, Colombia, Ecuador, Uruguay, and Chile (see also Table 4 for reasons why). Overall, with the exception of Mexico and Colombia, the major reason why they meet companies' investment criteria is that they offer availability of raw material in the cocoa, fish and sugar categories. Mexico and Colombia were cited because of political stability and market potential.

**COUNTRIES WITH CURRENTLY MET CURRENT CRITERIA FOR INVESTMENT - LATIN AMERICA**

| Country      | INVESTMENT CRITERIA |          |          |          |          |          |          |          |          |          |          |         |             |             | Total       |             |
|--------------|---------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|---------|-------------|-------------|-------------|-------------|
|              | Cereals             | Sugar    | Starch   | Meat     | Fish     | Milk     | Coffee   | Tea      | Iron     | Food     | Various  | Reasons | Co's Rating | Co's Rating | Co's Rating | Co's Rating |
| Brazil       | 2                   | 2        | 1        | 1        | 1        | 1        | 3        | 1        | 1        | 2        | 1        | a.d.c.  | 12          | 15          | 9           |             |
| Venezuela    | 2                   | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | a.d.c.  | 6           | 0           | 6           |             |
| Argentina    | 1                   | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | a.d.c.  | 5           | 5           | 5           |             |
| Colombia     | -                   | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -       | 2           | 2           | 2           |             |
| Mexico       | 1                   | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | a.d.c.  | 2           | 2           | 2           |             |
| Ecuador      | -                   | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -       | 1           | 1           | 1           |             |
| Guatemala    | -                   | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | a.d.c.  | 1           | 1           | 1           |             |
| Chile        | -                   | -        | -        | -        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | a.d.c.  | 1           | 1           | 1           |             |
| Various      | -                   | -        | -        | -        | -        | 1        | 1        | 1        | 1        | 1        | 1        | a.d.c.  | 1           | 1           | 1           |             |
| <b>Total</b> | <b>6</b>            | <b>5</b> | <b>1</b> | <b>2</b> | <b>3</b> | <b>3</b> | <b>4</b> | <b>4</b> | <b>4</b> | <b>3</b> | <b>5</b> |         |             |             | <b>36</b>   |             |

a. stable political climate;  
 b. government incentives (eg: special tax privileges);  
 c. investment and financing guarantees;  
 d. long-term local or regional market potential (ie, market size, level of economic development, rate of growth);  
 e. good infrastructure, auxiliary services;  
 f. availability of qualified management or technical personnel;  
 g. availability of low cost labor;  
 h. stable labor/collective bargaining climate;  
 i. raw material availability (good quality, low prices, proximity of source, guaranteed supply);  
 j. other.

ASIA

Table 5\* lists the Asian countries (in order of importance and by product category) which companies cited as currently meeting their investment criteria (see also summary of questionnaire response in Part II).

Of the total number of possible processing operations cited by companies, 44% (55) are located in Asia and fall in the following product categories:

|     |                             |     |                                |
|-----|-----------------------------|-----|--------------------------------|
| 20% | Cereal grains               | 2%  | Coffee                         |
| 18% | Sugar or confectionery      | 4%  | Cocoa                          |
| 4%  | Starch                      | 2%  | Tea                            |
| 5%  | Meat, poultry & animal fats | 11% | Animal feeds                   |
| 7%  | Fish                        | 9%  | Various consumer food products |
| 16% | Dairy                       |     |                                |

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\* Erratum: In Table 5, total tea operations should read 2, total meat operations 2 and total operations in Malaysia 3.

Of the total 55 possibilities in 16 Middle East and Far East countries, 64% (35) are located in the following five countries:

| <u>Country</u>  | <u>No. of companies</u> | <u>No. of pot. operations</u> | <u>% of total pot.oper.</u> | <u>Product categories</u>                         |
|-----------------|-------------------------|-------------------------------|-----------------------------|---|
| 1) Iran         | 11                      | 15                            | 27%                         | 7-all except starch, fish, coffee                 |
| 2) Indonesia    | 7                       | 13                            | 24%                         | 10-all categories except fish                     |
| 3) Philippines  | 4                       | 4                             | 7%                          | 4-starch, dairy, feeds, various consumer products |
| 4) Turkey       | 3                       | 3                             | 5%                          | 3-sugar, dairy, feeds                             |
| 5) Saudi Arabia | 3                       | 3                             | 5%                          | 2-cereal grains, dairy                            |

### Iran

In the Far East and the Middle East region, Iran is the most-favored country for processing by the food companies: 11 companies see potential for 13 operations producing cereal meat, dairy, cocoa or tea products or feedstuff. This represents 27% of the total potential food-processing operations cited in Asia.

The first reason for most of the companies' choice is Iran's political stability, the second its market potential. Investment/financing guarantees are cited as a major reason by only one processor.

Indonesia

In Asia, Indonesia is the companies' second preferred country for food-processing operations (24%). Seven different processing companies cited Indonesia as a potential location for 13 operations in all food categories except fish.

The main reason why Indonesia meets their investment criteria is its market potential, followed by availability of raw material and political stability.

Philippines

The third most cited Asian country meeting companies' investment criteria is the Philippines. Four companies - producing starch, dairy and/or finished consumer products - favor the country as a potential processor of their products.

In order of importance, long-term regional or local market potential, political stability, availability of raw material (maize) and financial/investment guarantees are given as reasons why the Philippines meets their investment criteria.

Turkey

Three companies see Turkey as a potential investment site for processing of sugar, dairy products and animal feed. Political stability is the most influential factor, followed by local or regional market potential, investment/financial guarantees, and availability of raw materials (the latter for animal feed).

Saudi Arabia

Three companies also see Saudi Arabia as a potential investment site for processing cereal grains and producing dairy products. Political stability, investment guarantees and good infrastructure were cited as first-priority reasons, market potential was their second major reason.

Other Asian countries

Malaysia, Thailand, India, Pakistan, Iraq, Sri Lanka, Korea (Rep.), Bahrain, Kuwait, Qatar and Vietnam are other countries in the Middle East and the Far East that were included as meeting company criteria (see also Table 5). In almost all cases, the processing companies are mainly attracted by these countries' raw material supply (fish in India, Bahrain, Kuwait and Qatar).

COUNTRIES THAT CURRENTLY NEED ASSISTANCE FOR INVESTMENT - ASIA

2000-5

|                       | Cereals   | Rubber    | Sugar    | Minerals | Manufacturing | Textiles | Iron and Steel | Transportation | Power    | Water    | Health   | Education | Other    | Total     |
|-----------------------|-----------|-----------|----------|----------|---------------|----------|----------------|----------------|----------|----------|----------|-----------|----------|-----------|
| Indonesia             | 2         | 1         | 2        | 1        | 1             | 1        | 1              | 1              | 1        | 1        | 1        | 1         | 1        | 13        |
| Philippines           | -         | -         | -        | 1        | 1             | 1        | 1              | 1              | 1        | 1        | 1        | 1         | 1        | 10        |
| Thailand              | 1         | 1         | 1        | 1        | 1             | 1        | 1              | 1              | 1        | 1        | 1        | 1         | 1        | 13        |
| Malaysia              | 1         | 1         | 1        | 1        | 1             | 1        | 1              | 1              | 1        | 1        | 1        | 1         | 1        | 13        |
| India                 | -         | -         | -        | -        | -             | -        | -              | -              | -        | -        | -        | -         | -        | 0         |
| Vietnam               | 1         | 1         | 1        | 1        | 1             | 1        | 1              | 1              | 1        | 1        | 1        | 1         | 1        | 13        |
| Pakistan              | -         | -         | -        | -        | -             | -        | -              | -              | -        | -        | -        | -         | -        | 0         |
| Sri Lanka             | -         | -         | -        | -        | -             | -        | -              | -              | -        | -        | -        | -         | -        | 0         |
| Ceylon                | -         | -         | -        | -        | -             | -        | -              | -              | -        | -        | -        | -         | -        | 0         |
| <b>INDONESIA EAST</b> |           |           |          |          |               |          |                |                |          |          |          |           |          |           |
| Java                  | 4         | 1         | 2        | 1        | 1             | 1        | 1              | 1              | 1        | 1        | 1        | 1         | 1        | 15        |
| Sumatra               | 2         | 1         | 1        | 1        | 1             | 1        | 1              | 1              | 1        | 1        | 1        | 1         | 1        | 13        |
| Borneo                | -         | -         | -        | -        | -             | -        | -              | -              | -        | -        | -        | -         | -        | 0         |
| Maluku                | -         | -         | -        | -        | -             | -        | -              | -              | -        | -        | -        | -         | -        | 0         |
| Sulawesi              | -         | -         | -        | -        | -             | -        | -              | -              | -        | -        | -        | -         | -        | 0         |
| Irian Jaya            | -         | -         | -        | -        | -             | -        | -              | -              | -        | -        | -        | -         | -        | 0         |
| <b>Total</b>          | <b>11</b> | <b>10</b> | <b>2</b> | <b>3</b> | <b>4</b>      | <b>9</b> | <b>1</b>       | <b>1</b>       | <b>2</b> | <b>6</b> | <b>5</b> | <b>5</b>  | <b>5</b> | <b>55</b> |

1. stable political climate;  
 2. government incentives (eg: special tax privileges);  
 3. investment and financing guarantees;  
 4. sufficient local or regional market potential (ie. market size, level of economic development, rate of growth);  
 5. good infrastructure, ancillary services;  
 6. availability of qualified management or trained personnel;  
 7. availability of low cost labor;  
 8. stable labor/collective bargaining climate;  
 9. raw material availability and quality; and  
 10. proximity of major ports and airports;  
 11. other.



**AFRICA**

Table 6\* lists the African countries (in order of importance and by product category) which companies cite as currently meeting their investment criteria (see also summary of questionnaire response in Part II).

Of the total 123 country processing possibilities cited by companies, 26% (32) of them are located in Africa and fall in the following product categories:

|       |                                |
|-------|--------------------------------|
| 9%    | Cereal grains                  |
| 16%   | Sugar and confectionery        |
| 0%    | Starch                         |
| 9%    | Meat, poultry & animal fats    |
| 16%   | Fish                           |
| 13%   | Dairy                          |
| 13%   | Coffee                         |
| 9%    | Cocoa                          |
| 3%    | Tea                            |
| 16%   | Animal feeds                   |
| 3%    | Various consumer food products |
| <hr/> |                                |
| 100%  | Total product categories       |

Of the total 32 potential processing possibilities cited in 11 African countries, 72% (26) are located in the following five countries:

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\* Erratum: In Table 6, for Egypt, total number of operations should be 12; for Ivory Coast total operations should be 5, total products should be 4 which changes total African operations to 33.

| <u>Country</u> | <u>No. of companies</u> | <u>No. of pot. operations</u> | <u>% of total pot.oper.</u> | <u>Product categories</u>                         |
|----------------|-------------------------|-------------------------------|-----------------------------|---|
| 1) Egypt       | 7                       | 11                            | 34%                         | 7-all categories except tea, coffee, fish, starch |
| 2) Nigeria     | 4                       | 5                             | 16%                         | 4-meat, dairy, cocoa, animal feeds                |
| 3) Ivory Coast | 4                       | 4                             | 13%                         | 5-confectionery, fish, coffee, cocoa              |
| 4) Kenya       | 4                       | 4                             | 13%                         | 3-sugar, coffee, feeds                            |
| 5) Sudan       | 2                       | 2                             | 6%                          | 2-fish, feeds                                     |

### Egypt

By far the most frequently cited African country meeting companies' investment criteria is Egypt. Seven companies - representing 11 potential processing operations in seven product categories including cereal grains, sugar and confectionery, meat, dairy, cocoa and chocolates, animal feedstuffs and consumer products (baby foods) - rate Egypt as a potential food processor.

The country's market potential is the most influential factor for the companies. Only a few mentioned political stability as the major determinant in their evaluation of Egypt.

Nigeria

In Africa, Nigeria comes second as having the most potential for processing, mainly of meat, cocoa, dairy and animal feed products.

The most frequent reason given why Nigeria meets investment criteria is its market potential. Political stability, availability of raw materials and government incentives are also given as reasons.

Ivory Coast

Four companies say that the Ivory Coast meets their investment criteria for processing confectionery, fish, coffee and/or cocoa products. Local/regional market potential, political stability and availability of raw materials are given as first reasons. Government incentives also were cited as a major attraction.

Kenya

Four companies see Kenya as having the potential for processing sugar, coffee and animal feeds, primarily because of available raw material (sugar and coffee) and market potential.

Sudan

Sudan is two companies' choice for fish and animal feed processing. Their major reasons are raw material supply, government incentives and political stability.

Other African Countries

The other African countries meeting companies' investment criteria are Mauritania, Ghana, Senegal, Malawi, Tanzania, and Mozambique. (See details in Table 6 on next page.)

COUNTRIES THAT CURRENTLY MEET CRITERIA FOR INVESTMENT

| Country                             | Cereals | Beans | Sugar | Starch | Meat | Fish | Milk | Coffee | Cocoa | Tea | Food | Recess | Various | Permits | Total |
|-------------------------------------|---------|-------|-------|--------|------|------|------|--------|-------|-----|------|--------|---------|---------|-------|
| Egypt                               | 3       | 2     | 2     | -      | 1    | -    | 3    | -      | 1     | -   | 1    | 1      | 1       | 1       | 7     |
| Ivory Coast                         | -       | 1     | 1     | -      | -    | 1    | 1    | 2      | 1     | -   | -    | -      | -       | -       | 4     |
| Ghana                               | -       | -     | -     | -      | 2    | -    | 1    | -      | 1     | -   | 1    | 1      | -       | -       | 4     |
| Kenya                               | -       | -     | 2     | -      | -    | -    | -    | 1      | -     | -   | 1    | -      | -       | -       | 4     |
| Sudan                               | -       | -     | -     | -      | -    | 1    | 1    | -      | -     | -   | 1    | 1      | -       | -       | 2     |
| Mauritania                          | -       | -     | -     | -      | -    | 1    | 1    | -      | -     | -   | -    | -      | -       | -       | 1     |
| Senegal                             | -       | -     | -     | -      | -    | 1    | 1    | -      | -     | -   | -    | -      | -       | -       | 1     |
| Tanzania                            | -       | -     | -     | -      | -    | -    | -    | -      | -     | 1   | -    | -      | -       | -       | 1     |
| Zambia                              | -       | -     | -     | -      | -    | 1    | 1    | -      | -     | -   | -    | -      | -       | -       | 1     |
| Total                               | 3       | 5     | 5     | 3      | 3    | 5    | 4    | 4      | 3     | 1   | 5    | 1      | 1       | 1       | 32    |
| Total - Latin America, Africa, Asia | 20      | 20    | 3     | 8      | 12   | 16   | 9    | 9      | 9     | 1   | 14   | 11     | 11      | 11      | 123   |

- a. stable political climate;
- b. government incentives (eg: special tax privileges);
- c. investment and financing guarantees;
- d. incentives: local or regional market potential (ie, market size, level of economic development, rate of growth);
- e. good infrastructure, auxiliary services;
- f. availability of qualified management or trained personnel;
- g. availability of low cost labor;
- h. stable labor/collective bargaining climate;
- i. raw material availability (and quality, low prices, proximity of source, guaranteed supplies);
- j. other.

**C. Countries Not Currently Meeting Company  
Investment Criteria in the Short Term**

Of the 32 countries that do not presently meet the participating companies' investment criteria but that have processing potential in the long term (1985 and beyond), 59% are located in Africa, 29% in Asia and 19% in Latin America. In these countries, the companies see a long term potential for 69 production projects. (See Tables 7, 8 and 9 for a summary of the findings by country and product category.) The reasons companies cite for their negative evaluation of these countries at the present time are summarized as follows:

| <u>Major Reason</u>                                | <u>% Incidence</u> |
|--|--------------------|
| a. unstable political climate                      | 39%                |
| j. poor economic environment                       | 29%                |
| e. no investment and financing guarantees          | 14%                |
| l. safety of personnel not guaranteed              | 13%                |
| e. underdeveloped infrastructure                   | 6%                 |
| f. lack of qualified management                    | 5%                 |
| m. lack of hard currency                           | 1%                 |
| i. lack of raw materials                           | 1%                 |
| d. no long term local or regional market potential | 1%                 |

LATIN AMERICA

The Latin American countries most often cited as not currently meeting companies' investment criteria are Argentina, Colombia, Honduras, Peru, Chile, Ecuador and Uruguay.

According to three companies, Argentina's disadvantages at the current time are its unstable climate, "no guarantees for safety of personnel" and poor economic environment. However, should the country show improvements along these lines in the future, they would consider setting up operations that would involve either cereal grain milling or the production of finished consumer foods or meat products.

Two companies rate Colombia as having the potential to process coffee and packaged foods in the long term; in addition to political instability, its drawbacks for the companies now include an underdeveloped infrastructure and lack of qualified personnel.

The negative point for Peru, Chile and Ecuador is their political instability; for Uruguay and Ecuador, lack of investment and financing guarantees.

CONTRACTS NOT COVERED UNDER OTHER 2 2020-21 - 2020-21

Total Number of Projects

| Country   | Cereals | Sugarcane | Wheat | Maize | Barley | Other Grains | Other | Other | Other | Other | Other | Other | Other    | Other | Other | Other | Other | Other | Other | Other |   |    |
|-----------|---------|-----------|-------|-------|--------|--------------|-------|-------|-------|-------|-------|-------|----------|-------|-------|-------|-------|-------|-------|-------|---|----|
| Argentina | 1       | c.i.      | -     | -     | -      | -            | 1     | c.j.  | -     | -     | -     | -     | -        | -     | -     | -     | -     | -     | -     | -     | - | 3  |
| Colombia  | -       | -         | -     | -     | -      | -            | -     | -     | -     | -     | 2     | c.j.  | c.d.e.f. | -     | -     | -     | -     | -     | -     | -     | - | 3  |
| Ecuador   | 1       | c.i.      | -     | -     | -      | -            | -     | -     | -     | -     | -     | -     | -        | -     | -     | -     | -     | -     | -     | -     | - | 2  |
| Peru      | -       | -         | -     | -     | -      | 1            | c.    | -     | -     | -     | -     | -     | -        | -     | -     | -     | -     | -     | -     | -     | - | 2  |
| Chile     | -       | -         | -     | -     | -      | 1            | c.    | -     | -     | -     | -     | -     | -        | -     | -     | -     | -     | -     | -     | -     | - | 1  |
| Guatemala | -       | -         | -     | -     | -      | -            | -     | -     | -     | -     | -     | -     | -        | -     | -     | -     | -     | -     | -     | -     | 1 | 1  |
| Honduras  | 1       | c.i.      | -     | -     | -      | -            | -     | -     | -     | -     | -     | -     | -        | -     | -     | -     | -     | -     | -     | -     | - | 1  |
| Paraguay  | -       | -         | -     | -     | -      | -            | -     | -     | -     | -     | -     | -     | -        | -     | -     | -     | -     | -     | -     | -     | - | 1  |
| Uruguay   | 3       | -         | -     | -     | 1      | -            | 2     | -     | -     | -     | 2     | -     | -        | -     | -     | -     | -     | -     | -     | -     | - | 13 |

Code: a. unstable political climates;  
 b. government policy; currency repatriation not guaranteed;  
 c. no investment & financing guarantee;  
 d. no long-term local or regional market potential;  
 e. under-developed infrastructure;  
 f. lack of qualified management or trained personnel;  
 g. tight labor supply;  
 h. labor collective bargaining climates;  
 i. unavailable raw materials;  
 j. poor economic environment;  
 k. government indecisiveness;  
 l. safety of personnel not guaranteed;  
 m. lack of hard currency.



AFRICA

The majority of countries with processing possibilities but which do not meet the companies' investment criteria are located in Africa. The companies see a long-term potential for 36 processing operations in 13 African countries. For these companies, Nigeria stands out as the African country with the most potential, followed by Egypt, the Ivory Coast, Angola, Sudan and Tunisia.

For Nigeria, the processing of cereal grains appears to have the best long-term possibilities. Next in line is the production of dairy, cocoa and finished consumer products. The major reasons given for Nigeria's unattractiveness to investors at the present time are its unstable political climate, underdeveloped infrastructure, lack of qualified management and poor economic environment, in that order.

Egypt ranks second as the country with long-term potential, but it does not currently meet the companies' conditions for investment due to its limitations on repatriation of capital, lack of hard currency and poorly developed infrastructure. The five companies

that cited Egypt as a future investment possibility, pending changes in the economic and political situation, process cereal grains, starch, dairy and various finished consumer products.

The Ivory Coast's potential is seen in the processing of cereal grains, dairy products and finished consumer products. The reasons for not considering investment in the short term include: unstable political climate, poor economic environment and under-developed infrastructure.

Angola was cited by four companies processing cereal grains, fish and dairy products as having future potential but not currently meeting their investment criteria for the following reasons: unstable political climate, no investment and financing guarantees, currency and profit repatriation restrictions and an unsafe environment for company personnel.

The remaining African countries that do not currently meet companies' investment criteria but have future potential for food processing include Sudan, Tunisia, Senegal, Liberia, Kenya, Uganda, Somalia, Ethiopia and Ghana (see also Table 9).

| CC countries | COUNTRIES NOT SERVING CURRENT CURRENCY - AFRICA |         |       |        |         |        |         |        |         |        |         |        |        |       |     |      | Total<br>Number of Projects |          |         |          |
|--------------|---|---------|-------|--------|---------|--------|---------|--------|---------|--------|---------|--------|--------|-------|-----|------|-----------------------------|----------|---------|----------|
|              | Cereals   | Bananas | Sugar | Starch | Bananas | Starch | Bananas | Starch | Bananas | Starch | Bananas | Starch | Coffee | Cocoa | Tea | Food |                             | Business | Warfare | Business |
| Nigeria      | 5   | a.j.    | -     | -      | -       | -      | -       | -      | -       | -      | -       | -      | -      | -     | -   | -    | -                           | 2        | a.j.    | 16       |
| Senegal      | 2   | b.c.m.  | -     | 1      | j       | -      | -       | -      | -       | -      | -       | -      | -      | -     | -   | -    | -                           | 1        | a.j.    | 5        |
| Upper Volta  | 1   | a.j.    | -     | -      | -       | -      | -       | -      | -       | -      | -       | -      | -      | -     | -   | -    | -                           | 2        | a.j.    | 4        |
| Sierra Leone | 1   | c.l.    | -     | -      | -       | -      | -       | -      | 1       | o      | 2       | a.b.f. | a.g.f. | -     | -   | -    | -                           | -        | -       | 4        |
| Ghana        | 1   | c.l.    | 1     | a.f.   | -       | -      | -       | -      | -       | -      | -       | -      | -      | -     | -   | -    | -                           | 1        | a.j.    | 3        |
| Togo         | 1   | -       | -     | -      | -       | -      | -       | -      | -       | -      | 1       | -      | -      | -     | -   | -    | -                           | -        | -       | 2        |
| Senegal      | -   | -       | -     | -      | -       | -      | -       | -      | -       | -      | 1       | o      | -      | -     | -   | -    | -                           | 1        | a.j.    | 2        |
| Sierra Leone | -   | -       | -     | -      | -       | -      | -       | -      | -       | -      | -       | -      | -      | -     | -   | 1    | -                           | -        | -       | 1        |
| Sierra Leone | 1   | -       | -     | -      | -       | -      | -       | -      | -       | -      | -       | -      | -      | -     | -   | -    | -                           | -        | -       | 1        |
| Ghana        | 1   | c.l.    | -     | -      | -       | -      | -       | -      | -       | -      | -       | -      | -      | -     | -   | -    | -                           | -        | -       | 1        |
| Sierra Leone | 1   | c.l.    | -     | -      | -       | -      | -       | -      | -       | -      | -       | -      | -      | -     | -   | -    | -                           | -        | -       | 1        |
| Sierra Leone | 1   | c.l.    | -     | -      | -       | -      | -       | -      | -       | -      | -       | -      | -      | -     | -   | -    | -                           | -        | -       | 1        |
| TOTAL        | 16  |         | 1     | 1      | 1       | -      | -       | 1      | 1       | o      | 2       | -      | -      | 1     | -   | -    | -                           | 7        | -       | 36       |

Notes: a. unstable political climates; e. under-developed infrastructures; i. unavailable raw materials;  
 b. government policy; currency repatriation not permitted; f. lack of qualified management or trained personnel; j. poor economic environment;  
 c. no investment & financing guarantees; g. tight labor supply; k. government inefficiencies;  
 d. no long-term local or regional market potential; h. labor collective bargaining climates; l. safety of personnel not guaranteed;  
 m. lack of hard currency.

ASIA

Asian countries with only long-term potential for food processing include Iran, Korea, Turkey, Indonesia, Malaysia, Pakistan, Sri Lanka, India, Thailand, Iraq, the Philippines and Lebanon. These countries were most often cited by companies processing cereal grains and finished consumer products, but included processors of fish and dairy products as well. The current drawbacks for these countries are unstable political climate, government indecisiveness (Iran) and poor economic climate.

COUNTRIES NOT SERVING CURRENT CURRENCY - ASIA

TABLE 2

| LC Countries       | Cocoa | Rubber | Sugar | Tea | Coffee | Wool | Alum | Iron | Steel | Lead | Zinc | Copper | Other | Gas | Oil | Electricity | Water | Transportation | Other | Number of Projects |
|--------------------|-------|--------|-------|-----|--------|------|------|------|-------|------|------|--------|-------|-----|-----|-------------|-------|----------------|-------|--------------------|
| ASEAN              |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| Iran               |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| Armenia            |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| Azerbaijan         |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| Bahrain            |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| Brunei Darussalam  |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| Cameroon           |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| Cambodia           |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| China              |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| Comoros            |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| Cote d'Ivoire      |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| Dominican Republic |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| Egypt              |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| Equatorial Guinea  |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| Ethiopia           |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| Guinea             |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| Guinea-Bissau      |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| Indonesia          |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| Kenya              |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| Laos               |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| Madagascar         |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| Mali               |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| Mauritania         |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| Mexico             |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| Moldova            |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| Mozambique         |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| Niger              |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| Nigeria            |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| Romania            |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| Russia             |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| Tanzania           |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| Togo               |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| Tunisia            |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| Uganda             |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| Ukraine            |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| Yemen              |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| Zambia             |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| Zimbabwe           |       |        |       |     |        |      |      |      |       |      |      |        |       |     |     |             |       |                |       |                    |
| TOTAL              | 26    | 1      | 1     | 1   | 1      | 1    | 1    | 1    | 1     | 1    | 1    | 1      | 1     | 1   | 1   | 1           | 1     | 1              | 1     | 69                 |

ASIA, LATIN AMERICA, AFRICA AND EUROPE COUNTRIES NOT SERVING CURRENT CURRENCY

- a. unstable political climate;
- b. government policy; currency repatriation not permitted;
- c. no investment & financing guarantees;
- d. no long-term local or regional market potential;
- e. under-developed infrastructure;
- f. lack of qualified management or technical personnel;
- g. tight labor supply;
- h. labor collective bargaining climate;
- i. unreliable raw materials;
- j. poor economic environment;
- k. government indecisiveness;
- l. safety of personnel not guaranteed;
- m. lack of local currency.

D. Countries In Which Companies Plan  
Future Investment

Companies listed a total of 91 planned food-processing investments in 32 countries: 29% of which in Latin America, 34% in Asia and 37% in Africa. (See details in Tables 10, 11 and 12 as well as in Part II, which summarizes processing projects by product category and country.) Sugar and grain processing account for the greater share of planned projects. The breakdown is as follows:

|     |                                    |
|-----|------------------------------------|
| 26% | sugar and confectionery            |
| 24% | grain cereals                      |
| 14% | various finished consumer products |
| 11% | dairy                              |
| 8%  | fish                               |
| 6%  | meat, poultry, animal fats         |
| 5%  | animal feeds                       |
| 3%  | starch                             |
| 2%  | cocoa                              |
| 1%  | coffee                             |

Many companies responded yes to the question asking whether they were considering the processing of the products covered in the survey in a developing country or region over the next 10 years, or even in the longer term, and referred to the countries they cited as currently meeting their investment criteria. This section is thus a more definitive indication of where companies see investment opportunities and in which countries they actually plan to invest in the future.

LATIN AMERICA

Countries in Latin America in which companies plan to invest in the future are:

Planned Projects

|           |   |
|-----------|---|
| Brazil    | 9 |
| Venezuela | 5 |
| Mexico    | 2 |
| Argentina | 2 |
| Chile     | 2 |
| Uruguay   | 1 |

Brazil is the companies' overwhelming choice as an investment site, not only in Latin America but, for that matter, in all the developing regions. The main reasons given are the country's vast market potential and political stability. The areas of interest for these companies include processing of maize, sugar, meats, animal fats and fish, and producing milk, butter, cheese and a variety of packaged consumer products.

After Brazil, Venezuela comes second as the most-favored country for food-processing projects. These include operations for the production of products ranging from snack foods, pasta and cereals to canned meat.

Two projects are planned in both Mexico and Argentina, one in Uruguay. In addition, companies are investigating the possibilities of investing in Latin America, but as yet are undecided as to what country to go into.



| Country       | COUNTRIES IN WHICH COMPANIES PLAN TO INCREASE IN POWER - LABOR MARKET |        |       |        |       |       |       |       |       |       | TOTALS |       |       |       |       |       | Total<br>Number of Firms |       |
|---------------|---|--------|-------|--------|-------|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|-------|--------------------------|-------|
|               | Cocoa   | Rubber | Sugar | Starch | Wheat | Wheat | Wheat | Wheat | Wheat | Wheat | Wheat  | Wheat | Wheat | Wheat | Wheat | Wheat |                          | Wheat |
| Latin America | 1   | -      | -     | 1      | -     | 1     | -     | -     | -     | -     | -      | -     | -     | -     | -     | -     | -                        | 5     |
| Brazil        | 1   | -      | 1     | 1      | -     | 1     | -     | 2     | -     | -     | -      | -     | -     | -     | -     | -     | -                        | 5     |
| Venezuela     | 2   | -      | -     | 1      | -     | 1     | -     | -     | -     | -     | -      | -     | -     | -     | -     | -     | -                        | 6     |
| Mexico        | 1   | -      | -     | -      | -     | -     | -     | -     | -     | -     | -      | -     | -     | -     | -     | -     | -                        | 2     |
| Argentina     | -   | -      | -     | -      | -     | -     | -     | -     | -     | -     | -      | -     | -     | -     | -     | -     | -                        | 2     |
| Chile         | -   | -      | -     | -      | -     | -     | -     | -     | -     | -     | -      | -     | -     | -     | -     | -     | -                        | 1     |
| Uruguay       | -   | -      | -     | 1      | -     | -     | -     | -     | -     | -     | -      | -     | -     | -     | -     | -     | -                        | 1     |
| Total         | 5   | 1      | 1     | 4      | 3     | 3     | 3     | 2     | -     | -     | -      | -     | -     | -     | -     | -     | -                        | 26    |

a. stable political climates;  
 b. government incentives (e.g. special tax privileges);  
 c. investment and financing guarantees;  
 d. long-term local or regional market potential (i.e. market size, level of economic development, rate of growth);  
 e. good infrastructure, auxiliary services;  
 f. availability of qualified management or trained personnel;  
 g. availability of low cost labor;  
 h. stable labor/collective bargaining climates;  
 i. raw material availability (e.g. proximity to source);  
 j. proximity of source, guaranteed supply;  
 k. other.

ASIA

A total of 31 projects are destined for the Middle East or the Far East. The preferred countries for future investments or technical assistance projects are:

Planned Projects

Far East

|             |   |
|-------------|---|
| Indonesia   | 5 |
| India       | 3 |
| Malaysia    | 2 |
| Philippines | 2 |

Middle East

|        |   |
|--------|---|
| Iran   | 6 |
| Turkey | 3 |

In the Far East, Indonesia is being considered for five projects: production of starch from maize, baby cereals, frozen sea-food, compound feed and various finished consumer products. Three projects are planned for India - technical assistance for sugar production and two fish processing operations; two for Malaysia - baby food and dairy products; and two for the Philippines - sugar and starch products.

In the Middle East, Iran offers good prospects for five food-processing projects - cereals, baby food, confectionery products,

snack foods and dairy products - as well as technical assistance for sugar milling and refining. In Turkey, companies are considering three operations: for cereal grain products, sugar refining and dairy products. And technical assistance for sugar refining operations is planned for Afghanistan, Pakistan, Jordan and Iraq.

ATTACHMENT 10 - COMMUNITY PLAN TO FINANCIAL INDICATORS - 2000

| Indicator       | Category    | Baseline | Target | Actual | Notes | Score | Weight | Sub-Indicator | Score | Weight | Sub-Indicator | Score | Weight | Sub-Indicator | Score | Weight | Sub-Indicator | Score | Weight | Sub-Indicator | Score | Weight |  |  |
|-----------------|-------------|----------|--------|--------|-------|-------|--------|---------------|-------|--------|---------------|-------|--------|---------------|-------|--------|---------------|-------|--------|---------------|-------|--------|--|--|
| Economic Growth | GDP         | 1        | 1      | 1      |       | 1     | 1      |               |       |        |               |       |        |               |       |        |               |       |        |               |       |        |  |  |
|                 |             | 2        | 2      | 2      |       | 2     | 2      |               |       |        |               |       |        |               |       |        |               |       |        |               |       |        |  |  |
|                 |             | 3        | 3      | 3      |       | 3     | 3      |               |       |        |               |       |        |               |       |        |               |       |        |               |       |        |  |  |
|                 |             | 4        | 4      | 4      |       | 4     | 4      |               |       |        |               |       |        |               |       |        |               |       |        |               |       |        |  |  |
| Infrastructure  | Roads       | 1        | 1      | 1      |       | 1     | 1      |               |       |        |               |       |        |               |       |        |               |       |        |               |       |        |  |  |
|                 |             | 2        | 2      | 2      |       | 2     | 2      |               |       |        |               |       |        |               |       |        |               |       |        |               |       |        |  |  |
|                 |             | 3        | 3      | 3      |       | 3     | 3      |               |       |        |               |       |        |               |       |        |               |       |        |               |       |        |  |  |
|                 |             | 4        | 4      | 4      |       | 4     | 4      |               |       |        |               |       |        |               |       |        |               |       |        |               |       |        |  |  |
| Human Resources | Literacy    | 1        | 1      | 1      |       | 1     | 1      |               |       |        |               |       |        |               |       |        |               |       |        |               |       |        |  |  |
|                 |             | 2        | 2      | 2      |       | 2     | 2      |               |       |        |               |       |        |               |       |        |               |       |        |               |       |        |  |  |
|                 |             | 3        | 3      | 3      |       | 3     | 3      |               |       |        |               |       |        |               |       |        |               |       |        |               |       |        |  |  |
|                 |             | 4        | 4      | 4      |       | 4     | 4      |               |       |        |               |       |        |               |       |        |               |       |        |               |       |        |  |  |
| Social Services | Health      | 1        | 1      | 1      |       | 1     | 1      |               |       |        |               |       |        |               |       |        |               |       |        |               |       |        |  |  |
|                 |             | 2        | 2      | 2      |       | 2     | 2      |               |       |        |               |       |        |               |       |        |               |       |        |               |       |        |  |  |
|                 |             | 3        | 3      | 3      |       | 3     | 3      |               |       |        |               |       |        |               |       |        |               |       |        |               |       |        |  |  |
|                 |             | 4        | 4      | 4      |       | 4     | 4      |               |       |        |               |       |        |               |       |        |               |       |        |               |       |        |  |  |
| Environmental   | Air Quality | 1        | 1      | 1      |       | 1     | 1      |               |       |        |               |       |        |               |       |        |               |       |        |               |       |        |  |  |
|                 |             | 2        | 2      | 2      |       | 2     | 2      |               |       |        |               |       |        |               |       |        |               |       |        |               |       |        |  |  |
|                 |             | 3        | 3      | 3      |       | 3     | 3      |               |       |        |               |       |        |               |       |        |               |       |        |               |       |        |  |  |
|                 |             | 4        | 4      | 4      |       | 4     | 4      |               |       |        |               |       |        |               |       |        |               |       |        |               |       |        |  |  |

1. rare material availability and quality; 2. proximity of source, guaranteed supply; 3. other.

4. good infrastructure, auxiliary services; 5. availability of qualified management or trained personnel; 6. availability of low cost labor; 7. stable labor/collective bargaining climate;

8. stable political climates; 9. government incentives (eg: special tax privileges); 10. investment and financing guarantees; 11. long-term local or national market potential (ie, market size, level of economic development, rate of growth);

**AFRICA**

A total of 34 projects in Africa are planned by companies.

The most often cited countries are:

**Planned Projects**

|             |   |
|-------------|---|
| Nigeria     | 5 |
| Egypt       | 3 |
| Ivory Coast | 3 |
| Tanzania    | 2 |
| Kenya       | 2 |
| Sudan       | 2 |
| Algeria     | 2 |

Senegal, Mauritania, Libya, Zambia, Tunisia, Morocco, Mozambique, Angola and Malawi were also mentioned as locations for planned food-processing operations.

In six instances, the African continent - rather than specific countries - was given as a site of planned investments.

In Africa, Nigeria leads with the number of planned processing projects by companies producing baby foods, confectionery products, starch, dairy products and packaged food products.

Egypt has been selected by companies for the processing of cereal grains, sugar and dairy products, while the Ivory Coast offers

the best possibilities for processors of sugar, coffee and cocoa.

Kenya and Tanzania were each cited twice by processing companies as locations for planned projects: Kenya by sugar and confectionary producers and Tanzania by a pork/poultry processor.

The remaining African countries mentioned as investment sites were mainly cited by cereal grain processors, sugar millers or fishing companies.



### Chapter III

#### Company Views on Future Technological Trends

Overall, the participating companies foresee few radical innovations in the technologies presently being employed in their sectors over the next decade. Judging by company response, the changes to be expected will be improvements in current technology, increased plant capacity and use of other raw or waste materials rather than changes in the processing technology itself.

Of particular significance to developing countries is the new uses being found for waste materials, which companies are developing as a result of antipollution controls and the need to obtain more added value. One example is whey, which used to be used for cattle feed. The protein and sugars it contains are being increasingly filtered out and used as additives, for instance, in baking, and to add protein to cereal products such as pasta. The other new materials now being developed include synthetic or single-cell proteins, using, for instance, yeasts feeding on petroleum fractions. And research is going into the use of tree leaves as a source of protein, particularly for use in animalfeed.



The recovery of protein from waste has been made possible by the development of filtration and separation techniques, such as the use of membranes to split up substances in waste solution of different molecular sizes, through ultra-filtration or reverse osmosis. More important, in the long run, may be the use of ion-exchange systems which, can be used for the economical extraction of specific food substances such as proteins.

Another major development is the wider use of enzymes, such as those involved in producing high-fructose corn syrup. For instance, enzymes can be used to break down or extract proteins that are unacceptable in their original form (as in waste materials).

The highlights of the companies' comments on the technological changes expected - some in response to LDC requirements - are given below according to product group.

#### SUGAR

- New cane separation techniques
- Changes from raw sugar to white sugar production
- Installation of water interpellation devices
- Utilization of byproducts as animal feedstuff and liquid supplement

- Increased performance of factories, particularly in the extraction of sugar
- Use of byproducts as energy sources
- Protein for human and animal consumption produced from sugar (though this was not mentioned by any of the companies participating in BI's survey, it is known that a company is now working on this possibility, which if feasible, however, would not reach full-scale production until 1985).

#### Starch

- Improved efficiencies of present processing techniques
- Development of bigger (over 100,000 tpa capacity of dry matter) starch sweetener units
- A switch over to the processing of wheat in countries where corn is highly priced.

#### Feedstuff

- New protein sources: natural sources such as tree leaves and synthetic-based materials such as single-cell protein.

#### Cocoa

- Development of cocoa substitutes and extenders.

Fish

- New technologies in fish farming.

Meat

- For precooked dishes - both meat and wheat based - wider use of textured vegetable protein (TVP).
- In the production of baby food, plants with a capacity to produce one million 12-pack cases annually (a switch to synthetic-based materials is not foreseen).
- Reforming of meat, whereby poor quality meat can be sliced into fragments in such a way that the fibers that give meat its characteristic texture are retained; it is then reshaped under pressure into whatever form is required.

Tea, milk, coffee, cereals

- Large-scale automation
- Increased efficiency and plant capacity.
- Use of grain and byproducts for industrial products.

Supplying Modern Technology to Developing Countries

Though most of the responding companies are willing to supply their most modern technologies to developing countries, they find that

in many countries it is not economical nor feasible. As a result their emphasis is on the most efficient technological process that is most suitable to the needs of the local environment. This is especially true for processors of the more sophisticated products such as starch products, baby foods and precooked products. They feel that their "old" technology is often more appropriate to meeting local conditions and the lower annual requirements.

The demand of the country is also instrumental in the optimal size of the plant provided to the country. However, in such cases, they do consider the future demand for the product and make provisions for expansions to parallel the market growth.

In the processing of high-quality chocolate, for example, one company considers its present technology for the processing of high-quality chocolate as uneconomical and infeasible in the cocoa producing countries unless the product is intended mainly for the local market. This is because the high-quality chocolates are made from a special blend of at least three different cocoa beans and further, because the high temperatures prevailing in cocoa bean producing regions creates significant additional costs in processing, storage and transportation.

In order for this to be economical, it claims, either a new technology for the production of high-quality chocolate from one

been must be found or the LDC or international financial sources must subsidize the local manufacturing operation. It currently is working on new technology and hopes to be able to develop it within a reasonable period of time.

Nevertheless, it is optimistic about these prospects and its view is that Nigeria, Ghana and Cameroon offer excellent prospects for a local chocolate processing industry. Local government subsidies could suffice in the absence of technological improvements, it claims.

Chapter IV

CASE HISTORIES

Case History No. 1: Fish-Processing Project that Failed

To expand its operation in the area, in 1971 Company A teamed up with another Western firm and an LDC government in a fishing venture, in which the Western firms each own 40% and the LDC government 20%. For the Western company, the LDC government's overture to set up the venture was timely. It was in fact looking for a way to step up its operations in the area, as its other venture on the continent was not producing enough to meet the growing demand at home for frozen fish. Furthermore, locating in this LDC country offered several advantages:

- The country had a bilateral agreement with a neighboring country to share the fishing waters;
- The country's principal river was endowed with an abundant supply of shrimp;

- Improvements in the country's traditional fishing methods could be made at minimal cost;
- The LDC government offered the company a five-year tax holiday, free land space for nine years and duty-free exports; and
- The Western company's own government encouraged the investment and was prepared to grant its guarantee.

The fishing company, which is now the biggest in the country, employs 100 people. Management consists of a chairman from the Western partner, a director from Company A and a director from the LDC government. A Company A engineer is also stationed in the country. The first step for the company was the construction of a 670 metric ton capacity cold-storage warehouse with equipment for freezing the fish.

So far, however, the company has been unsuccessful and at end-1975 had a cumulative deficit of US\$1.3 million. The Western partners' loans to the company have amounted to US\$1.6 million and the company also has outstanding loans with foreign banks under guarantee from the Western firms' parent companies. And sales continue to fall.

The company accredits the venture's unsuccess to the following:

- The venture has not yet been authorized to trawl in the territorial waters, as the LDC government's agreement with the neighboring country does not provide for trawling, only fishing by canoe.
- Every effort to increase the catch of the river shrimp has been unsuccessful, as the company must depend on the local fishermen, who use traditional methods and often are reluctant to fish more than usual. The company usually loans money to the fishermen to repair their canoes or fishing nets, which adds another cost burden to the company's operation as the money is seldom repaid.
- Because of the lower-than-anticipated catch, the warehouse facilities have been underutilized. Compounding the problems is that the warehouse cannot be adjusted to handling the smaller amounts, as its system is geared to operating only at full capacity in order to make it simpler for local employees. As a



result the operating costs - in addition to the initial construction costs - have become a heavy burden on the company.

- The original plan of the venture was to produce for export, using a foreign shipping company to transport the frozen shrimp to the home country. However, soon after the venture started, the shipping company discontinued its service, which meant that the company had to search for another shipping company...and export market.
  
- In addition, when the company was first set up, the presidency was given to a Westerner who lived in the LDC country and who had promoted the scheme between the LDC government and the Western firms. As it turned out, he embezzled the company's money and was eventually exiled from the country.

But the Western companies have not lost hope and are continuing to make every effort to save the operation. Their rescue measures consist of the following:

- The companies have persuaded their government to help

the LDC country. One result was its donation of 100 reinforced plastic canoes to be used for shrimping.

- To use up the capacity of their facilities, the firms are planning to freeze 500 metric tons of herring per month for another fishing enterprise in the country on a subcontracting basis.
- The companies are trying to put heavier pressure on the LDC government to obtain authorization to trawl in the territorial waters.
- The Western partners are willing to give the LDC government a majority share of the subsidiary. In this way, the subsidiary would be eligible for financial assistance from world development banks and institutions.

For Company A, its experience in the LDC country has taught it several lessons: 1. Never invest in a project until adequate research and a feasibility study have been made; and 2. Be sure that the host country has some political clout on the international scene: A weak and poorly managed country can sometimes be a great obstacle preventing smooth and efficient operations of a new venture.

The Company's Successful Ventures

Yet, the company is undaunted, as it has learned through its experience in working in LDCs that it may take some time - even years - for the venture to finally pay off. This was the case of a shrimping operation set up in an LDC country in 1960 by Company A and another Western firm (each with a 25% share) and a local partner (50% share). Even with the LDC government's grant of a five-year tax holiday, the venture was unable to show any profit for the first 10 years. But thanks to a sudden rise in the price of shrimp in its main export market, the company began showing a good return on investment and has now been paying annual dividends.

According to the Western firm, the main factors contributing to the venture's success have been the abundant supply of shrimp and the favorable market change. Moreover, the local partner and employees, who have been trained by the Western firms, have proven capable of operating most of the shrimping activities very efficiently - to the point that the local partner is now prepared to run the operation alone.

Future Plans

Company A is constantly on the lookout for opportunities in LDCs. It is presently studying the feasibility of a fish farming operation in an LDC, particularly where the country's water is conducive to raising silver salmon. Langouste and krill, which are the best feed for silver salmon, would have to be abundant in the country's surrounding waters. The company plans to cultivate the silver salmon in cages and to adapt them to the new living conditions. The cultivation includes artificial incubation in pure water and feeding up to commercial size in two years. The techniques would be similar to that used by the Rockefeller Foundation and applied by the Hawaiian Fisheries Experiment Station.

Case History No. 2: A Feed Milling, Dairy and Meat Company's  
Participation in a Government-Sponsored  
Consortium

The following case example illustrates how a major meat, dairy and animal feed processing company, even with a rigid company policy toward investing in LDCs, can be flexible to meet both its and the local government's objectives.

Company B was interested in setting up a dairy and feed mill operation in a rapidly growing LDC to help satisfy the country's demand for its products. It had been supplying the country with compound feeds, calf milk supplements and various dairy products for some time. The original intention of the company was to establish a wholly owned operation, which is in line with Company B's policy.

At the same time, the LDC - along with support from IBRD - began making plans for the development of the country's dairy cattle, beef ranching and meat slaughtering industry, which included an incentive scheme to attract foreign knowhow and expertise. The attractions included lucrative loan grants, land grants and capital assurances.

The LDC government was interested in Company B's plans but the crux was its opposition to Company B maintaining 100% equity in the operation. However, after long, drawn-out negotiations, Company B reduced its demands first to 50% equity and finally to 35%. This 35% is shared with other private companies (a cattle breeding firm and a transportation and engineering company); a 65% share is held by the LDC and the IBRD.

Though the company realizes that its equity share eventually will be reduced to 25% and then to a no-equity position, it considers the final arrangement the best form of cooperation with the LDC in the long term. Its long-term objective is to secure a supply position for its animal compound feeds and milk substitutes and is not long-term investment returns.

As a result of the company's flexibility, it was able to come to an agreement with the LDC government and IBRD authorities much sooner than other companies insisting on 100% equity or some unacceptable LDC investment formula. Company B is one of the few companies in this LDC that has been successful in negotiating a place in management and partial ownership in addition to guaranteeing a supply position. Furthermore, the company will be playing an important role in developing the country's dairy livestock and meat slaughtering industry.

The company's present policy is to seek similar consortium arrangements or the supply of turnkey operations in which it would get a preferred position for supplying feedstuffs or milk substitutes.

Case History No. 3: A Company's Reinvestment

Solution in an LDC

When Company C decided to divest 20% of its equity in a tea estate and processing operation in an LDC, its first intention was to repatriate the capital. But as the country restricts the flow of capital from the country and is in need of hard-currency, the company began looking for another solution with export potential in cooperation with the local government.

Its first plan was to employ the released funds in an operation processing a finished high-protein food product with good domestic and export growth potential. However, the government's reasoning was that the funds would be better employed in an integrated agricultural project in the meat sector, for which the company would produce the raw materials and process and package the final product for export.

The company has agreed and considers the compromise investment project to be in both parties' interests in the long run. More importantly, the project has generated goodwill on both sides, as the solution is mutually satisfactory.



Case History No. 4: An Animal Feed Company's Approach  
to Investments in LDCs

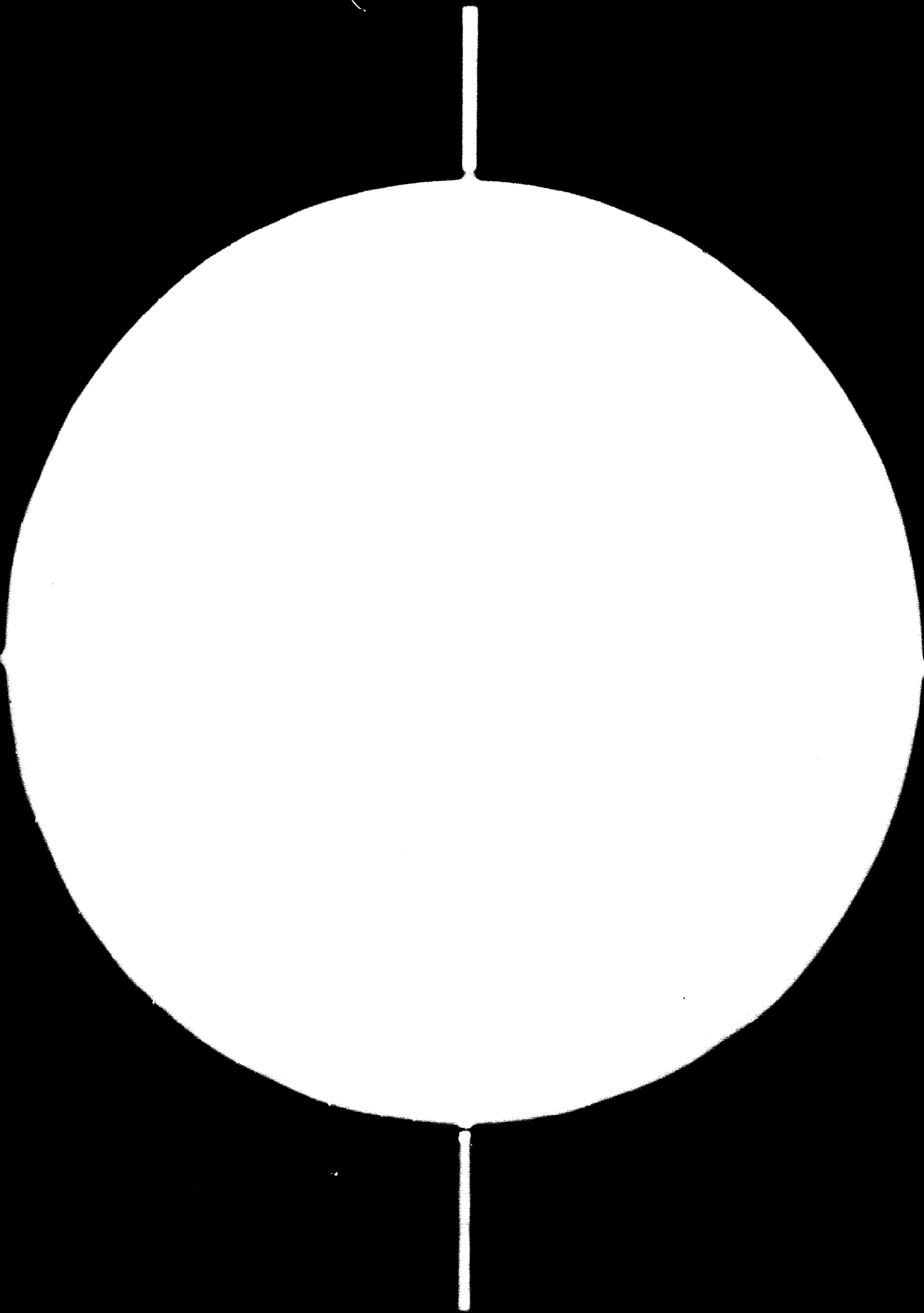
For Company D, a major food and animal feed company, its initial approach to LDCs is always through exports of its animal feed, which it sells as a four-part program administered by the company's marketing team, which train local feeders and breeders in the following areas:

1. **Breeding** - to attain high-quality animals, as the company's philosophy is that high-quality animal feed cannot be sold to low-quality animals.
2. **Management** - to learn how to manage the operation efficiently and to ascertain growth of number of eggs or of weight of meat per animal.
3. **Sanitation** - a preventive program to keep diseases at a minimum.
4. **Feeding.**

**G - 562**

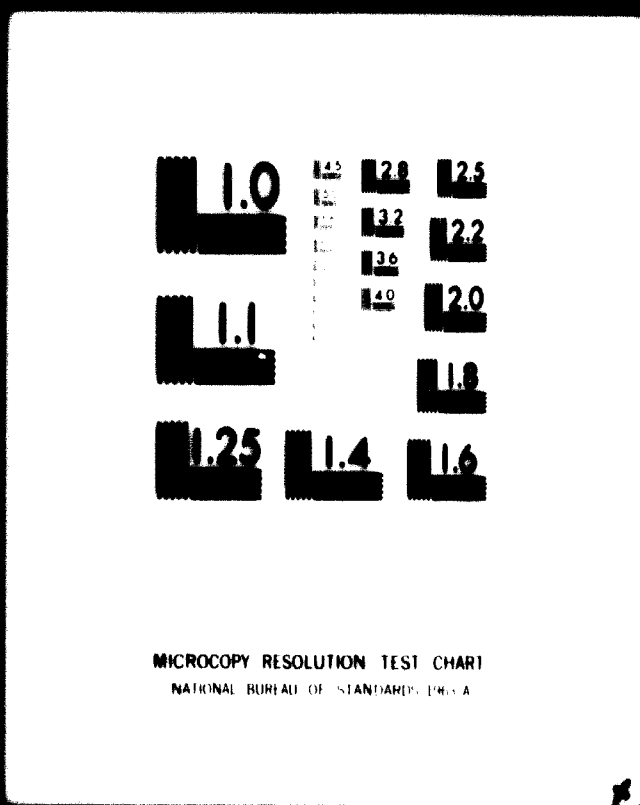


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2 OF 4

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Only after exports have grown to a certain level does the company then consider the setting up of a feed mill. It is at this time that a feasibility study is made to see whether such an investment would bring in a fair return on investment.

The prerequisite is availability of raw materials. The recipe for the animal feed for each country varies according to what is available. For example, it can use a combination of various local ingredients - e.g. meat scrap, alfalfa hay, corn, barley, peanut and/or cottonseed milling byproducts - which are mixed with the formula supplied by the company.

In LDCs, it would accept only licensing agreements or majority (equity or management) control of the operation. Furthermore, Company D prefers not to produce for export, and, in its selling efforts, promotes import substitution, stressing the saving of hard-currency.

Company D tries to utilize local people in all positions, but this still implies a team of company personnel in the country until the operation can be turned over completely to local management.

The company is presently considering setting up a feed mill in an LDC, as the volume of exports to the country has reached a satisfactory level. One deciding factor has been the improved political climate.

UN-K-12623-370  
Contract 76/85

PART II

01982  
(2 of 3)

SUMMARY OF COMPANY  
RESPONSE TO QUESTIONNAIRES

WORLDWIDE STUDY OF AGRO-INDUSTRIES

Prepared for:

Sectoral Studies Section

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION  
Vienna, Austria

Prepared by:

Business International S.A.  
Geneva, Switzerland

Company Response to Question No. 3

3. If any of the products are being produced or processed by your company in any of the countries listed in Annex A or other developing countries (LDCs), on the next page please list the LDC countries, products being processed in that country, type of ownership (joint venture, partnership, limited liability, etc.) or whether on a contract manufacturing basis or a licensing venture, and reasons for such investments in each LDC.

Code for Reasons:

- a. stable political climate;
- b. government incentives (eg: special tax privileges);
- c. investment and financing guarantees;
- d. long-term local or regional market potential (ie, market size, level of economic development, rate of growth);
- e. good infrastructure, ancillary services;
- f. availability of qualified management or trained personnel;
- g. availability of low cost labor;
- h. stable labor/collective bargaining climate;
- i. raw material availability (good quality, low priced, proximity of source, guaranteed supply);
- j. other.

A. GRAIN CEREALS

| <u>Country</u> | <u>Processed Products</u>              | <u>Date of Entry</u> | <u>Type of Ownership</u> | <u>Reasons</u> |
|----------------|--|----------------------|--------------------------|----------------|
| Brazil         | Wheat                                  | 1971                 | Wholly owned             | d,a            |
|                | Starch & starch derivatives from maize | 1927                 | Affiliate                | d,i,e          |
|                | Pasta                                  | 1974                 | Joint venture (90%)      |                |
|                | Consumer packaged cereals              | -                    | -                        | -              |
|                | Breakfast cereals                      | -                    | Acquisition              | -              |
|                | Yeast, baking powder                   | -                    | Wholly owned             | -              |
| Venezuela      | Starch & starch derivatives from maize | 1973                 | Mfg. contract            | d,i,e          |
|                | Finished consumer products             | 1959                 | 100%                     | -              |
|                | Milling/Feed                           | -                    | -                        | -              |
|                | Flour mill- Pasta process              | 1962                 | Majority                 | a,d            |
|                | Consumer packaged cereals              | -                    | -                        | -              |
|                | Cereals                                | 1975                 | -                        | -              |
|                | Bakery products                        | -                    | -                        | -              |
| Argentina      | Seed                                   | 1970                 | -                        | d,f            |
|                | Starch & starch derivatives from maize | 1958                 | Affiliate                | d,i,e          |
|                | Consumer packaged cereals              | -                    | -                        | -              |
|                | Cereals                                | -                    | Acquisition              | -              |
| Colombia       | Starch & starch derivatives from maize | 1939                 | Affiliate                | d,i,e          |
|                | Consumer packaged cereals              | -                    | -                        | -              |
|                | Cereals                                | -                    | -                        | -              |
|                | Yeast, baking powder                   | -                    | -                        | -              |



| <u>COUNTRY</u> | <u>Processed Products</u>              | <u>Date of Entry</u> | <u>Type of Ownership</u> | <u>Reasons</u> |
|----------------|--|----------------------|--------------------------|----------------|
| Peru           | Wheat milling                          | 1967                 | Joint venture            | d,f            |
|                | Starch & starch derivatives from maize | 1961                 | Affiliate                | d,i,e          |
|                | Yeast, baking powder                   |                      |                          |                |
| Ecuador        | Wheat milling                          | 1965                 | Joint venture            | d,f            |
| Uruguay        | Starch & starch derivatives from maize | 1958                 | Affiliate                | d,i,e          |
| Mexico         | Milling/Feed                           | -                    | -                        | -              |
|                | Pasta                                  | 1968                 | -                        | d,d            |
|                | Cereals                                | 1970                 | -                        | -              |
|                | Biscuits                               | -                    | -                        | -              |
| Chile          | Flour milling                          | 1967                 | -                        | -              |
| Guatemala      | Finished consumer products, cereals    | -                    | -                        | -              |
|                | Wheat/Flour mill                       | 1960's               | Minority                 | d,d            |
| El Salvador    | Wheat/Flour mill                       | 1965                 | Minority                 | d              |
| Honduras       | Starch & starch derivatives from maize | 1973                 | Affiliate                | d,i,e          |
| Nicaragua      | Flour milling                          | 1963                 | 100%                     | -              |
| Panama         | Flour milling                          | 1967                 | 100%                     | -              |
| Nicaragua      | Bakery products                        | -                    | -                        | -              |
| Jamaica        | Wheat/Flour mill                       | Early 1960's         | Minority                 | d              |
| Kenya          | Maize cultivation                      | -                    | -                        | -              |
|                | Starch ( starch derivatives from maize | 1975                 | Joint venture            | d,i,e          |
|                | Cereals                                | 1974                 | Licensed Mfg.            | -              |
| Morocco        | Maize                                  | 1960                 | Share holding            | f              |
| Ivory Coast    | Rice                                   | -                    | -                        | i,d,d          |
| Gabon          | Milling/bakery products                | -                    | Joint venture            | -              |

| <u>Country</u> | <u>Processed Products</u>              | <u>Date of Entry</u> | <u>Type of Ownership</u> | <u>Reasons</u> |
|----------------|--|----------------------|--------------------------|----------------|
| Tanzania       | Maize cultivation                      | -                    | -                        | -              |
| Zaire          | Wheat                                  | 1968                 | -                        | b,c            |
| Iran           | Maize                                  | 1973                 | Joint venture            | a,d,h,j        |
|                | Starch & starch derivatives from maize | 1976                 | Joint venture            | d,i,e          |
|                | Bakery products                        | -                    | Joint venture            | -              |
| Saudi Arabia   | Flour mill                             | -                    | Mgt. Contract            | -              |
| Turkey         | Starch & starch derivatives from maize | 1968                 | Joint venture            | d,i,e          |
| Indonesia      | Maize                                  | 1969                 | Joint venture            | d,b,a          |
|                | Bakery products                        | -                    | -                        | -              |
| Philippines    | Wheat                                  | -                    | 70%                      | i,a            |
|                | Flour mill (corn, rice)                | 1960's               | Minority                 | d              |
| Thailand       | Grain handling & storage               | 1970                 | Lease                    | d,i            |
| Pakistan       | Maize (starch)                         | 1960                 | Licensing agreement      | f              |
|                | Starch & starch derivatives from maize | 1962                 | Joint venture            | d,i,e          |
| Yugoslavia     | Starch & starch derivatives from maize | 1976                 | Joint venture            | d,i,e          |

B. CANE & BEET SUGAR

| <u>Country</u> | <u>Processed Products</u>                  | <u>Date of Entry</u> | <u>Type of Ownership</u>                   | <u>Reasons</u> |
|----------------|--|----------------------|--|----------------|
| Brazil         | Chocolate & sugar confectionery            | 1974                 | Minority shareholding & licensing contract | d,a            |
|                | Confectionery, chewing gum                 | 1960                 | 74.2%                                      | Proved Market  |
|                | Confectionery                              | -                    | Joint venture                              | -              |
| Venezuela      | Confectionery                              | 1956                 | 66.7% (Acquisition of existing Co.)        |                |
|                | Confectionery                              | -                    | -  |                |
| Argentina      | Chocolate & sugar confectionery            | 1933                 | Subsidiary                                 | d              |
| Colombia       | Snack foods, confectionery                 | -                    | -  | -              |
| Mexico         | Confectionery                              | 1960                 | 97.6%                                      |                |
| Guatemala      | Snack foods                                | -                    | -  | -              |
| Belize         | Raw sugar                                  | 1963                 | 100%                                       | d,a,b          |
| Nigeria        | Sugar cubes                                | 1965                 | 60%  | d,e            |
| Gabon          | Sugar milling                              | -                    | Joint venture                              | -              |
| Chad           | Sugar                                      | -                    | Joint venture                              | -              |
| Mauritania     | Sugar                                      | -                    | Joint venture                              | -              |
| Upper Volta    | Sugar milling                              | -                    | Joint venture                              | -              |
| Indonesia      | Sugar confectionery                        | 1975                 | Licensing contract                         | -              |
| Thailand       | Sugar confectionery                        | 1973                 | Licensing contract                         | -              |
|                | Sugar cane cultivation, mill (centrifugal) | 1963                 | Joint venture, private                     | i              |
|                | Raw sugar refinery                         | 1962                 | Joint venture                              | a,b,d,f,g,i    |

| <u>Country</u>     | <u>Processed Products</u> | <u>Date of Entry</u> | <u>Type of Ownership</u> | <u>Reasons</u> |
|--------------------|---------------------------|----------------------|--------------------------|----------------|
| Malaysia           | Sugar refining            | 1959                 | Joint venture, minority  | a, i, d        |
| Singapore          | Confectionery             |                      |                          | d, i           |
| Yugoslavia         | Chocolate                 | 1970                 | Licensing contract       |                |
| Dominican Republic | Snacks                    |                      |                          |                |

(See also sugar cane operations listed in Summary of Question No. 10)

C. STARCH & STARCH DERIVATIVES

| <u>Country</u> | <u>Processed Products</u>             | <u>Date of Entry</u> | <u>Type of Ownership</u> | <u>Reasons</u> |
|----------------|---------------------------------------|----------------------|--------------------------|----------------|
| Brazil         | Starch & starch derivative from maize | 1975                 | Joint venture            | d,i,e          |
| Venezuela      | Starch & starch derivative from maize | 1973                 | Mfg. contract            | d,i,e          |
| Argentina      | Starch & starch derivative from maize | 1928                 | Affiliate                | d,i,e          |
| Colombia       | Starch & starch derivative from maize | 1933                 | Affiliate                | d,i,e          |
| Peru           | Starch & starch derivative from maize | 1961                 | Affiliate                | d,i,e          |
| Uruguay        | Starch & starch derivative from maize | 1958                 | Affiliate                | d,i,e          |
| Honduras       | Starch & starch derivative from maize | 1973                 | Affiliate                | d,i,e          |
| Kenya          | Starch & starch derivative from maize | 1975                 | Joint venture            | d,i,e          |
| Iran           | Starch & starch derivative from maize | 1976                 | Joint venture            | d,i,e          |
| Turkey         | Starch & starch derivative from maize | 1968                 | Joint venture            | d,i,e          |
| Thailand       | Tapioca palletising                   |                      | 100% equity              | i              |
| Pakistan       | Starch & starch derivative from maize | 1962                 | Joint venture            | d,i,e          |
| Yugoslavia     | Starch & starch derivative from maize | 1976                 | Joint venture            | d,i,e          |

**D. MEAT & PRODUCTS**  
(Including Poultry & Animal Fats)

1. Meat (beef, mutton, pork, etc.)

| <u>Country</u> | <u>Processed Products</u>                          | <u>Date of Entry</u> | <u>Type of Ownership</u> | <u>Reasons</u> |
|----------------|--|----------------------|--------------------------|----------------|
| Brasil         | Canned meats                                       | -                    | -                        | -              |
| Argentina      | Processing/ranching/<br>cattle                     | 1920's -<br>1930's   | 100%                     | -              |
| Ecuador        | Industry meat<br>slaughtering                      | -                    | -                        | -              |
| Paraguay       | Processing/ranching/<br>cattle                     | 1920's -<br>1930's   | -                        | -              |
| Bolivia        | Industry meat<br>slaughtering                      | -                    | -                        | -              |
| Panama         | Meat<br>slaughtering                               | -                    | Turnkey                  | -              |
| Kenya          | Meat & meat products                               | -                    | Mgt. contract            | -              |
| Nigeria        | Meat products                                      | -                    | -                        | 4              |
| Zambia         | Meat   | -                    | 40%                      | -              |
| India          | Meat packing (Buffalo)<br>slaughterhouse, canning) | 1967                 | 60%                      | -              |

2. Poultry

| <u>Country</u> | <u>Processed Products</u>                                    | <u>Date of Entry</u> | <u>Type of Ownership</u> | <u>Reasons</u>          |
|----------------|--|----------------------|--------------------------|-------------------------|
| Brasil         | Poultry breeding, processing                                 |                      | Equity                   | i,d,a                   |
| Argentina      | Poultry/hatching   |                      | 100% equity              | d,i,a                   |
| El Salvador    | Poultry/breeding, hatchery                                   |                      | 100% equity              | d,a                     |
| Honduras       | Poultry breeding, poultry processing plant (eggs)            |                      | 50% - 50%                | i,d,a                   |
| Barbados       | Poultry breeding farm  |                      | 100% equity              | d                       |
| Tunisia        | Poultry processing   |                      |                          |                         |
| Iran           | Poultry breeding   | 1973                 | Joint venture            | a,d,f,i                 |
| Mexico         | Poultry processing<br>Breeding farms                         |                      |                          | i,d,a<br>i,d,a          |
| Korea          | Poultry - hatching, breeding<br>Breeding farms<br>Hatcheries |                      | 60%                      | d,a<br>i,d,a<br>i,d,a   |
| Pakistan       | Poultry breeding farm  |                      | Joint venture            | d                       |
| Venezuela      | Poultry processing<br>Breeding farms<br>Hatcheries           |                      |                          | i,d,a<br>i,d,a<br>i,d,a |
| Colombia       | Breeding farms<br>Hatcheries                                 |                      |                          | i,d,a<br>i,d,a          |

3. Animal Fats

| <u>Country</u> | <u>Processed Products</u> | <u>Date of Entry</u> | <u>Type of Ownership</u> | <u>Reasons</u> |
|----------------|---------------------------|----------------------|--------------------------|----------------|
| Colombia       | Edible fats & oils        |                      |                          | d              |
| Kenya          | Edible fats & oils        |                      |                          | d              |
| Nigeria        | Edible fats & oils        |                      |                          | d              |
| Indonesia      | Edible fats & oils        |                      |                          | d              |
| Philippines    | Edible fats & oils        |                      |                          | d              |



E. FISH & FISH PRODUCTS

| <u>Country</u> | <u>Processed Products</u>             | <u>Date of Entry</u> | <u>Type of Ownership</u>             | <u>Reasons</u> |
|----------------|---------------------------------------|----------------------|--------------------------------------|----------------|
| Brasil         | Sardine canning                       | 1970                 | -                                    | -              |
| Peru           | Fish canning & freezing               | 1963                 | -                                    | -              |
| Ecuador        | Fish canning                          | -                    | Majority                             | i,d            |
|                | Fish storage                          | -                    | -                                    | -              |
| Guatemala      | Frozen shrimp                         | 1960                 | Joint ventura                        | i              |
| Morocco        | Fish farm                             | 1972                 | Joint venture                        | a,i,d          |
|                | Frozen fish                           | 1970                 | Joint venture                        | a,i            |
| Ivory Coast    | Fish storage                          | -                    | Minority                             | i              |
| Ghana          | Frozen fish                           | 1972                 | Joint venture                        | d,i,g          |
|                | Tuna/freezing & storage               | -                    | -                                    | i              |
| Gambia         | Frozen shrimp                         | 1970                 | Joint venture                        | i,a,b          |
| Senegal        | Tuna/freezing & storage               | -                    | -                                    | i              |
| Sierra Leone   | Fish storage                          | -                    | Minority                             | i              |
| Congo Rep.     | Tuna/freezing & storage               | -                    | -                                    | i              |
| Bahrain        | Fish/shrimp                           | 1965                 | 35% joint venture<br>with management | i,a,d          |
| Qatar          | Fish/shrimp                           | -                    | Marketing control                    | i,a,d          |
| Indonesia      | Shrimp fishing -<br>freezing on board | 1970                 | Joint venture                        | -              |
|                | Frozen shrimp/tuna                    | 1973                 | Joint venture                        | a,g,i          |
| Pakistan       | Frozen shrimp                         | 1973                 | Joint venture                        | i,f            |
| New Guinea     | Tuna/freezing & storage               | -                    | -                                    | i              |
| Tahiti         | Tuna/freezing & storage               | -                    | -                                    | i              |

F. MILK & MILK PRODUCTS

| <u>Country</u>     | <u>Processed Products</u>           | <u>Date of Entry</u> | <u>Type of Ownership</u>        | <u>Reasons</u> |
|--------------------|-------------------------------------|----------------------|---------------------------------|----------------|
| Brasil             | Cheese, yogurt, milk-based desserts | 1970                 | Partnership                     | d, a           |
|                    | Ice cream                           | 1957                 | 75% equity                      | d              |
|                    | Dairy products                      | 1975                 | Acquisition                     | d              |
| Venezuela          | Butter, cheese, margarine           | 1964                 | -                               | d              |
|                    | Dairy products                      | 1974                 | 100%                            | d              |
| Argentina          | Milk, ice cream, butter, cheese     | 1961                 | Minority-owned                  | a, d, e, i     |
| Peru               | Evaporated milk                     | 1941                 | Joint venture                   | j              |
| Paraguay           | Small-scale dairy venture           | -                    | 100% (acquisition)              | -              |
| Mexico             | Butter, cheese, margarine**         | 1969                 | Acquisition                     | d              |
| Guatemala          | Milk, ice cream, butter, cheese     | 1960                 | Stock company<br>Majority owned | a, b, h, i     |
| El Salvador        | Milk, ice cream, butter, cheese     | 1960                 | Stock company<br>Majority owned | a, b, h, i     |
| Jamaica            | Dairy products                      | -                    | -                               | -              |
| Dominican Republic | Dairy products                      | -                    | -                               | -              |
| Nigeria            | Milk, ice cream, butter, cheese*    | 1963                 | Minority                        | a, d, g, h     |
| Morocco            | Cheese, yogurt, milk-based desserts | 1955                 | Franchising contract            | d, a           |
| Iran               | Milk                                | 1975                 | Partnership                     | d, c           |
|                    | Milk, ice cream, butter, cheese     | 1960                 | Minority                        | a, d           |
| Saudi Arabia       | Milk, ice cream, butter, cheese*    | Projected            | Stock company<br>Majority owned | a, b, c, d, h  |
|                    | Dairy cow milk plant                | -                    | Management contract             | -              |

\* Recombining operation

\*\* Another company also produces dairy products

| <u>Country</u>    | <u>Processed Products</u>        | <u>Date of Entry</u> | <u>Type of Ownership</u>        | <u>Reasons</u> |
|-------------------|----------------------------------|----------------------|---------------------------------|----------------|
| Iraq              | Ice cream                        | 1967                 | Licensing venture               | -              |
| Lebanon           | Milk, ice cream, butter, cheese  | 1964                 | Stock company<br>Majority owned | Inactive       |
| Indonesia         | Milk, ice cream, butter, cheese* | 1972                 | Stock company<br>Majority owned | a,d            |
| Philippines       | Evaporated milk                  | 1957                 | Joint venture                   | j              |
|                   | Butter, cheese, margarine        | 1964                 | -                               | d,a            |
| Thailand          | Milk, ice cream, butter, cheese  | 1956                 | Stock company<br>Majority owned | a,b,c,d,g,h    |
| Korea             | Dairy products                   |                      |                                 |                |
| Malaysia          | Evaporated milk                  | 1960                 | Joint venture                   | j              |
|                   | Condensed milk                   | 1961                 | -                               | -              |
| Republic of China | Milk, ice cream, butter, cheese  | 1956                 | Stock company<br>Majority owned | a,d,e,h,i      |
| Singapore         | Ice cream                        | -                    | -                               | -              |

\* Recombining operation

G. COFFEE & COFFEE PRODUCTS

| <u>Country</u> | <u>Processed Products</u>                                | <u>Date of Entry</u> | <u>Type of Ownership</u> | <u>Reasons</u> |
|----------------|--|----------------------|--------------------------|----------------|
| Brazil         | Coffee   | 1974                 | Joint venture private    | i,d,a          |
|                | Coffee beans   | 1972                 | Joint venture            | a,b,d,h,i      |
|                | Instant coffee   | 1967                 | Joint venture            | a,b,d,h,i      |
| Colombia       | Coffee   | -                    | Wholly owned             | -              |
|                | Coffee   | -                    | -                        | -              |
| Mexico         | Coffee   | 1960                 | 97.6% owned              | -              |
| Kenya          | Coffee, growing, buying, roasting, export & distribution | 1920s - 1930s        | 60%                      | n.a.           |
| Korea          | Coffee   | 1970                 | 33.5% equity             | d              |
| India          | Instant coffee mfg, growing                              | 1920s - 1930s        | 60%                      | -              |

H. COCOA BEANS & PRODUCTS

| <u>Country</u> | <u>Processed Products</u>       | <u>Date of Entry</u> | <u>Type of Ownership</u>                     | <u>Reasons</u> |
|----------------|---------------------------------|----------------------|--|----------------|
| Brazil         | Chocolate & sugar confectionery | 1974                 | Licensing contract/<br>Minority shareholding | d, a           |
|                | Cocoa                           | 1957                 | 75% equity                                   | d              |
| Venezuela      | Cocoa                           | 1957                 | 67% equity                                   | d              |
| Argentina      | Chocolate & sugar confectionery | 1933                 | Subsidiary                                   | d              |
| Ivory Coast    | Cocoa liquor, butter, cakes     | 1973                 | Knowhow & T.A. agreement                     | d, a, b, c     |
| Cameroon       | Cocoa paste                     | 1965                 | Joint venture<br>w/government                | d, a, b, e     |
| Yugoslavia     | Chocolate                       | 1970                 | Licensing contract                           | -              |

I. TEA & TEA PRODUCTS

| <u>COUNTRY</u> | <u>Processed Products</u> | <u>Date of Entry</u> | <u>Type of Ownership</u>                                 | <u>Reasons</u> |
|----------------|---------------------------|----------------------|--|----------------|
| Tanzania       | Tea production            | 1920's -<br>1930's   | 40 & 100%  | i              |
| Pakistan       | Processing tea            | 1920's -<br>1930's   | 51%  | i              |
| Sri Lanka      | Tea production            | 1920's -<br>1930's   | 65% Joint venture<br>(share being sold<br>to government) | i              |

J. ANIMAL FEED & LIQUID SUPPLEMENT

| <u>COUNTRY</u> | <u>Processed Products</u>            | <u>Date of entry</u> | <u>Type of Ownership</u>         | <u>Reasons</u> |
|----------------|--------------------------------------|----------------------|----------------------------------|----------------|
| Brazil         | Animal feed                          | 1975                 | -                                | a,d            |
|                | Animal feed                          | -                    | Equity                           | i,d,a          |
|                | Animal feed plants                   | -                    | -                                | i,d,a          |
| Venezuela      | Flour/Feed milling                   | -                    | -                                | -              |
|                | Animal feed plants                   | -                    | -                                | i,d,a          |
| Argentina      | Feed Mills                           | -                    | 100% equity                      | i              |
|                | Animal feed plants                   | -                    | -                                | i,d,a          |
| Colombia       | Animal feed plants                   | -                    | -                                | i,d,a          |
|                | Animal feed                          | -                    | -                                | d              |
| Peru           | Animal feed plants                   | 1969                 | -                                | i,d,a          |
|                | Fishmeal                             |                      | -                                |                |
| Ecuador        | Animal feed plants                   | -                    | -                                | i,d,a          |
| Paraguay       | Cattle feed                          | 1970                 | -                                | -              |
| Mexico         | Flour/feed milling                   | -                    | -                                | -              |
| Guatemala      | Feed mill (poultry feed)             | -                    | Joint venture/<br>majority share | d              |
| El Salvador    | Feed mills                           | -                    | 100% equity                      | i,a            |
| Honduras       | Feed mills                           | -                    | 50 - 50                          | i,d            |
| Nicaragua      | Animal feed plants                   | -                    | -                                | i,d,a          |
| Nigeria        | Animal feed                          | -                    | -                                | d              |
| Gabon          | Milling feed                         | -                    | Joint venture                    | -              |
| Indonesia      | Formula feed - mfg.<br>compound feed | 1973                 | Joint venture                    | a,i,d          |
|                | Animal feed                          | -                    | -                                | d              |
| Philippines    | Animal feed                          | -                    | -                                | d              |

| <u>Country</u> | <u>Processed Products</u> | <u>Processed Products</u> | <u>Type of Ownership</u> | <u>Reasons</u> |
|----------------|---------------------------|---------------------------|--------------------------|----------------|
| Korea          | Feedmills                 | -                         | 60%                      | d, a           |
|                | Animal feed plants        | -                         | -                        | i, d, a        |
| Thailand       | Animal feed plants        | -                         | -                        | i, d, a        |
| Taiwan         | Feedmills                 | -                         | 60%                      | i              |



**K. VARIOUS, NOT SPECIFIED ELSEWHERE**

| <u>Country</u> | <u>Processed Products</u> | <u>Date of Entry</u> | <u>Type of Ownership</u> | <u>Reasons</u> |
|----------------|---------------------------|----------------------|--------------------------|----------------|
| Brazil         | Baby food                 | 1972                 | Joint venture            | d,a            |
|                | Snacks                    | 1957                 | -                        | d              |
|                | Sauces, spreads           | -                    | -                        | -              |
|                | Frozen food, sundry       | -                    | -                        | d              |
| Venezuela      | Baby food                 | 1960                 | Majority owned           | d,a,f          |
|                | Snacks                    | 1974                 | 100%                     | d              |
|                | Sauces, baby food, jam    | 1959                 | -                        | -              |
| Mexico         | Baby food                 | 1959                 | Subsidiary               | d,a            |
|                | Snacks                    | 1965                 | 100%                     | d              |
| Costa Rica     | Baby food                 | 1968                 | Subsidiary               | d,a,b          |
| Jamaica        | Institutional food        | 1973                 | Joint venture            | d,c            |
| Nigeria        | Frozen food, sundry       | -                    | -                        | d              |
| Saudi Arabia   | Institutional food        | 1973                 | Joint venture            | d,c            |
| Indonesia      | Frozen food, sundry       | -                    | -                        | d              |
| Philippines    | Baby food                 | 1973                 | Licensed                 | d,a,f          |

SUMMARY OF  
MAJOR REASONS FOR INVESTING IN CURRENT OPERATIONS

**A. Total Incidence of Major Reasons**

|                               | <u>Total</u> | <u>%</u>    | <u>Latin Amer.</u> | <u>%</u>    | <u>Asia</u> | <u>%</u>    | <u>Africa</u> | <u>%</u>    |
|-------------------------------|--------------|-------------|--------------------|-------------|-------------|-------------|---------------|-------------|
| d. market potential           | 120          | 39%         | 69                 | 42%         | 30          | 37%         | 13            | 30%         |
| i. raw material               | 75           | 24%         | 39                 | 24%         | 23          | 23%         | 13            | 30%         |
| a. pol. stability             | 65           | 21%         | 34                 | 21%         | 22          | 22%         | 9             | 20%         |
| e. infrastructure             | 13           | 4%          | 8                  | 5%          | 3           | 3%          | 2             | 5%          |
| f. trained management         | 13           | 4%          | 6                  | 4%          | 5           | 5%          | 2             | 5%          |
| b. govt. incentives           | 9            | 3%          | 1                  | --          | 5           | 5%          | 3             | 7%          |
| c. investment/fin. guarantees | 4            | 1%          | --                 | --          | 3           | 3%          | 1             | 2%          |
| g. low-cost labor             | 5            | 2%          | 3                  | 2%          | 1           | --          | --            | --          |
| h. stable labor               | 6            | 2%          | 4                  | 2%          | 2           | 2%          | --            | --          |
| <b>Total</b>                  | <b>310</b>   | <b>100%</b> | <b>164</b>         | <b>100%</b> | <b>102</b>  | <b>100%</b> | <b>44</b>     | <b>100%</b> |

**B. Major First Reason**

|                       |            |             |           |             |           |             |           |             |
|-----------------------|------------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|
| d. market potential   | 85         | 36%         | 51        | 63%         | 27        | 32%         | 10        | 43%         |
| i. raw material       | 40         | 26%         | 20        | 25%         | 12        | 23%         | 8         | 35%         |
| a. pol. stability     | 26         | 17%         | 10        | 12%         | 12        | 23%         | 4         | 17%         |
| f. trained management | 2          | 1%          | --        | --          | 1         | 2%          | 1         | 4%          |
| <b>Total</b>          | <b>156</b> | <b>100%</b> | <b>81</b> | <b>100%</b> | <b>52</b> | <b>100%</b> | <b>23</b> | <b>100%</b> |

**MAJOR REASONS FOR INVESTING IN CURRENT OPERATIONS (continued)**

| C. <u>Major Second Reason</u> | Total     | %           | Latin     |             | Asia      |             | Africa    |             |
|-------------------------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|
|                               |           |             | Amer.     | %           | %         | %           | %         |             |
| i. raw material               | 29        | 31%         | 15        | 31%         | 9         | 26%         | 5         | 42%         |
| d. market potential           | 27        | 29%         | 17        | 35%         | 8         | 24%         | 2         | 17%         |
| a. pol. stability             | 22        | 24%         | 11        | 23%         | 7         | 21%         | 4         | 33%         |
| f. trained management         | 5         | 5%          | 2         | 4%          | 3         | 9%          | --        | --          |
| b. govt. incentives           | 4         | 4%          | --        | --          | 4         | 12%         | --        | --          |
| c. investment/fin. guarantees | 2         | 2%          | --        | --          | 2         | 6%          | --        | --          |
| g. low-cost labor             | 3         | 3%          | 2         | 4%          | 1         | 3%          | --        | --          |
| e. infrastructure             | 1         | 1%          | --        | --          | --        | --          | 1         | 8%          |
| <b>Total</b>                  | <b>93</b> | <b>100%</b> | <b>48</b> | <b>100%</b> | <b>34</b> | <b>100%</b> | <b>12</b> | <b>100%</b> |

**D. Major Third and Lower-Priority Reason**

|                               |           |             |           |             |           |             |          |            |
|-------------------------------|-----------|-------------|-----------|-------------|-----------|-------------|----------|------------|
| a. pol. stability             | 17        | 28%         | 13        | 36%         | 3         | 19%         | 1        | 11%        |
| e. infrastructure             | 12        | 20%         | 8         | 22%         | 3         | 19%         | 1        | 11%        |
| i. raw material               | 6         | 10%         | 4         | 11%         | 2         | 13%         | --       | --         |
| h. stable labor               | 6         | 10%         | 4         | 11%         | 2         | 13%         | --       | --         |
| d. market potential           | 5         | 8%          | 1         | 3%          | 3         | 19%         | 1        | 11%        |
| b. govt. incentives           | 5         | 8%          | 1         | 3%          | 1         | 6%          | 3        | 33%        |
| c. investment/fin. guarantees | 2         | 3%          | --        | --          | 1         | 6%          | 1        | 11%        |
| f. trained management         | 6         | 10%         | 4         | 11%         | 1         | 6%          | 1        | 11%        |
| g. low-cost labor             | 2         | 3%          | 1         | 3%          | --        | --          | 1        | 11%        |
| <b>Total</b>                  | <b>61</b> | <b>100%</b> | <b>36</b> | <b>100%</b> | <b>16</b> | <b>100%</b> | <b>9</b> | <b>99%</b> |

Summary of Company Response to Question No. 4

4. What percent of your company's total production is being produced in developing countries?

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Note: In Questions Nos. 4 to 9, the code for the product groups that each responding company is presently involved in is as follows:

- a. cereal grains
- b. cane and beet sugar
- c. starch and starch derivatives
- d. meat and meat products
- e. fish and fish products
- f. poultry products
- g. milk and milk products
- h. animal fats, edible
- i. coffee and products
- j. cocoa beans and products
- k. tea and products
- l. animal feedstuff and liquid supplement.

| <u>Company</u> | <u>Product Group*</u> | <u>% of total<br/>production in LDCs</u> |
|----------------|-----------------------|--|
| 1              | a,c                   | 15%                                      |
| 2              | a,b,d,e,j             | 3%                                       |
| 3              | a,d,g,h,i,k,l         | 50%                                      |
| 4              | a,b,c,f,l             | 40%                                      |
| 5              | a,d,f,g,l             | 10-20%                                   |
| 6              | b,j                   | 6%                                       |
| 7              | b,c                   | 0%                                       |
| 8              | a,c,l                 | 0%                                       |
| 9              | cell hard & software  | 5%                                       |
| 10             | a,d,e,f,g,h,l         | 0%                                       |
| 11             | a,g                   | 10%, of which 2% for<br>Dairy Division   |
| 12             | a,d,e,f,g,j,l         | 25%                                      |
| 13             | e,l                   | minor                                    |
| 14             | a,g,j                 | 4%                                       |
| 15             | a,c,l                 | 5%                                       |
| 16             | a,d,f,g,h,j,l         | 1%                                       |
| 17             | a,b,c,i,l             | not relevant                             |
| 18             | a,g,i,j,k,l           | 2.5%                                     |
| 19             | e,l                   | 7%                                       |
| 20             | e                     | very small                               |
| 21             | g                     | 3%                                       |
| 22             | g                     | minimal                                  |
| 23             | i,k                   | very small                               |
| 24             | e                     | neg.                                     |
| 25             | a,l                   | n.a.                                     |

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\*See code on previous page.

Summary of Company Response to Question No. 5

5. Would the existence of government incentive schemes modify your assessment of whether or not to invest in a particular LDC? yes  no

What type of incentive schemes would you consider the most important?

| <u>Company</u> | <u>Product Group *</u> | <u>Yes</u> | <u>No</u> | <u>Most Important Incentives</u>   |
|----------------|------------------------|------------|-----------|--|
| 1              | a,c                    |            | x         | N.S.   |
| 2              | a,b,d,e,j              | x          |           | Free land; low-interest loans for fixed investment.  |
| 3              | a,d,g,h,i,<br>k,l      | x          |           | Lack of government interference; animal plant and hygiene.   |
| 4              | i,k                    | x          |           | Investment grant; tax facilities.  |
| 5              | a,d,e,f,h              | x          |           | Participation in share capital by foreign companies; double-tax treaty; availability of hard currency; free transfer of funds (profits, interest, depreciation). |
| 6              | a,c,d,f                | x          |           | Tax; equipment import w/o duty; profit repatriation.   |
| 7              | a,b,c,f,l              | x          |           | N.S.   |
| 8              | a,d,f,g,l              | x          |           | Financing and tax holiday.   |
| 9              | a,g,j                  | x          |           | N.S.   |
| 10             | b,j                    | x          |           | Financial and fiscal incentives.   |
| 11             | b,c                    | x          |           | Export guarantees; permission to repatriate capital.   |
| 12             | a,c,l                  | x          |           | Profit transfer; investment subsidies.   |
| 13             | g                      | x          |           | Import duties, deposit.  |
| 14             | a,d,e,f,g,<br>h,l      | x          |           | Scarcity of capital investment; repatriation of dividends, capital, etc.   |
| 15             | a,g                    |            | x         | N.S.   |
| 16             | a,d,e,f,g,<br>j,l      | x          |           | Investment guarantees for reasonable return.   |
| 17             | e,l                    | x          |           | Subsidy in procurement of capital funds.   |
| 18             | a,g,j                  |            | x         | N.S.   |
| 19             | a,c,l                  | x          |           | Tax relief and subsidies on raw materials if these are too expensive.  |
| 20             | b,d,e,f,<br>g,i        | x          |           | N.S.   |
| 21             | a,b,c,e,<br>f,g,i,j,l  | -          |           | Answer not applicable; look for agricultural development & availability of raw material.   |
| 22             | a,d,f,g,<br>h,j,l      | x          |           | Protection; low-interest government loans.   |
| 23             | a,b,c,i,l              | x          |           | Low-interest loans; protection against competing imports; tax holiday.   |

| <u>Company</u> | <u>Product Group *</u> | <u>Yes</u> | <u>No</u> | <u>Most Important Incentives</u>   |
|----------------|------------------------|------------|-----------|--|
| 24             | a, b, i, j, k, l       | x          |           | Tax; import barriers for competitive goods; duty-free imports of capital goods and raw materials; capital & dividend repatriation. |
| 25             | a, i                   | Maybe      |           | Tax breaks; but only in the sense of economic feasibility; protection; price controls.   |
| 26             | a                      | x          |           | N.S.   |
| 27             | b                      | x          |           | N.S.   |
| 28             | b                      | x          |           | Government grants.   |
| 29             | b                      | x          |           | N.S.   |
| 30             | b                      | x          |           | Financial aid; no restrictions on ownership; repatriation of profits/dividends.  |
| 31             | b                      | x          |           | N.S.   |
| 32             | a                      | x          |           | N.S.   |
| 33             | i, k                   | x          |           | N.S.   |
| 34             | d                      | x          |           | N.S.   |
| 35             | e                      | x          |           | N.S.   |
| 36             | a, i                   | x          |           | N.S.   |

\* See code on page 11-23.



Summary of Company Response to Question No. 6

6. In general what has been your experience in working with developing countries? favorable  unfavorable

Has your company ever set up an operation which has ultimately failed? If so, for what reasons?

| <u>Company</u> | <u>Product Category*</u> | <u>Favorable</u> | <u>Unfavorable</u> | <u>Reasons why a venture failed</u>   |
|----------------|--------------------------|------------------|--------------------|---|
| 1              | a,c                      | x                |                    | -   |
| 2              | a,b,d,e,j                | x                |                    | -   |
| 3              | a,d,g,h,i,k,l            | x                |                    | Cattle ranching, meat processing, operation was commercially unsound.   |
| 4              | i,k                      | x                |                    | -   |
| 5              | a,d,e,f,h                | x                |                    | -   |
| 6              | a,c,d,i                  | x                |                    | -   |
| 7              | a,b,c,f,g,l              | x                |                    | Nationalization of operations in two African countries.   |
| 8              | a,d,f,g,l                | x                |                    | -   |
| 9              | b,j,                     | x                |                    | -   |
| 10             | a,c,l                    | x                |                    | -   |
| 11             | a                        | x                |                    | -   |
| 12             | b                        | -                |                    | It is more difficult to start up and manage plants in LDCs.   |
| 13             | a,d,e,f,h,l              | x                |                    | -   |
| 14             | a,g                      | x                |                    | -   |
| 15             | a,d,e,f,g,j,l            | x                |                    | -   |
| 16             | e,i                      | x                | x                  | An installation set up in Vietnam, for instance, failed completely because of the war.  |
| 17             | a,g,j                    | x                |                    | -   |
| 18             | a,c,l                    | -                | x                  | Lack of government support.   |
| 19             | b,d,e,f,g,i              | x                |                    | Insufficient feasibility study; changes in world economic situation, which resulted in, among others, recession and drastic decrease of demand. |
| 20             | a,b,c,e,f,g,i,<br>j,l    | -                |                    | Many favorable, but many unfavorable  |
| 21             | a,d,f,g,h,j,l            | x                |                    | -   |
| 22             | a,b,c,i,l                |                  | varied             | -   |

| <u>Company</u> | <u>Product Category*</u> | <u>Favorable</u> | <u>Unfavorable</u> | <u>Reasons why a venture failed</u>   |
|----------------|--------------------------|------------------|--------------------|---|
| 23             | a,g,i,j,k,l              | x                |                    | -   |
| 24             | a,l                      | x                |                    | Government abrogations.   |
| 25             | g                        |                  |                    | -   |
| 26             | g                        | x                |                    | -   |
| 27             | g                        | x                |                    | -   |
| 28             | g                        | x                |                    | Yes, an operation has failed (no reason specified).                             |
| 29             | g                        | x                |                    | All of the company's expansions in LDCs have been curtailed.                    |
| 30             | a                        |                  | x                  | -   |
| 31             | o                        | x                |                    | Price controls, unpaid loans & endeavored to export from a high-cost base.      |
| 32             | l                        |                  | varied             | -   |
| 33             | i,h                      | x                |                    | -   |
| 34             | d                        | x                |                    | -   |
| 35             | a                        |                  | N.S.               | Did not fit in with company's long-range international development plans.       |
| 36             | o                        | x                |                    | Operations were nationalized in one LDC, but there was an equitable settlement. |
| 37             | a,i                      | x                |                    | -   |

\* See code on page II-23.

Summary of Company Response to Question No. 7

7. To lower risks, would your company consider new forms of cooperation in LDCs, such as participation in an equity-sharing consortium?

yes  no

Agreements with local government participation?

yes  no

a. What other types of cooperation would your company be receptive to (describe)?

| <u>Company</u> | <u>Product Category*</u> | <u>Equity Sharing Connection</u> |           | <u>Government Participation</u>    |           |
|----------------|--------------------------|----------------------------------|-----------|------------------------------------|-----------|
|                |                          | <u>Yes</u>                       | <u>No</u> | <u>Yes</u>                         | <u>No</u> |
| 1              | a,c                      | x                                |           | x                                  |           |
| 2              | a,b,d,e,j                | x                                |           | x                                  |           |
| 3              | a,d,g,h,i,k,l            | x                                |           | prefer with local private partners |           |
| 4              | i,k                      | x                                |           | x                                  |           |
| 5              | a,d,e,f,h                | x                                |           |                                    | x         |
| 6              | a,c,d,f                  | x                                |           |                                    | x         |
| 7              | a,b,c,f,i                | N.S.                             |           | x                                  |           |
| 8              | a,d,f,g,i                | x                                |           | x                                  |           |
| 9              | b,j                      | x                                |           | x                                  |           |
| 10             | b,c                      | x                                |           | x                                  |           |
| 11             | a,c,i                    | x                                |           | x                                  |           |
| 12             | -                        |                                  | x         | x                                  |           |
| 13             | a,g                      |                                  | x         |                                    | x         |
| 14             | a,d,e,f,g,j,i            | x                                |           | x                                  |           |
| 15             | e,i                      | x                                |           | x                                  |           |
| 16             | a,g,j                    |                                  | x         |                                    | x         |
| 17             | a,c,i                    | x                                |           | x                                  |           |
| 18             | a,b,c,e,f,g,i,j,i        | x                                |           | x                                  |           |
| 19             | a,d,f,g,h,j,i            | x                                |           | x                                  |           |
| 20             | a,b,c,i,i                | N.S.                             |           | x                                  |           |
| 21             | a,g,i,j,h,i              | x                                |           | x                                  |           |
| 22             | a,i                      | x                                |           | x                                  |           |
| 23             | a                        | x                                |           | N.S.                               |           |
| 24             | g                        | x                                |           | maybe                              |           |
| 25             | g                        |                                  | x         | x                                  |           |
| 26             | g                        | doubtful                         |           |                                    | x         |
| 27             | g                        | x                                |           | x                                  |           |
| 28             | g                        |                                  | x         |                                    | x         |

| <u>Company</u> | <u>Product Category*</u> | <u>Equity Sharing Consortium</u> |           | <u>Government Participation</u> |           |
|----------------|--------------------------|----------------------------------|-----------|---------------------------------|-----------|
|                |                          | <u>Yes</u>                       | <u>No</u> | <u>Yes</u>                      | <u>No</u> |
| 29             | a                        | x                                |           | N.S.                            |           |
| 30             | d,i                      | x                                |           | x                               |           |
| 31             | i,h                      | x                                |           | x                               |           |
| 32             | d                        | x                                |           | x                               |           |
| 33             | a                        | x                                |           | x                               |           |
| 34             | e                        |                                  | x         | N.S.                            |           |
| 35             | a,i                      | x                                |           | x                               |           |

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\*See code on page 11-23.

| <u>Company</u> | <u>Product Category*</u> | <u>Recommended types of cooperation</u>   |
|----------------|--------------------------|---|
| 1              | a,c                      | Technical assistance agreements, management contracts.  |
| 2              | a,b,d,e,j                | Licensing agreements with local investors or J.V. possibly with majority interest.  |
| 3              | a,d,g,h,i,k,l            | Consulting contracts (ranching methods; tea growing); agreement with local private participation.   |
| 4              | i,k                      | Licensing.  |
| 5              | a,d,e,f,h                | Management contracts, patent and licensing contracts.   |
| 6              | a,c,d,f                  | Stock ownership; J.V., licenses, technology contract.   |
| 7              | a,d,f,g,l                | Local partners.   |
| 8              | b,j                      | Knowhow and technical assistance agreement, licensing contracts.  |
| 9              | b,c                      | Management and consulting contracts.  |
| 10             | a,c,l                    | Joint venture with knowhow and management contract.   |
| 11             | -                        | Agreement between local government and the food producer.   |
| 12             | a,d,e,f,g,h,l            | Technological transfer of ideas; sale of services; training, planning, management of turnkey operations; licensed manufacture.  |
| 13             | a,d,e,f,g,j,l            | Technical assistance.   |
| 14             | e,l                      | Quick action in any administration fields, since in general in these countries governments are slow in making decisions.  |
| 15             | a,g,j                    | Licensing agreement.  |
| 16             | a,b,c,e,f,g,i,j,l        | Licensing, large turnkey, total integrated: preinvestment survey, hybrids, cultivation, training. Must have process and raw material. Contract to administrate rice-production (cost and fees). |
| 17             | a,d,f,g,h,j,l            | Licensing agreements and management contracts.  |

| <u>Company</u> | <u>Product Category*</u> | <u>Recommended types of cooperation</u>                         |
|----------------|--------------------------|---|
| 18             | a,1                      | Consulting management contracts, licensing agreements.          |
| 19             | d,1                      | Is open to most investment forms.                               |
| 20             | d,e,f,g                  | Mainly interested in turnkey plants and transfer of technology. |
| 21             | e                        | Technical and financial assistance.                             |
| 22             | a,1                      | Licensing agreements.   |

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\*See code on page 11-23.



Summary of Company Response to Question No. 8

8. Would you accept a minority equity share in an LDC-based company?    yes     no
- a. If not, would majority management control then be desirable?    yes     no
- b. If you do not have management control, would you accept technical and/or managerial responsibility for a fee after the plant has gone on stream?    yes     no
- c. Would you accept export marketing demands for the products to be processed locally?    yes     no

| Company | Product Category** | b               |    | c    |      | d              |    | e   |                                    |
|---------|--------------------|-----------------|----|------|------|----------------|----|-----|------------------------------------|
|         |                    | Yes             | No | Yes  | No   | Yes            | No | Yes | No                                 |
| 1       | a,c                | x               |    | x    |      | x              |    |     | Case by case                       |
| 2       | a,c,d,e,j          | x               |    |      | N.S. | x              |    |     | x                                  |
| 3       | a,d,g,h,i,l        | Depends on area |    | x    |      | x              |    |     | x                                  |
| 4       | i,k                |                 | x  | x    |      | x              |    |     | N.S.                               |
| 5       | a,d,e,f,h          |                 | x  | x    |      | x              |    |     | x                                  |
| 6       | a,c,d,f            | x               |    |      | x    | x              |    |     | x                                  |
| 7       | a,b,c,f,i          | x               |    | x    |      |                | x  |     | x                                  |
| 8       | a,d,f,g,i          |                 | x  | x    |      |                | x  |     | x                                  |
| 9       | b,j                | x               |    | N.S. |      | x              |    |     | x                                  |
| 10      | b,c                | x               |    | N.S. |      | x              |    |     | x                                  |
| 11      | a,c,i              |                 | x  | x    |      | x              |    |     | Only under very special conditions |
| 12      | a                  |                 | x  | N.S. |      |                |    |     |                                    |
| 13      |                    |                 | x  | x    |      | Not applicable |    |     | x                                  |
| 14      | a,d,e,f,g,h,i      | x               |    |      | x    | x              |    |     | x*                                 |
| 15      | a,g                |                 | x  | x    |      |                | x  |     | x                                  |
| 16      | a,d,e,f,g,j,i      | x               |    | N.S. |      | x              |    |     | x                                  |
| 17      | e,i                | x               |    | N.S. |      | x              |    |     | x                                  |
| 18      | a,g,j              |                 | x  | x    |      | x              |    |     | x                                  |
| 19      | a,c,i              | x               |    | N.S. |      | x              |    |     | x                                  |
| 20      | b,d,e,f,g,i        | x               |    | N.S. |      | x              |    |     | x                                  |
| 21      | a,b,c,e,f,g,i,j,l  | x               |    | x    |      | x              |    |     | x                                  |
| 22      | a,d,f,g,h,j,i      | x               |    | N.S. |      | x              |    |     | x                                  |
| 23      | a,b,c,i,l          | x               |    | N.S. |      | x              |    |     | x                                  |
| 24      | a,g,i,j,k,l        | x               |    | x    |      | x              |    |     | x                                  |
| 25      | a,i                | x               |    | x    |      | x              |    |     | x                                  |
| 26      | a                  | x               |    | x    |      | N.S.           |    |     | x                                  |
| 27      | g                  | x               |    | x    |      | x              |    |     | x                                  |

\* Except in the case of fish products.

| <u>Company</u> | <u>Product Category*</u> | <u>b</u> |    | <u>a</u> |    | <u>b</u> |    | <u>c</u>              |    |
|----------------|--------------------------|----------|----|----------|----|----------|----|-----------------------|----|
|                |                          | Yes      | No | Yes      | No | Yes      | No | Yes                   | No |
| 28             | g                        | x        |    | x        |    | N.S.     |    | x                     |    |
| 29             | g                        | x        |    | x        |    | N.S.     |    |                       | x  |
| 30             | g                        | x        |    | x        |    | x        |    | Depends on conditions |    |
| 31             | a                        | x        |    | x        |    | N.S.     |    | N.S.                  |    |
| 32             | e                        | x        |    | x        |    | N.S.     |    | N.S.                  |    |
| 33             | d,l                      | x        |    | x        |    | x        |    | N.S.                  |    |
| 34             | i,k                      | x        |    | x        |    | x        |    |                       | x  |
| 35             | e                        | x        |    | x        |    |          | x  | x                     |    |
| 36             | a,i                      |          | x  | x        |    | N.S.     |    |                       | x  |

- 8. Would you accept a minority share in an LDC-based company?**
- a. If not, would majority management control then be desirable?
  - b. If you do not have management control, would you accept technical and/or managerial responsibility for a fee after the plant has gone on stream?
  - c. Would your company accept export marketing demands for the products to be processed locally?

\*\* See code on page II-23.

Company Response to Question No. 9

9. What are the most important issues that you would like to discuss with developing countries?

a. What assurances would you demand for protection of technology, trademarks, etc.?

b. Are you prepared to enter into a long-term supply contract at fixed prices, even if they appear somewhat elevated from today's prices? yes  no

What would be your conditions?

c. Are you prepared to offer soft terms for the transfer of technology?

| <u>Company</u> | <u>Product Category*</u> | <u>Important issues to discuss with LDC governments</u>   |
|----------------|--------------------------|---|
| 1              | a,c                      | Creating a long-term investment climate and market conditions in which the risks/rewards are competitive with those in more developed economies.                  |
| 2              | a,b,d,e,j                | Incentive schemes; raw material availability; market development; labor availability; low labor costs.  |
| 3              | a,d,g,h,i,k,l            | Tax free holiday, only in addition to foreign investment welcome; would like to know true feelings at outset.   |
| 4              | i,k                      | Socioeconomic trends and incentives.  |
| 5              | a,d,e,f,h                | Government incentive schemes; training program.   |
| 6              | a,c,d,f                  | Guarantees against nationalization, for remittance of funds and contract protection.  |
| 7              | a,d,f,g,l                | Repatriation of investment capital.   |
| 8              | a,g,j                    | N.S.  |
| 9              | b,j                      | Long-term development plans; investment guarantees; financial and fiscal incentives.  |
| 10             | b,c                      | Risk of nationalization; repatriation of capital, export guarantees; staffing the project; import of capital goods.   |
| 11             | a,c,l                    | Receptive climate for generating acceptable return on investment.   |
| 12             | a                        | N.S.  |
| 13             | g                        | Alternative to utilize raw materials.   |
| 14             | a,d,e,f,g,h,l            | Internal political matters that can affect company activity.  |
| 15             | a,g                      | Technical assistance with royalties.  |
| 16             | a,d,e,f,g,j,l            | How we can cooperate in achieving their social and economic objectives, in return for the maintenance of a healthy company and a reasonable return on investment. |
| 17             | e,l                      | Ways to have quicker action by administrative officials.  |
| 18             | a,g,j                    | N.S.  |
| 19             | a,c,l                    | Market potential and raw material availability.   |
| 20             | b,d,e,f,g,i              | N.S.  |
| 21             | a,b,c,e,f,g,i,<br>j,l    | Guarantee for invested money; transfer of dividends; visas for company personnel.   |

\* See code on page II-23.

| <u>Company</u> | <u>Product Category*</u> | <u>Important issues to discuss with LDC governments</u>   |
|----------------|--------------------------|---|
| 22             | a,b,c,i,l                | Satisfactory management (inc. finance and technology).  |
| 23             | a,g,i,j,k,l              | Market potential; base of technology locally available; raw material quality and availability; freedom of capital and dividend remittances. |
| 24             | a,l                      | Price controls; repatriation of capital; labor legislation; taxes; import guarantees.   |
| 25             | g                        | Long-term political stability.  |

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\* See code on page II-23.

| <u>Company</u> | <u>Product Category*</u> | <u>Assurances for protection of technology, etc.</u>   |
|----------------|--------------------------|--|
| 1              | a,c                      | Guarantee of property and use of right to owner.   |
| 2              | a,b,d,e,j                | Same protection as in EEC (except Italy).  |
| 3              | a,d,g,h,i,k,l            | Very important: licensing and trademark guarantees; central quality control.   |
| 4              | i,k                      | All conditions in line with existing international agreements.   |
| 5              | a,c,d,f                  | Absolute assurance that trademarks and technology will be protected.   |
| 6              | a,d,f,g,l                | Not applicable.  |
| 7              | b,j                      | Licensing contract.  |
| 8              | a,c,l                    | Generally accepted Western practices.  |
| 9              | a                        | Recognition of patents and licenses by local LDC official Patent Office.   |
| 10             | g                        | Patent and design protection.  |
| 11             | a,d,e,f,g,h,l            | Register trademarks and license them to customers; technology preserved within licensed companies only.  |
| 12             | a,g                      | Government assurances, such as in Brazil.  |
| 13             | a,d,e,f,g,j,l            | Expect LDC to protect patents and trademarks in accordance with international convention.  |
| 14             | e,l                      | Nothing special.   |
| 15             | a,g,j                    | Secrecy for technology and conformity with company inputs for trademarks and standard quality.   |
| 16             | a,c,l                    | Good contractual relations.  |
| 17             | a,b,c,e,f,g,i,<br>j,l    | Not essential; are in low technological field.   |
| 18             | a,b,c,i,l                | Absolute when patents are involved. Otherwise technology is not normally capable of protection - it is the "know-how" which is vital and this is passed on by management.              |
| 19             | a,g,i,j,k,l              | Confidentiality. Strong ownership protection of trademarks; legal and quality assurance; strong patent and trademark laws desired; stable government backed up by strong legal system. |
| 20             | g                        | Usual international agreements.  |
| 21             | g                        | Those which would legally (actually) protect the company.  |
| 22             | a,l                      | In accordance with international conventions.  |

\* See code on page II-23.

| <u>Company</u> | <u>Product Category*</u> | <u>Long-term supply contract</u> |           | <u>The conditions</u>  |
|----------------|--------------------------|----------------------------------|-----------|--|
|                |                          | <u>Yes</u>                       | <u>No</u> |  |
| 1              | a,c                      |                                  | x         | --   |
| 2              | a,b,d,e,j                | x                                | x         | Price pegged to an inflation index.  |
| 3              | a,d,g,h,i,k,l            |                                  | x         | --   |
| 4              | i,k                      | x                                |           | Reasonable level of prices; guaranteed deliveries.   |
| 5              | a,d,f,h                  |                                  | x         | --   |
| 6              | a,c,d,f                  |                                  | x         | --   |
| 7              | a,b,c,f,l                | x                                |           | N.S.   |
| 8              | a,d,f,g,l                |                                  | x         | Contract with price fixed later on basis of a specified formula.                                     |
| 9              | b,j                      |                                  | x         | --   |
| 10             | b,c                      |                                  | x         | --   |
| 11             | a,e,l                    |                                  | x         | --   |
| 12             | a                        |                                  | x         | --   |
| 13             | a,d,e,f,g,h,l            |                                  | x         | Prices related to UK retail price index.   |
| 14             | a,g                      |                                  | x         | --   |
| 15             | a,d,e,f,g,j,l            |                                  | x         | --   |
| 16             | e,l                      |                                  | x         | --   |
| 17             | a,g,j                    | x                                |           | Payment of an agreed percentage on total sales with a minimum guaranteed.                            |
| 18             | a,c,l                    |                                  | x         | --   |
| 19             | b,d,e,f,g,i              | x                                |           | N.S.   |
| 20             | a,b,c,e,f,g,i,<br>j,l    |                                  | x         | --   |
| 21             | a,d,f,g,h,j,l            |                                  | x         | --   |
| 22             | a,b,c,i,l                | x                                |           | Freedom to handle subsequent transactions.   |
| 23             | a,g,i,j,k,l              | x                                |           | If there were a price advantage or supply shortage and the contract would assure our being supplied. |
| 24             | a,l                      |                                  | x         |  |
| 25             | a                        |                                  | x         |  |
| 26             | g                        |                                  | x         |  |
| 27             | g                        |                                  | x         |  |
| 28             | i,k                      |                                  | x         |  |
| 29             | e                        |                                  | x         |  |
| 30             | a,l                      |                                  | x         |  |

\* See code on page II-23.



| <u>Company</u> | <u>Product Category*</u> | <u>Willingness to offer soft terms for the transfer of technology</u>      |
|----------------|--------------------------|--|
| 1              | a,b,c,i,l                | Yes.   |
| 2              | b,c                      | Yes.   |
| 3              | b                        | Yes.   |
| 4              | a,c,l                    | No.  |
| 5              | a,c                      | No.  |
| 6              | a,c,d,f                  | No.  |
| 7              | a,l                      | Yes.   |
| 8              | a,g                      | Maybe  |
| 9              | b,d,e,f,g,i              | Maybe  |
| 10             | a,d,g,h,i,k,l            | Technology not too heavy; involved in ranching and tea products.           |
| 11             | a,d,e,f,g,j,l            | Yes, and depending upon the terms.   |
| 12             | i,k                      | Yes.   |
| 13             | b,j                      | No.  |
| 14             |                          | We educate our customers in how to run the plant they have bought from us. |
| 15             | a,g,j                    | No.  |
| 16             | a,e,i                    | In principle, yes.   |
| 17             | a,d,f,g,h,j,l            | Yes, - in the context of a joint-venture agreement.                        |
| 18             | a,g,i,j,k,l              | Maybe, - depending on the long-term implications/opportunities.            |
| 19             | a,l                      | Yes, if provided adequate returns.   |

\* See code on page 11-23.

Company Response to Question No. 10

10. In your opinion, which developing countries, particularly those with sufficient raw material supplies, do you feel currently meet your company's criteria for expanding or setting up a processing operation for any of the products in No. 1.

**A. GRAIN CEREALS**

| <u>COUNTRY</u> | <u>Processed Product</u>                 | <u>Reasons</u>  |
|----------------|--|---|
| Egypt          | Baby foods                               | Market potential  |
|                | Flour milling                            | Market potential  |
| Saudi Arabia   | Bakery products                          | Stable political climate & long-term local or regional market potential |
|                | Flour milling                            | Long-term local or regional market potential                            |
| Indonesia      | Maize (growing & distribution)           | Raw material availability   |
|                | Baby foods                               | Market potential  |
| Malaysia       | Baby foods                               | Market potential  |
| Thailand       | Maize (growing & distribution)           | Raw material availability   |
| Vietnam        | Maize (growing & distribution)           | Raw material availability   |
| Iran           | Baby foods                               | Market potential  |
|                | Flour milling                            | Market potential  |
| Brazil         | Grain & oil seed processing              | Agricultural potential due to size & climate                            |
|                | Consumer products based on grain cereals | Stable political climate & long-term local or regional market potential |
| Argentina      | Grain & oil seed processing              | New government, emphasis on agricultural growth                         |
| Venezuela      | Wheat flour, breakfast cereals           | Market potential and stable political climate                           |
|                | Wheat                                    | Stable political climate & long-term local or regional market potential |
| Mexico         | Consumer products based on cereal grains | Political stability & market potential                                  |

**B. CANE & BEET SUGAR**

| <u>Country</u> | <u>Processed Product</u>                           | <u>Reasons</u>  |
|----------------|--|---|
| Egypt          | Chocolate & sugar confectionery<br>Beet sugar      | Stable political climate & long-term local or regional market potential<br>Raw material availability                            |
| Ivory Coast    | Semiprocessed cocoa products & sugar confectionery | Stable political climate, government incentives, long-term local or regional market potential and raw material availability     |
| East Africa    | Sugar  | Raw material availability   |
| Kenya          | Beet sugar   | Raw material availability   |
| Indonesia      | Chocolate & sugar confectionery<br>Sugar           | Stable political climate & long-term local or regional market potential<br>Raw material availability                            |
| Malaysia       | Sugar  | Raw material availability   |
| Turkey         | Beet sugar   | Raw material availability   |
| Thailand       | Sugar  | Raw material availability   |
| Vietnam        | Sugar  | Raw material availability   |
| Iran           | Chocolate & sugar confectionery<br>Beet sugar      | Stable political climate & long-term local or regional market potential<br>Raw material availability                            |
| Pakistan       | Beet sugar   | Raw material availability   |
| Iraq           | Beet sugar   | Raw material availability   |
| Yugoslavia     | Beet sugar   | Raw material availability   |
| Brazil         | Sugar<br>Chocolate & sugar confectionery           | Stable political climate & raw material availability<br>Stable political climate & long-term local or regional market potential |

CANE & BEET SUGAR *continued*

| <u>COUNTRY</u> | <u>Processed Product</u>        | <u>Reasons</u>  |
|----------------|---------------------------------|---|
| Argentina      | Sugar                           | Stable political climate & raw material availability                    |
| Venezuela      | Chocolate & sugar confectionery | Stable political climate & long-term local or regional market potential |
| Uruguay        | Beet sugar                      | Raw material availability   |

C. STARCH & STARCH DERIVATIVES

| <u>COUNTRY</u> | <u>Processed Product</u> | <u>Reasons</u>   |
|----------------|--------------------------|--|
| Indonesia      | Starch                   | Long-term local or regional market potential & raw material availability |
| Philippines    | Starch                   | Long-term local or regional market potential & raw material availability |
| Brazil         | Starch                   | Long-term local or regional market potential & raw material availability |

**D. MEAT & PRODUCTS**  
**(Including Poultry & Animal Fats)**

**1. Meat Products**

| <u>Country</u> | <u>Processed Product</u> | <u>Reasons</u>   |
|----------------|--------------------------|--|
| Egypt          | Meat                     | Level of economic development  |
| Nigeria        | Meat products            | Long-term local or regional market potential   |
| Iran           | Meat                     | Growth rate  |
| Brazil         | Breeding                 | Not specified  |
| Venezuela      | Meat                     | Government incentives, stable political climate and long-term local or regional market potential |

**2. Poultry Products**

| <u>COUNTRY</u> | <u>Processed Product</u> | <u>Reasons</u>   |
|----------------|--------------------------|--|
| Nigeria        | Poultry                  | Financially sound; vast market                                   |
| Middle East    | Poultry                  | Good potential subject to financial situation being satisfactory |
| Indonesia      | Poultry                  | Not specified  |

**E. FISH & FISH PRODUCTS**

| <u>Country</u>    | <u>Processed Product</u> | <u>Reasons</u>  |
|-------------------|--------------------------|---|
| Ivory Coast       | Tuna fishing & freezing  | Raw material availability   |
| Sudan             | Fish                     | Raw material availability   |
| Mauritania        | Fishery                  | Raw material availability   |
| Senegal           | Tuna fishing & freezing  | Raw material availability   |
| Congo/Brazzaville | Tuna fishing & freezing  | Raw material availability   |
| Zaire             | Tuna fishing & freezing  | Raw material availability   |
| Philippines       | Tuna fishing & freezing  | Raw material availability; long-term local or regional market potential |
| Mozambique        | Shrimp                   | Raw material availability   |
| Kuwait            | Tuna fishing & freezing  | Raw material availability   |
| India             | Shrimp                   | Raw material availability   |
| Brazil            | Fish                     | Raw material availability   |
| Argentina         | Fish                     | Raw material availability   |
| Chile             | Fish                     | Raw material availability   |

**F. MILK & MILK PRODUCTS**

| <u>COUNTRY</u> | <u>Processed Product</u> | <u>Reasons</u>  |
|----------------|--------------------------|---|
| Egypt          | Baby food                | Market potential  |
|                | Dairy                    | Level of economic development   |
| Nigeria        | Milk products            | Stable political climate; long-term local or regional market potential                                  |
| Saudi Arabia   | Milk products            | Market potential; political stability   |
| Indonesia      | Baby food                | Market potential  |
| Philippines    | Milk products            | Stable political climate; long-term local or regional market potential                                  |
| Malaysia       | Baby food                | Market potential  |
| Turkey         | Milk products            | Stable political climate; long-term local or regional market potential                                  |
| Iran           | Baby food                | Market potential  |
|                | Dairy                    | Growth rate   |
|                | Milk products            | Stable political climate; long-term local or regional market potential                                  |
| Argentina      | Milk products            | Availability of qualified management or trained personnel; long-term local or regional market potential |
| Venezuela      | Milk products            | Stable political climate; long-term local or regional market potential                                  |



G. COFFEE & PRODUCTS

| <u>COUNTRY</u> | <u>Processed Product</u> | <u>Reasons</u>   |
|----------------|--------------------------|--|
| Ivory Coast    | Coffee<br>Coffee         | NS<br>NS   |
| Kenya          | Coffee (Instant)         | Raw material availability; market potential  |
| Tanzania       | Coffee (instant)         | Raw material availability; market potential  |
| Indonesia      | Coffee                   | Raw material availability  |
| Brazil         | Coffee                   | Stable political climate; government incentives; investment & financing guarantees; long-term or regional market potential; good infrastructure; availability of qualified management or trained personnel; low-cost labor and raw material availability |
|                | Coffee (Instant)         | Raw material availability; Market potential  |
| Mexico         | Coffee                   | NS   |

H. COCOA BEANS & PRODUCTS

| <u>Country</u> | <u>Processed Product</u>                            | <u>Reasons</u>   |
|----------------|---|--|
| Egypt          | Chocolate & sugar confectionery                     | Stable political climate; long-term regional or local market potential   |
| Ivory Coast    | Semi-processed cocoa products & sugar confectionery | Stable political climate; government incentives; long-term local or regional market potential; raw material availability |
| Nigeria        | Cocoa   | NS   |
| Indonesia      | Chocolate & sugar confectionery                     | Stable political climate; long-term local or regional market potential   |
| Iran           | Chocolate & sugar confectionery                     | Stable political climate; long-term local or regional market potential   |
| Brasil         | Chocolate & sugar confectionery                     | Stable political climate; long-term local or regional market potential   |
|                | Cocoa   | Market size  |
| Venezuela      | Chocolate & sugar confectionery                     | Stable political climate; long-term local or regional market potential   |
| Ecuador        | Cocoa   | Raw material availability; government incentives; long-term local or regional market potential                           |

I. TEA & TEA PRODUCTS

| <u>COUNTRY</u> | <u>Processed Product</u> | <u>Reasons</u>  |
|----------------|--------------------------|---|
| Malawi         | Tea                      | Raw material availability   |
| Indonesia      | Tea                      | Raw material availability   |
| India          | Tea                      | Government incentives; investment & financing guarantees; long-term local or regional market potential; availability of qualified management or trained personnel; low-cost labor and raw material availability |
| Sri Lanka      | Tea                      | Raw material availability   |

**J. ANIMAL FEEDSTUFF & LIQUID SUPPLEMENT**

| <u>COUNTRY</u> | <u>Processed Product</u>   | <u>Reasons</u>   |
|----------------|----------------------------|--|
| Egypt          | Animal feed                | Level of economic development  |
| Nigeria        | Animal feed cakes          | Market potential   |
| Kenya          | Animal feed cakes          | Market potential   |
| Sudan          | Animal feed                | Stable political climate; government incentives; investment and financing guarantees; long-term local or regional market potential & raw material availability |
| Ghana          | Animal feed                | Stable political climate; government incentives; investment & financing guarantees; long-term local or regional market potential & raw material availability   |
| Indonesia      | Animal feed<br>Animal feed | Market potential<br>N.S.   |
| Philippines    | Animal feed cakes          | Market potential   |
| Turkey         | Animal feedstuff           | Raw material availability  |
| Iran           | Animal feed                | Growth rate  |
| Brazil         | Feed (soya)<br>Animal feed | NS<br>Market size  |
| Colombia       | Animal feed cakes          | NS   |

**K. VARIOUS CATEGORIES NOT SPECIFIED**

| <u>Country</u> | <u>Processed Product</u>               | <u>Reasons</u>   |
|----------------|--|--|
| Egypt          | Various products                       | Long-term local or regional market potential; stable political climate   |
| Indonesia      | Various products                       | Long-term local or regional market potential   |
| Philippines    | Various products for human consumption | Relatively stable economic & political climate & prospects for acceptable return on investment   |
| Iran           | Various products<br>Various products   | Risks & govt. restrictions are sufferable.<br>Long-term local or regional market potential; investment & financing guarantees & stable political climate |
| Korea          | Various products                       | Long-term local or regional market potential; stable political climate & availability of qualified management/trained personnel                          |
| Brazil         | Various products                       | Relatively stable economic & political climate & prospects for acceptable return on investment   |
| Argentina      | Various products                       | Relatively stable economic & political climate & prospects for acceptable return on investment   |
| Venezuela      | Various products                       | Relatively stable economic & political climate & prospects for acceptable return on investment   |
|                | Food products                          | Freedom of capital transfer  |
| Colombia       | Various products                       | Problems of dividend remittances   |

SUMMARY OF

MAJOR REASONS WHY COUNTRIES MEET COMPANIES' INVESTMENT CRITERIA

A. Total Incidence of Reasons

|                               | Total      | %           | Far East  | %           | Middle East | %           | Africa    | %           | Latin Amer. | %           |
|-------------------------------|------------|-------------|-----------|-------------|-------------|-------------|-----------|-------------|-------------|-------------|
| d. market potential           | 67         | 36%         | 17        | 37%         | 11          | 46%         | 20        | 36%         | 19          | 32%         |
| a. pol. stability             | 47         | 26%         | 9         | 20%         | 7           | 29%         | 12        | 22%         | 19          | 32%         |
| i. raw material               | 40         | 26%         | 14        | 30%         | 3           | 13%         | 13        | 24%         | 10          | 17%         |
| c. investment/fin. guarantees | 10         | 5%          | 2         | 4%          | 2           | 8%          | 3         | 5%          | 3           | 5%          |
| b. govt. incentives           | 9          | 5%          | 1         | 2%          | --          | --          | 5         | 9%          | 3           | 5%          |
| e. infrastructure             | 3          | 2%          | --        | --          | 1           | 4%          | 1         | 2%          | 1           | 2%          |
| f. trained management         | 5          | 3%          | 2         | 4%          | --          | --          | 1         | 2%          | 2           | 3%          |
| g. low-cost labor             | 2          | 1%          | 1         | 2%          | --          | --          | --        | --          | 1           | 2%          |
| h. stable labor               | 1          | 1%          | --        | --          | --          | --          | --        | --          | 1           | 2%          |
| <b>Total</b>                  | <b>184</b> | <b>101%</b> | <b>46</b> | <b>100%</b> | <b>24</b>   | <b>100%</b> | <b>55</b> | <b>100%</b> | <b>59</b>   | <b>100%</b> |

B. Major First Reason

|                               |            |             |           |             |           |            |           |             |           |             |
|-------------------------------|------------|-------------|-----------|-------------|-----------|------------|-----------|-------------|-----------|-------------|
| d. market potential           | 31         | 29%         | 10        | 36%         | 3         | 21%        | 14        | 39%         | 4         | 13%         |
| a. pol. stability             | 40         | 37%         | 7         | 25%         | 6         | 43%        | 10        | 28%         | 17        | 57%         |
| i. raw material               | 29         | 27%         | 10        | 36%         | 3         | 21%        | 10        | 28%         | 6         | 22%         |
| c. investment/fin. guarantees | 3          | 3%          | --        | --          | 1         | 7%         | 1         | 3%          | 1         | 3%          |
| b. govt. incentives           | 2          | 2%          | 1         | 4%          | --        | --         | --        | --          | 1         | 3%          |
| e. infrastructure             | 2          | 2%          | --        | --          | 1         | 7%         | 1         | 3%          | --        | --          |
| f. trained management         | 1          | 1%          | --        | --          | --        | --         | --        | --          | 1         | 3%          |
| <b>Total</b>                  | <b>108</b> | <b>101%</b> | <b>28</b> | <b>101%</b> | <b>14</b> | <b>99%</b> | <b>36</b> | <b>101%</b> | <b>30</b> | <b>101%</b> |

**MAJOR REASONS WHY COUNTRIES MEET COMPANIES' INVESTMENT CRITERIA (continued)**

| C. <u>Major Second Reason</u> | <u>Total</u> | <u>%</u>   | <u>Far East</u> |            | <u>Middle East</u> |             | <u>Africa</u> |             | <u>Latin Amer.</u> |             |
|-------------------------------|--------------|------------|-----------------|------------|--------------------|-------------|---------------|-------------|--------------------|-------------|
|                               |              |            | <u></u>         | <u>%</u>   | <u></u>            | <u>%</u>    | <u></u>       | <u>%</u>    | <u></u>            | <u>%</u>    |
| d. market potential           | 31           | 58%        | 5               | 45%        | 8                  | 89%         | 5             | 42%         | 13                 | 62%         |
| b. govt. incentives           | 7            | 13%        | --              | --         | --                 | --          | 5             | 42%         | 2                  | 10%         |
| i. raw material               | 6            | 11%        | 2               | 18%        | --                 | --          | 1             | 8%          | 3                  | 14%         |
| a. pol. stability             | 6            | 11%        | 2               | 18%        | 1                  | 11%         | 1             | 8%          | 2                  | 10%         |
| c. investment/fin. guarantees | 2            | 4%         | 1               | 9%         | --                 | --          | --            | --          | 1                  | 4%          |
| f. trained management         | 1            | 2%         | 1               | 9%         | --                 | --          | --            | --          | --                 | --          |
| <b>Total</b>                  | <b>53</b>    | <b>99%</b> | <b>11</b>       | <b>99%</b> | <b>9</b>           | <b>100%</b> | <b>12</b>     | <b>100%</b> | <b>21</b>          | <b>100%</b> |

**D. Major Third or Lower-Priority Reason**

|                               |           |             |          |            |          |             |          |            |          |             |
|-------------------------------|-----------|-------------|----------|------------|----------|-------------|----------|------------|----------|-------------|
| c. investment/fin. guarantees | 5         | 22%         | 1        | 14%        | 1        | 100%        | 2        | 28%        | 1        | 13%         |
| d. market potential           | 5         | 22%         | 2        | 28%        | --       | --          | 1        | 14%        | 2        | 25%         |
| i. raw material               | 5         | 22%         | 2        | 28%        | --       | --          | 2        | 28%        | 1        | 13%         |
| f. trained management         | 3         | 13%         | 1        | 14%        | --       | --          | 1        | 14%        | 1        | 13%         |
| g. low-cost labor             | 2         | 9%          | 1        | 14%        | --       | --          | --       | --         | 1        | 13%         |
| a. pol. stability             | 1         | 4%          | --       | --         | --       | --          | 1        | 14%        | --       | --          |
| e. infrastructure             | 1         | 4%          | --       | --         | --       | --          | --       | --         | 1        | 13%         |
| h. stable labor               | 1         | 4%          | --       | --         | --       | --          | --       | --         | 1        | 13%         |
| <b>Total</b>                  | <b>23</b> | <b>100%</b> | <b>7</b> | <b>98%</b> | <b>1</b> | <b>100%</b> | <b>7</b> | <b>98%</b> | <b>8</b> | <b>103%</b> |

Company Response to Question No. 11

11. Which developing countries do not presently meet your company's criteria, but which you feel have the potential to develop new capacity for processing any of the products listed in question No. 1 in the long-term - 1985 and beyond.



A. GRAIN CEREALS

| <u>COUNTRY</u> | <u>Processed Product</u> | <u>Reasons</u>  |
|----------------|--------------------------|---|
| Argentina      | Grain milling            | Do not guarantee safety of investment & safety of personnel   |
| Honduras       | Grain milling            | Do not guarantee safety of investment & safety of personnel   |
| Uruguay        | Grain milling            | Do not guarantee safety of investment & safety of personnel   |
| Nigeria        | Grain milling            | Do not guarantee safety of investment & safety of personnel   |
|                | Cereals                  | Political instability; inflation; bribery   |
|                | Wheat                    | --  |
|                | Baby food                | na  |
| Egypt          | Flour milling            | Political & economic stability  |
|                | Wheat                    | Lack of hard currency & basically no funds for investment incentive schemes, especially for foreign companies |
|                | Flour milling            | Currency repatriation   |
| Ivory Coast    | Cereals                  | --  |
| Angola         | Grain milling            | Do not guarantee safety of investment & safety of personnel   |
| Sudan          | Grain milling            | Do not guarantee safety of investment & safety of personnel   |
| Tunisia        | Wheat                    | --  |
| Senegal        | Wheat                    | --  |
| Uganda         | Grain milling            | Do not guarantee safety of investment & safety of personnel   |

GRAIN CEREALS *continued*

(Question No. 11)

| <u>Country</u> | <u>Processed Product</u> | <u>Reasons</u>  |
|----------------|--------------------------|---|
| Somalia        | Grain milling            | Do not guarantee safety of investment & safety of personnel |
| Ethiopia       | Grain milling            | Do not guarantee safety of investment & safety of personnel |
| Korea          | Grain milling            | Do not guarantee safety of investment & safety of personnel |
| Ghana          | Grain milling            | Do not guarantee safety of investment & safety of personnel |
| Turkey         | Baby food                | na  |
| Indonesia      | Cereal-based products    | Political instability                                       |
| Philippines    | Cereal-based products    | Political instability; questionable payments situation      |
| Thailand       | Cereal-based products    | Political instability                                       |
| Lebanon        | Cereal-based products    | Political instability                                       |
| India          | Cereal-based products    | na  |

**B. CANE & BEET SUGAR**

|       |       |  |
|-------|-------|--|
| Sudan | Sugar | Lack of labor, managerial & other resources; political climate |
|-------|-------|--|

**C. STARCH & STARCH DERIVATIVES**

|       |        |                         |
|-------|--------|-------------------------|
| Egypt | Starch | Poor investment climate |
|-------|--------|-------------------------|

**D. MEAT & MEAT PRODUCTS**

| <u>COUNTRY</u> | <u>Processed Product</u> | <u>Reasons</u>                                |
|----------------|--------------------------|---|
| Argentina      | Cattle breeding          | Long range economic & political uncertainties |

**E. FISH & FISH PRODUCTS**

|             |                        |  |
|-------------|------------------------|--|
| Peru        | Fishery                | Political climate                                    |
| Chile       | Fishery                | Political climate                                    |
| Angola      | Fish                   | Unstable political climate                           |
| Malaysia    | Fish farming           | Not too well developed                               |
| Philippines | Tuna; fishing; canning | Competition recently invested - they will wait & see |

**F. MILK & MILK PRODUCTS**

| <u>Country</u> | <u>Processed Product</u> | <u>Reasons</u>         |
|----------------|--------------------------|------------------------|
| Egypt          | Ice cream                | Lack of infrastructure |
| Nigeria        | Ice cream                | Lack of infrastructure |
|                | Baby food                | na                     |
| Ivery Coast    | Ice cream                | Lack of infrastructure |
| Senegal        | Ice cream                | Lack of infrastructure |
| Tunisia        | Ice cream                | Lack of infrastructure |
| Turkey         | Baby food                | na                     |

**G. COFFEE & PRODUCTS**

|          |        |  |
|----------|--------|--|
| Columbia | Coffee | Unstable political climate; no long-term local or regional market potential; under-developed infrastructure and lack of qualified management or trained personnel  |
| Angola   | Coffee | Unstable political climate; government policy; currency repatriation not permitted; no investment & financing guarantees; no long-term local or regional market potential; under-developed infrastructure; lack of qualified management or trained personnel & labor collective bargaining climate |

**H. COCOA BEANS & PRODUCTS**

| <b><u>COUNTRY</u></b> | <b><u>Processed Product</u></b> | <b><u>Reasons</u></b>   |
|-----------------------|---------------------------------|---|
| <b>Nigeria</b>        | <b>Cocoa</b>                    | <b>Unstable political climate &amp;<br/>lack of qualified management or<br/>trained personnel</b> |

**I. ANIMAL FEEDSTUFF & LIQUID SUPPLEMENT**

|                  |                         |           |
|------------------|-------------------------|-----------|
| <b>Liberia</b>   | <b>Animal Feedstuff</b> | <b>na</b> |
| <b>Indonesia</b> | <b>Animal Feedstuff</b> | <b>na</b> |

**K. VARIOUS CATEGORIES NOT SPECIFIED**

| <b><u>COUNTRY</u></b> | <b><u>Processed Product</u></b>   | <b><u>Reasons</u></b>   |
|-----------------------|-----------------------------------|---|
| Argentina             | Various products                  | Political climate   |
| Peru                  | "                                 | "   |
| Colombia              | "                                 | Political instability and/or<br>poor economic environment                                   |
| Honduras              | "                                 | "   |
| Ecuador               | "                                 | Political instability and/or<br>poor economic environment                                   |
| Nigeria               | "                                 | "   |
| Egypt                 | "                                 | "   |
| Ivory Coast           | "                                 | "   |
| Sudan                 | "                                 | "   |
| Iran                  | "                                 | Has best potential if proper<br>welcome mat were presented to a<br>member of their industry |
|                       | Institutional food                | No government decisiveness &<br>reliability   |
| Hong. Rep.            | Various consumer<br>food products | Political instability and/or<br>poor economic environment                                   |
| Indonesia             | "                                 | "   |
| Pakistan              | "                                 | "   |
| Chile                 | "                                 | "   |
| Iraq                  | "                                 | "   |
| Sri Lanka             | "                                 | "   |
| Senegal               | "                                 | "   |
| India                 | "                                 | "   |

Summary of Reasons Why Countries Do Not Presently Meet  
Company Criteria for Investment But Have Long-Term Potential

Total Incidence of Reasons

|  | <u>Total (X)</u> | <u>Latin<br/>Amer.</u> | <u>Asia</u> | <u>Africa</u> |
|--|------------------|------------------------|-------------|---------------|
| a. unstable political<br>climate         | 31 (35X)         | 8                      | 10          | 13            |
| j. poor economic<br>environment          | 22 (25X)         | 4                      | 6           | 12            |
| c. no inv./fin.<br>guarantees            | 12 (14X)         | 3                      | 1           | 8             |
| l. safety of personnel<br>not guaranteed | 11 (13X)         | 3                      | 1           | 7             |
| e. underdeveloped infra-<br>structure    | 5 ( 6X)          | 1                      | --          | 4             |
| f. lack of qualified<br>personnel        | 4 ( 5X)          | 1                      | --          | 3             |
| m. lack of hard-<br>currency             | 1 ( 1X)          | --                     | --          | 1             |
| i. unavailable raw<br>material           | 1 ( 1X)          | 1                      | --          | --            |
| d. no long-term<br>market potential      | 1 ( 1X)          | 1                      | --          | --            |
|  | <hr/>            | <hr/>                  | <hr/>       | <hr/>         |
|  | 66(101X)         | 22                     | 18          | 46            |

Summary of Company Response to Question No. 12

12. For the countries listed above in Nos. 10 and 11, what are your estimates for domestic market size and export demand.

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**Note:** Most of the companies did not complete this question, the reasons being lack of data or confidentiality.





Summary of Company Response to Questions Nos. 13 & 14

An analysis of what companies anticipate in the way of trends in processing technology in their field, based on response to questionnaire and interviews with the companies, is given in Chapter III.

Company Response to Question No. 15

15. In addition to present projects, does your company consider processing any products in a developing country or region over the next 10 years, or even in the longer term? If yes, in which countries (in order of priority) or regions and describe envisaged operation(s).

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**Note:** Many of the participants responded to this question in the affirmative and referred to their answers to Question No. 10: "Countries which currently meet their investment criteria".

A. CEREAL GRAINS

| <u>Region</u>        | <u>Product</u>  | <u>Type of Operation</u> | <u>Technology to be used</u>              |
|----------------------|-----------------|--------------------------|---|
| <u>Country</u>       |                 |                          |   |
| <u>Africa</u>        | Various cereals | Various*                 | Flour milling                             |
| Nigeria              | " "             | "                        | Manufacture of baby food                  |
|                      | Maize           | --                       | Wet milling                               |
| Egypt                | Various cereals | --                       | Manufacture of baby food                  |
| Sudan                | Maize           | --                       | Wet milling                               |
| Zambia               | "               | --                       | " "                                       |
| Tunisia              | "               | --                       | " "                                       |
| Algeria              | "               | --                       | " "                                       |
| <u>Middle East</u>   | Flour           | Various*                 |   |
|                      | Various cereals | --                       | Finished grain products                   |
| <u>Latin America</u> | Various cereals | Various*                 | Flour milling                             |
| Venezuela            | " "             | --                       | Mixing & packaging of consumer products   |
|                      | Wheat           | --                       | Pasta                                     |
| Brazil               | Maize           | --                       | Starch production                         |
|                      | Various cereals | --                       | Mixing & packaging of consumer products   |
| Mexico               | " "             | --                       | Expansion of mixing & packaging operation |
| <u>Asia</u>          |                 |                          |   |
| Far East             | Various cereals | Various*                 | Flour milling                             |
| Indonesia            | Maize           | --                       | Starch manufacture                        |
|                      | Various cereals | --                       | Manufacture of baby food                  |
| Iran                 | " "             | --                       | " " " "                                   |
| Malaysia             | " "             | --                       | " " " "                                   |
| Turkey               | " "             | --                       | " " " "                                   |
| Philippines          | Maize           | --                       | Starch manufacture                        |

\* Minority holding, participation, technical assistance or management contract

**B. CANE AND BEET SUGAR**

| <u>Region</u>      | <u>Product</u>     | <u>Type of Operation</u> | <u>Technology to be used</u> |
|--------------------|--------------------|--------------------------|------------------------------|
| <u>Country</u>     |                    |                          |                              |
| <u>Africa</u>      |                    |                          |                              |
| Kenya              | Cane sugar         | JV/Licensing             | Processed & snack foods      |
| "                  | Beet sugar         | --                       | Beet sugar technology        |
| Ivory Coast        | Cane or beet sugar | JV/Licensing             | Processed & snack foods      |
| Nigeria            | Cane or beet sugar | "                        | " " "                        |
| Sudan              | "                  | "                        | " " "                        |
| Egypt              | "                  | "                        | " " "                        |
| Algeria            | Beet sugar         | Technical assistance     | Beet sugar technology        |
| Morocco            | "                  | "                        | " " "                        |
| Senegal            | "                  | "                        | " " "                        |
| Mauritania         | Cane sugar         | Refinery                 | Refining                     |
| Libya              | Beet sugar         | Technical assistance     | -                            |
| <u>Middle East</u> |                    |                          |                              |
| Iran               | Cane or beet sugar | JV/Licensing             | Processed & snack foods      |
|                    | Beet sugar         | Technical assistance     | Beet sugar technology        |
| Iraq               | " "                | "                        | " " "                        |
| Jordan             | " "                | "                        | " " "                        |
| <u>Asia</u>        |                    |                          |                              |
| Afghanistan        | " "                | "                        | " " "                        |
| India              | " "                | "                        | " " "                        |
| Pakistan           | " "                | "                        | " " "                        |
| Turkey             | " "                | "                        | " " "                        |
| Philippines        | Cane or beet sugar | Subsidiary               | Processed & snack foods      |

| <u>Region</u><br><u>Country</u> | <u>Product</u>     | <u>Type of Operation</u> | <u>Technology to be used</u>            |
|---------------------------------|--------------------|--------------------------|---|
| <u>Latin America</u>            | Sugar              | Open                     | Most modern sugar production technology |
| Brazil                          | Cane or beet sugar | Subsidiary               | Processed & snack foods                 |
| Venezuela                       | "                  | "                        | " " "                                   |
| Uruguay                         | Beet sugar         | Technical assistance     | Beet sugar technology                   |
| Yugoslavia                      | Beet sugar         | Technical assistance     | Beet sugar technology                   |

C. STARCH AND STARCH DERIVATIVES

|                      |      |    |             |
|----------------------|------|----|-------------|
| <u>Africa</u>        |      |    |             |
| Nigeria              | Mais | -- | Wet milling |
| Sudan                | "    | -- | " "         |
| Zambia               | "    | -- | " "         |
| Tunisia              | "    | -- | " "         |
| Algeria              | "    | -- | " "         |
| <u>Asia</u>          |      |    |             |
| Indonesia            | "    | -- | Wet milling |
| Philippines          | "    | -- | " "         |
| <u>Latin America</u> |      |    |             |
| Brazil               | "    | -- | Wet milling |

**D. MEAT & PRODUCTS**  
(including poultry & animal fats)

| <u>Region</u>        | <u>Product</u>   | <u>Type of Operation</u> | <u>Technology to be used</u> |
|----------------------|------------------|--------------------------|------------------------------|
| <u>COMBEEY</u>       |                  |                          |                              |
| <u>Africa</u>        |                  |                          |                              |
| Tanzania             | Pork/poultry     | --                       | --                           |
| <u>Latin America</u> |                  |                          |                              |
|                      | Meat/animal fats | Minority holding/JV      | Processed meat products      |
| Brazil               | Meat/animal fats | Minority holding/JV      | Processed meat products      |
| Venezuela            | Meat             | JV/Licensing             | Processed food products      |

**E. FISH & FISH PRODUCTS**

|                      |                 |    |                           |
|----------------------|-----------------|----|---------------------------|
| <u>Africa</u>        |                 |    |                           |
| Angola               | Fish            | -- | Trawling & processing     |
| Mozambique           | Shrimp          | -- | Trawling                  |
| <u>Asia</u>          |                 |    |                           |
| India                | Shrimp          | -- | Shrimp trawling           |
|                      | Various seafood | -- | Processing, freezing      |
| Niawi                | " "             | -- | " "                       |
| Indonesia            | " "             | -- | " "                       |
| <u>Latin America</u> |                 |    |                           |
| Brazil               | " "             | -- | Trawling & processing     |
| Argentina            | " "             | -- | " "                       |
| Chile                | " "             | -- | Fish farming; cultivation |

**F. MILK & MILK PRODUCTS**

| <u>Region</u><br><u>COUNTRY</u> | <u>Product</u> | <u>Type of Operation</u>             | <u>Technology to be used</u> |
|---------------------------------|----------------|--------------------------------------|------------------------------|
| <b><u>Africa</u></b>            |                |                                      |                              |
|                                 | Dairy products | Licensing/JV/<br>management contract | --                           |
| Egypt                           | Milk           | --                                   | Manufacture of baby food     |
| Nigeria                         | "              | --                                   | " " " "                      |
| <b><u>Middle East</u></b>       |                |                                      |                              |
|                                 | Dairy products | Licensing/JV/<br>management contract |                              |
| <b><u>Asia</u></b>              |                |                                      |                              |
| Indonesia                       | Milk           | --                                   | Manufacture of baby food     |
| Malaysia                        | "              | --                                   | " " " "                      |
| Iran                            | "              | --                                   | " " " "                      |
| Turkey                          | "              | --                                   | " " " "                      |
| <b><u>Latin America</u></b>     |                |                                      |                              |
| Brazil                          | Milk           | JV                                   | Butter production            |
|                                 | Dairy products | Licensing/JV/<br>management contract | "                            |

**G. COFFEE & PRODUCTS**

|             |        |      |      |
|-------------|--------|------|------|
| Ivory Coast | Coffee | N.S. | N.S. |
|-------------|--------|------|------|



**H. COCOA BEANS & PRODUCTS**

| <u>Region</u>  | <u>Product</u> | <u>Type of Operation</u> | <u>Technology to be used</u> |
|----------------|----------------|--------------------------|------------------------------|
| <u>Country</u> |                |                          |                              |
| Ivory Coast    | Cocoa          | N.S.                     | N.S.                         |
| West Africa    | Cocoa          | Participation            | Pressing                     |
| Ecuador        | Cocoa          | JV/Licensing             | Confectionary products       |

**J. ANIMAL FEEDSTUFF & LIQUID SUPPLEMENT**

|                                |           |   |   |
|--------------------------------|-----------|---|---|
| <u>Africa/<br/>Middle East</u> | Feedstuff | JV/technical assistance/<br>licensing/<br>management contract | Premixes, concentrates, compound feed, milk replacers |
| <u>Asia</u>                    |           |   |   |
| Indonesia                      | Feedstuff | N.S.  | Compound feed   |
| <u>Latin America</u>           | Feedstuff | JV/TA/<br>licensing/<br>management contract                   | Premixes, compound feed, milk replacers               |

**K. PRODUCT NOT SPECIFIED**

| <u>Region</u><br><u>Country</u> | <u>Product</u> | <u>Type of</u><br><u>Operation</u> | <u>Technology to be used</u>                                  |
|---------------------------------|----------------|------------------------------------|---|
| <b><u>Africa</u></b>            |                |                                    |   |
| Nigeria                         | --             | --                                 | Processing, packaging & distribution of various food products |
| <b><u>Asia</u></b>              |                |                                    |   |
| Pakistan                        | --             | --                                 | Processing, packaging & distribution of various food products |
| Indonesia                       | --             | --                                 | Processing of food products                                   |
| Iran                            | --             | --                                 | " " " "   |
| <b><u>Latin America</u></b>     |                |                                    |   |
| Mexico                          | --             | --                                 | Food processing   |
| Venezuela                       | --             | --                                 | " " "   |
|                                 |                | --                                 | Processing, packaging & distribution of various food products |
| Argentina                       | --             | --                                 | " " " "   |
| Brazil                          | --             | --                                 | " " " "   |

Summary of Company Response to Question 16\*

16. In order to better determine a developing country's potential for further processing in each product area, your assessment of the market in which you are now operating would be most helpful. Would you thus be so kind as to complete to the best of your ability the following forms for each separately listed group.

\_\_\_\_\_

\*Many companies did not provide this information; the reason stated by some companies was that it was too time-consuming, while others said that it just was not available.

A. Cereal Grains (flour, bakery products and cereals made of rice, maize, wheat, sorghum, barley, oats, rye, millet)

| <u>Developing Country</u> | <u>Processed Products</u> | <u>Plant * Capacity</u><br>(0) | <u>Utilized * Capacity</u><br>(0) | <u>Technology * Used</u><br>(0) | <u>Degree of * Processing</u><br>(0)  | <u>Percent * Exported</u><br>(0) | <u>Expected * Total Demand (quantity)</u><br>(0) |
|---------------------------|---------------------------|--------------------------------|-----------------------------------|---------------------------------|---------------------------------------|----------------------------------|--|
| Mexico                    | Baby cereals              | 575 mm doz.                    | 76%                               | Food technology                 | Drying, grinding & packaging          |                                  | 436 mm   |
|                           | Pasta                     | 50 t/day                       | 100%                              |                                 | Consumer packaging                    |                                  | --   |
| Venezuela                 | Cereals                   | 432 mm doz.                    | 70%                               | Food technology                 | Consumer packaging                    |                                  | 302 mm   |
|                           | Flour mill                | 470 t/day                      | 75%                               |                                 | Bulk flour in industrial bags         | 5%                               |  |
|                           | Pasta                     | 100 t/day                      | 85%                               |                                 | Consumer packaging                    |                                  |  |
| Brazil                    | Pasta (wheat)             | 7,200 tons                     | 7,000 tons                        | Static drying cells             | From milled wheat to finished product | (x)                              | 100,000 tons only in Sao Paulo city and state    |
|                           |                           |                                |                                   |                                 |                                       |                                  |  |
|                           |                           |                                |                                   |                                 |                                       |                                  |  |
|                           |                           |                                |                                   |                                 |                                       |                                  |  |
|                           |                           |                                |                                   |                                 |                                       |                                  |  |
|                           |                           |                                |                                   |                                 |                                       |                                  |  |
|                           |                           |                                |                                   |                                 |                                       |                                  |  |
|                           |                           |                                |                                   |                                 |                                       |                                  |  |
|                           |                           |                                |                                   |                                 |                                       |                                  |  |
|                           |                           |                                |                                   |                                 |                                       |                                  |  |
|                           |                           |                                |                                   |                                 |                                       |                                  |  |

\* Please indicate with an X if these refer to total market, with a zero (0) if these refer only to your company's own operation.

B. CANE AND BEET SUGAR (refined and confectionary sugar)

| <u>Developing Country</u> | <u>Processed Products</u> | <u>Plant * Utilized *</u><br>(Hectares of beets) | <u>Technology *</u><br><u>Used</u> | <u>Degree of * Processing</u>      | <u>Percent * Exported</u> | <u>Expected * Total Demand (quantity)</u> |
|---------------------------|---------------------------|--|------------------------------------|------------------------------------|---------------------------|---|
| Iran                      | Beets                     | 135,000  |                                    |                                    |                           |   |
| Iraq                      | Beets                     | 5,000  |                                    |                                    |                           |   |
| Yugoslavia                | Beets                     | 106,000  |                                    |                                    |                           |   |
| Uruguay                   | Beets                     | 25,000   |                                    |                                    |                           |   |
| Turkey                    | Beets                     | 160,000  |                                    |                                    |                           |   |
| Pakistan                  | Beets                     | 3,200  |                                    |                                    |                           |   |
| Thailand                  | Raw sugar refinery        | 400,000 (0) tons/year                            | --                                 | Finished 50Z (0)<br>Unfinished 50Z | 70Z (0)                   | 360,000 tons/year                         |
|                           |                           |  |                                    |                                    |                           |   |
|                           |                           |  |                                    |                                    |                           |   |
|                           |                           |  |                                    |                                    |                           |   |
|                           |                           |  |                                    |                                    |                           |   |
|                           |                           |  |                                    |                                    |                           |   |
|                           |                           |  |                                    |                                    |                           |   |
|                           |                           |  |                                    |                                    |                           |   |
|                           |                           |  |                                    |                                    |                           |   |
|                           |                           |  |                                    |                                    |                           |   |
|                           |                           |  |                                    |                                    |                           |   |
|                           |                           |  |                                    |                                    |                           |   |
|                           |                           |  |                                    |                                    |                           |   |
|                           |                           |  |                                    |                                    |                           |   |
|                           |                           |  |                                    |                                    |                           |   |
|                           |                           |  |                                    |                                    |                           |   |

\* Please indicate with an X if these refer to total market, with a zero (0) if these refer only to your company's own operation.

## Tate and Lyle Ltd.

## B. CANE AND BEET SUGAR (refined and confectionery sugar)

1980

| Developing Country | Processed Products | Tons p.a.                    |                     | Technology * Used | Degree of * Processing | Percent * Exported | forecast<br>Expected *<br>Total Demand<br>(quantity) |
|--------------------|--------------------|------------------------------|---------------------|-------------------|------------------------|--------------------|--|
|                    |                    | Plant * Capacity<br>(1974/5) | Utilized * Capacity |                   |                        |                    |  |
| Angola             | "                  | 70,000                       | 70,000              | Modern            | Raw/White              | 11.5%              | 90,000   |
| Egypt              | "                  | 534,000                      | 534,000             | "                 | Raw/White/Refined      | 20%                | 634,000  |
| Ethiopia           | "                  | 130,000                      | 130,000             | "                 | Raw/White              | 8%                 | 162,000  |
| Ghana              | "                  | 5,000                        | 5,000               | "                 | White                  | Nil                | 60,000   |
| Ivory Coast        | "                  | 20,000                       | 20,000              | "                 | White                  | Nil                | 112,000  |
| Kenya              | "                  | 179,000                      | 179,000             | "                 | Raw/White              | Nil                | 247,000  |
| Niger              | "                  | Nil                          | Nil                 | Nil               | Nil                    | Nil                | 16,000   |
| Nigeria            | "                  | 40,000                       | 40,000              | Modern            | White                  | Nil                | 240,000  |
| Senegal            | "                  | Nil                          | Nil                 | Nil               | --                     | --                 | 70,000   |
| Somalia            | "                  | 33,000                       | 33,000              | Modern            | Raw/White              | Nil                | 37,000   |
| Sudan              | "                  | 120,000                      | 120,000             | "                 | Raw/White              | Nil                | 168,000  |
| Tanzania           | "                  | 105,000                      | 105,000             | "                 | Raw/White              | 51%                | 141,000  |
| Tunisia            | "                  | 4,000                        | 4,000               | "                 | White                  |                    | 176,000  |
| Uganda             | "                  | 44,000                       | 44,000              | "                 | Raw/White              | Nil                | 44,000   |
| Zaire              | "                  | 68,000                       | 68,000              | "                 | Raw/White              | Nil                | 123,000  |
| Zambia             | "                  | 65,000                       | 65,000              | "                 | Raw/White              | Nil                | 97,000   |
| Bangladesh         | "                  | 108,000                      | 108,000             | "                 | Raw/White              | Nil                | 134,000  |
| Cambodia (KR)      | "                  | Nil                          | Nil                 | --                | --                     | --                 | 20,000   |
| India              | "                  | 4,489,000                    | 5,025,000           | Modern            | Raw/White              | 20%                | 4,750,000  |

\* Please indicate with an X if these refer to total market, with a zero (0) if these refer only to your company's own operation.

**B. CANE AND BEET SUGAR (refined and confectionery sugar)**

1980  
forecast

Tons p.a. Utilized \*

| Developing Country | Processed Products | Plant * Capacity (1974/5) | Utilized * Capacity | Technology * Used | Degree of * Processing | Percent * Exported | Expected * Total Demand (quantity) |
|--------------------|--------------------|---------------------------|---------------------|-------------------|------------------------|--------------------|------------------------------------|
|                    |                    |                           |                     |                   |                        |                    |                                    |
| Indonesia          | "                  | 935,000                   | 935,000             | Modern            | Raw/White              | Nil                | 1,175,000                          |
| Iran               | "                  | 433,000                   | 433,000             | "                 | Raw/White              | Nil                | 1,486,000                          |
| Iraq               | "                  | 20,000                    | 20,000              | "                 | Raw/White              | Nil                | 450,000                            |
| (N) Korea DR       | "                  | Nil                       | Nil                 | --                | --                     | --                 | 140,000                            |
| (S) Korea R        | "                  | --                        | --                  | --                | --                     | --                 | 340,000                            |
| Malaysia           | "                  | 20,000                    | 20,000              | Modern            | Raw/White              | Nil                | 366,000                            |
| Pakistan           | "                  | 520,000                   | 520,000             | "                 | Raw/White              | Nil                | 520,000                            |
| Philippines        | "                  | 2,525,000                 | 2,525,000           | "                 | Raw/White              | 66%                | 1,200,000                          |
| Sri Lanka          | "                  | 21,000                    | 21,000              | Modern & Cottage  | Raw/White              | Nil                | 100,000                            |
| Thailand           | "                  | 1,500,000                 | 1,500,000           | Modern            | Raw/White              | 33%                | 1,060,000                          |
| Turkey             | "                  | --                        | --                  | --                | --                     | --                 | 77,000                             |
| N. Vietnam         | "                  | --                        | --                  | --                | --                     | --                 | 150,000                            |
| S. Vietnam         | "                  | --                        | --                  | --                | --                     | --                 | 1,120,000                          |
| Argentina          | "                  | 1,514,000                 | 1,514,000           | Modern            | Raw/White              | 33%                | 140,000                            |
| Bolivia            | "                  | 165,000                   | 165,000             | "                 | Raw/White              | 34%                | 3,000,000                          |
| Brazil             | "                  | 6,931,000                 | 6,931,000           | Modern & Cottage  | Raw/White              | 35%                | 814,000                            |
| Colombia           | "                  | 895,000                   | 895,000             | "                 | Raw/White              | 16%                | 281,000                            |
| Ecuador            | "                  | 280,000                   | 280,000             | Modern            | Raw/White              | 16%                | 65,000                             |
| Paraguay           | "                  | 76,000                    | 76,000              | "                 | Raw/White              | 40%                |                                    |

\* Please indicate with an X if these refer to total market, with a zero (0) if these refer only to your company's own operation.

B. CANE AND BEET SUGAR (refined and confectionery sugar)

| Developing Country | Processed Products | Tons p.a. Plant Capacity | Tons p.a. Utilized Capacity | Technology Used | Degree of Processing | Percent Exported | 1980                                      |
|--------------------|--------------------|--------------------------|-----------------------------|-----------------|----------------------|------------------|---|
|                    |                    |                          |                             |                 |                      |                  | forecast Expected Total Demand (quantity) |
| Peru               | "                  | 992,000                  | 992,000                     | Modern          | Raw/White            | 36%              | 650,000                                   |
| Uruguay            | "                  | 90,000                   | 90,000                      | "               | Raw/White            | Nil              | 112,000                                   |
| Venezuela          | "                  | 551,000                  | 551,000                     | "               | Raw/White            | less than 1%     | 650,000                                   |
| Honduras           | "                  | 67,000                   | 67,000                      | "               | Raw/White            | 10%              | 76,000                                    |
| Yugoslavia         | "                  | 560,000                  | 560,000                     | "               | Raw/White            | Nil              | 628,000                                   |
|                    |                    |                          |                             |                 |                      |                  |   |
|                    |                    |                          |                             |                 |                      |                  |   |
|                    |                    |                          |                             |                 |                      |                  |   |
|                    |                    |                          |                             |                 |                      |                  |   |
|                    |                    |                          |                             |                 |                      |                  |   |
|                    |                    |                          |                             |                 |                      |                  |   |
|                    |                    |                          |                             |                 |                      |                  |   |
|                    |                    |                          |                             |                 |                      |                  |   |
|                    |                    |                          |                             |                 |                      |                  |   |
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|                    |                    |                          |                             |                 |                      |                  |   |
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|                    |                    |                          |                             |                 |                      |                  |   |
|                    |                    |                          |                             |                 |                      |                  |   |
|                    |                    |                          |                             |                 |                      |                  |   |

\* Please indicate with an X if these refer to total market, with a zero (0) if these refer only to your company's own operation.





**D. MEAT AND MEAT PRODUCTS (frozen, prepared and canned)**  
 (including poultry and animal fats)

| <u>Developing Country</u> | <u>Processed Products</u>                              | <u>Plant * Capacity</u> | <u>Utilized * Capacity</u> | <u>Technology * Used</u> | <u>Degree of * Processing</u>                  | <u>Percent * Total Demand Exported</u> | <u>Expected * Total Demand (quantity)</u> |
|---------------------------|--|-------------------------|----------------------------|--------------------------|--|--|---|
| Argentina                 | meat extract<br>corned beef<br>chilled and frozen beef | 110,000 head/year       | May (one month)            |                          | growing, slaughter processing (cuts or canned) | 90%                                    |   |
| Paraguay                  | cuts   | 80,000                  | Seasonal - Feb-Aug         |                          |  | 80%                                    |   |
| Mexico                    | baby food  | na <sup>1</sup>         | na                         | food technology          | grinding, processing and packaging             | 0                                      | 1,053M doz.                               |
| Venezuela                 | "  | "                       | "                          | "                        | "  | 0                                      | 53M doz.                                  |
| Philippines               | "  | "                       | "                          | "                        | "  | 0                                      | 14M doz.                                  |
| Costa Rica                | "  | "                       | f                          | "                        | "  | 64                                     | 25M doz.                                  |
|                           |  |                         |                            |                          |  |  |   |
|                           |  |                         |                            |                          |  |  |   |
|                           |  |                         |                            |                          |  |  |   |
|                           |  |                         |                            |                          |  |  |   |
|                           |  |                         |                            |                          |  |  |   |
|                           |  |                         |                            |                          |  |  |   |
|                           |  |                         |                            |                          |  |  |   |
|                           |  |                         |                            |                          |  |  |   |

<sup>1</sup>meat-type products are a small portion of baby foods sales and are produced as needed to meet sales demand.  
 \* Please indicate with an X if these refer to total market, with a zero (0) if these refer only to your company's own operation.

I. FISH AND FISH PRODUCTS (frozen, prepared and canned)

| Developing Country | Processed Products | Plant * Capacity                     | Utilized * Capacity | Technology * Used            | Degree of * Processing | Percent * Exported | Expected * Total Demand (quantity) |
|--------------------|--------------------|--------------------------------------|---------------------|------------------------------|------------------------|--------------------|------------------------------------|
| Guatemala          | shrimp             | 21 boats (100gt) 150 mt cold storage | all                 | shrimp trawling              | freezing, raw          | 100%               |                                    |
| Gambia             | shrimp/fish        | 670 mt cold storage                  | 100 mt              | shrimp and fish freezing     | boiled or frozen       | 90%                |                                    |
| Indonesia          | shrimp             | 10 boats (160gt) 100 mt cold storage | all                 | shrimp trawling              | freezing, raw          | 100%               |                                    |
|                    | tuna               | 6 boats (110gt) 300 mt cold storage  | 4 boats             | pole fishing, brine freezing | freezing, raw          | 100%               |                                    |
| Pakistan           | shrimp             | 10 boats (30gt) 300 mt cold storage  | all                 | shrimp trawling              | freezing, raw          | 100%               |                                    |
| Ghana              | tuna               | 2 boats (284gt)                      | all                 | pole fishing                 | freezing, raw          | 50%                |                                    |
| Morocco            | fishes             | 1 boat (499gt)                       | all                 | trawling                     | freezing, raw          | 95%                |                                    |

\* Please indicate with an X if these refer to total market, with a zero (0) if these refer only to your company's own operation.

F. MILK AND MILK PRODUCTS (cheese, butter, ice cream, powdered and condensed milk)

| Developing Country | Processed Products           | Plant * Capacity          | Utilized * Capacity       | Technology * Used                        | Degree of * Processing | Percent * Total Demand Exported (quantity) | Expected * Total Demand (quantity) |
|--------------------|------------------------------|---------------------------|---------------------------|--|------------------------|--|------------------------------------|
| Paraguay           | dairy herd (milk)            | (0)                       |                           |  |                        |  |                                    |
| Peru               | evaporated milk              | 6 mm cases                | 90%                       | evaporation, sterilization, packaging    | considerable           | 0  | unknown                            |
| Philippines        | "                            | 3 mm cases                | 65%                       | "  |                        |  |                                    |
| Malaysia           | "                            | 2 mm cases                | --                        | "  |                        |  |                                    |
| Brazil             | fresh dairy products -cheese | 20,000 tons<br>3,000 tons | 20,000 tons<br>4,000 tons | French technology<br>European technology | 100%<br>100%           |  | increase 8% per year               |
| Morocco            | yogurt                       | 6,000 tons                | 6,000 tons                | "  | 100%                   |  | 10% per year                       |
|                    |                              |                           |                           |  |                        |  |                                    |
|                    |                              |                           |                           |  |                        |  |                                    |
|                    |                              |                           |                           |  |                        |  |                                    |
|                    |                              |                           |                           |  |                        |  |                                    |
|                    |                              |                           |                           |  |                        |  |                                    |
|                    |                              |                           |                           |  |                        |  |                                    |
|                    |                              |                           |                           |  |                        |  |                                    |
|                    |                              |                           |                           |  |                        |  |                                    |
|                    |                              |                           |                           |  |                        |  |                                    |
|                    |                              |                           |                           |  |                        |  |                                    |
|                    |                              |                           |                           |  |                        |  |                                    |

\* Please indicate with an X if these refer to total market, with a zero (0) if these refer only to your company's own operation.

e. COFFEE AND PRODUCTS (soluble - spray and freeze dried)

| <u>Developing Country</u> | <u>Processed Products</u>    | <u>Plant Capacity</u> | <u>Utilized Capacity</u> | <u>Technology Used</u>  | <u>Degree of Processing</u> | <u>Percent Exported</u> | <u>Expected Total Demand (quantity)</u> |
|---------------------------|------------------------------|-----------------------|--------------------------|---|-----------------------------|-------------------------|---|
| Brazil                    | coffee beans                 | 50,000 bags/yr        | same                     | --  |                             | 75% (0)                 | 50,000 bags/yr (0)                      |
|                           | Instant beans                | 400 tons/month (0)    | 350 tons/month (0)       | --  | finished                    | 100% (0)                | 350 tons/month (0)                      |
| India                     | ground coffee (treat & grow) | 2 plants              | --                       | spray dry   | --                          | 75%                     |   |
| Kenya                     | coffee grown                 |                       |                          |   |                             |                         |   |
| Korea                     | ground coffee                | 3m lbs/yr             | 100%                     | roasting/grinding/<br>packaging (0)                             | complete                    | 0                       | --                                      |
|                           | soluble coffee               | 1.2m lbs/yr           | 100%                     | roasting/grinding/<br>packaging/extraction/<br>spray drying (0) | complete                    | 0                       | --                                      |

\* Please indicate with an X if these refer to total market, with a zero (0) if these refer only to your company's own operation.





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PART III

(343)

PRODUCT PROFILES

WORLDWIDE STUDY OF AGRO-INDUSTRIES

Prepared for:

Sectoral Studies Section  
UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION  
Vienna, Austria

Prepared by:

Business International S.A.  
Geneva, Switzerland



Introduction

The following profiles of food products covered in this survey are based on statistical data collected from a wide variety of sources. The objective of ~~the~~ these profiles was to provide an information basis for the BI research team in order that the most important issues and potential processing locations for each product group could be discussed effectively and intelligently with processors.

A. CEREAL GRAINS

1. Overview: Grain Production and Demand

The inherent flaw in the pattern of world grain production can be summarized fairly simply. The highly advanced producers have had the least need to continue building up output and stocks. The centrally planned countries and, to a lesser extent, the developing countries, have done well in the past in raising output, but not quite fast enough to meet the growing need for more food and for food with a higher nutritional content.

Until a few years ago, any survey of the growth of world food grain production might have come to some misleadingly optimistic conclusions. World output of foodgrains was rising at an annual average of 2.8% during the 20 years to 1973, while world population was rising by an average 2%. But during this period, according to the US Department of Agriculture, grain output was rising by 2.7% annually in the industrial countries, whose populations were expanding by only 1% a year. On the other hand, output was rising by 3% in the developing countries, whose populations were rising by 2.5% annually. But a small rise in nutritional standards in those countries caused their food consumption to rise by 3.5%, and the gap was thus met by increased imports.

Contrary to many beliefs, there is still available arable land and ways of raising grain yields still more to keep up with rising demand. According to some estimates, the acreage presently used for world food production could be doubled at a tolerable cost. The real problem is that demand for food in the developing countries is likely to outstrip the increase in their own output for at least another decade.

The FAO estimates that grain output in the developing countries was likely to expand by about 2.6% annually to 1985, while the demand for food was likely to grow at least 3.3%, a trend suggesting the need for annual grain imports of about 85 million tons by 1985, even without harvest failures (vs a present import level of about 50 million and an average of around 30 million in the early 1970s).

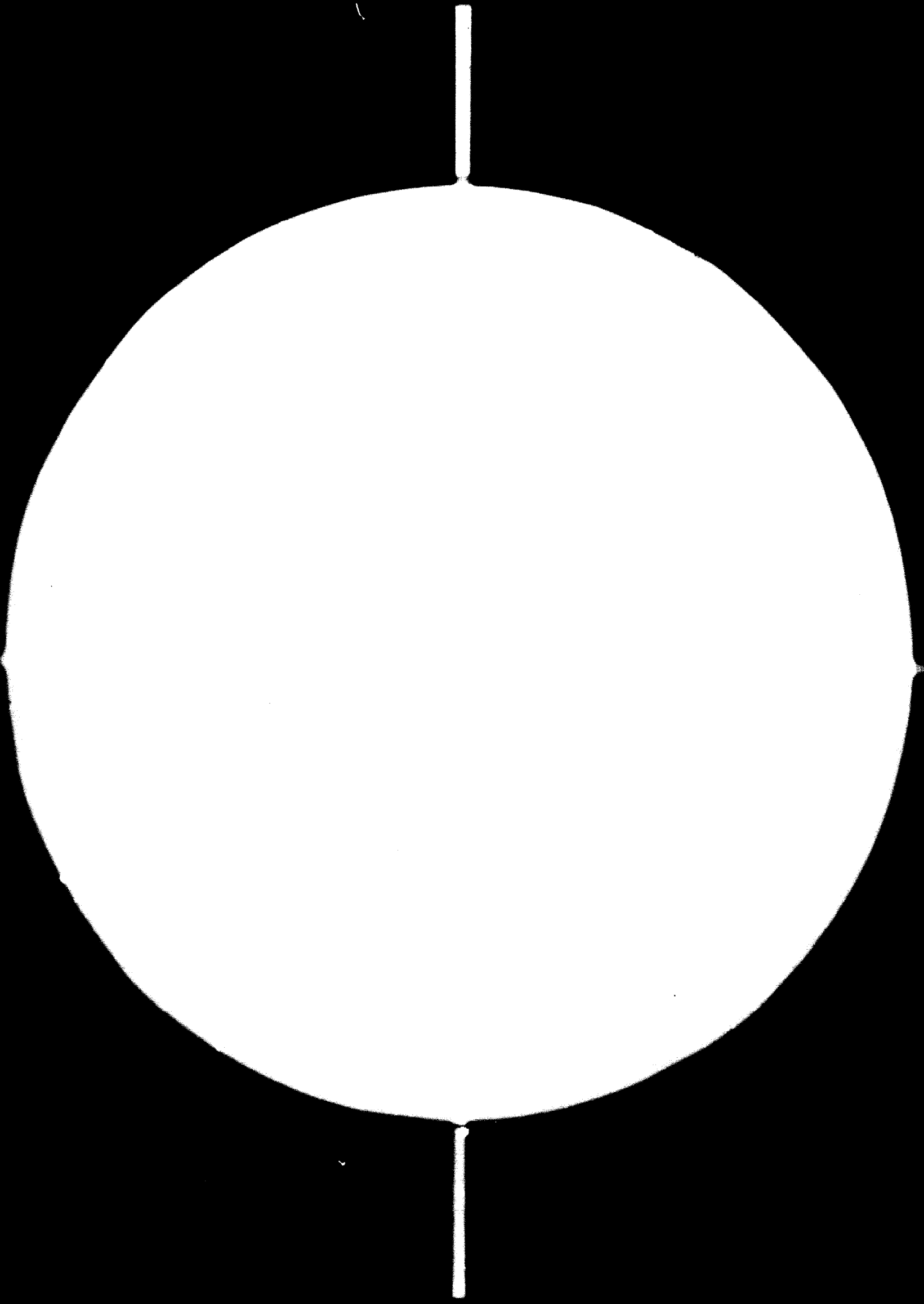
#### Some Promise in Higher Yields

Developing countries have expanded their grain production over the past 10 years. However, half of the increase is attributed to an extension of area sown and only half from improved yields. Of the major cereals, wheat has shown the best performance with a 23% gain in yields in developing countries. This is not the 30% needed to keep pace with the population, but it is hardly a failure.

**G - 562**

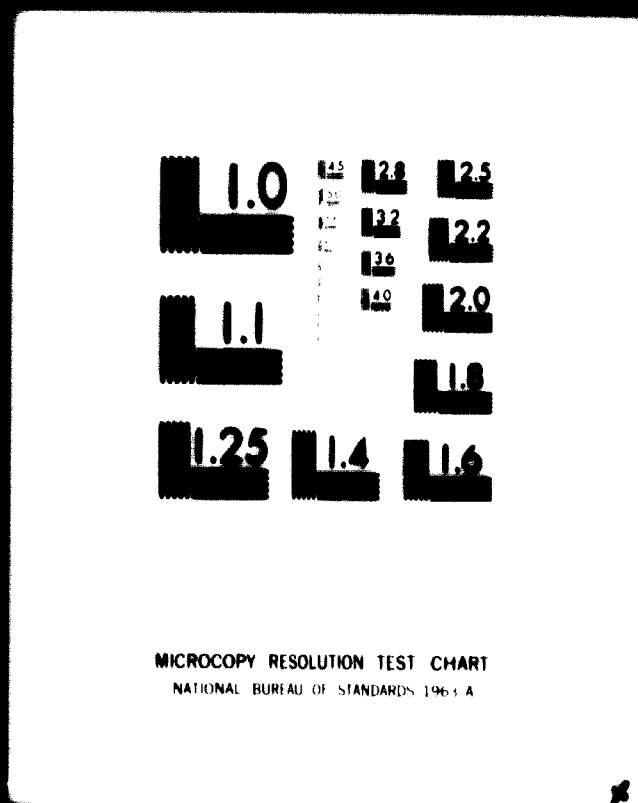


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Mr. Haldore Hanson, the Director General at the International Maize and Wheat Breeding Institute, in Mexico, warns that most of the increased cereal crops needed by developing countries must come from higher yields on present land. The short-strawed high-yielding wheats are now being grown on about 40% of all wheat lands in the developing world, covering some 25 million hectares. These Mexican varieties have been grown mainly in areas with better moisture supply and soils and planted by better trained farmers.

With maize, progress in yields has, to date, been less dramatic, but now many scientists believe a breakthrough is about to take place. Mr. Hanson believes that the higher-yielding varieties, together with associated new technology, could spread throughout developing world much more quickly than the new wheat technology of the 1960s.

Table 1World Grain Output: Wheat and Coarse Grains - 1961-75

|                             | 1961-65        |                  |                |                |                |                |  |
|-----------------------------|----------------|------------------|----------------|----------------|----------------|----------------|--|
|                             | <u>Average</u> | <u>1971/72</u>   | <u>1972/73</u> | <u>1973/74</u> | <u>1974/75</u> | <u>1975/76</u> |  |
| <b>Area:</b>                |                |                  |                |                |                |                |  |
|                             |                | (mn hectares)    |                |                |                |                |  |
| World                       | 544            | 568              | 561            | 580            | 588            | 603            |  |
| Developed countries         | 141            | 146              | 140            | 146            | 149            | 151            |  |
| Developing countries        | 182            | 200              | 198            | 204            | 207            | 215            |  |
| Centrally planned economies | 222            | 222              | 223            | 230            | 232            | 237            |  |
| <b>Production:</b>          |                |                  |                |                |                |                |  |
|                             |                | (mn metric tons) |                |                |                |                |  |
| World                       | 726            | 1,008            | 981            | 1,053          | 1,010          | 1,015          |  |
| Developed countries         | 318            | 447              | 430            | 443            | 418            | 455            |  |
| Developing countries        | 157            | 209              | 208            | 208            | 212            | 220            |  |
| Centrally planned economies | 250            | 352              | 343            | 401            | 377            | 330            |  |

**Sources:** FAO Monthly Bulletin of Agricultural Economics and Statistics and FAO Commodity Review and Outlook. Crop years to June 30.



Table 2World Grain Trade: Wheat and Coarse Grains - 1966-74  
(in mm metric tons)

|                                | 1966/67<br>1970/71<br>Average | <u>1971/72</u> | <u>1972/73</u> | <u>1973/74</u> | <u>1974/75</u> | <u>1975/76<sup>a</sup></u> |
|--------------------------------|-------------------------------|----------------|----------------|----------------|----------------|----------------------------|
| <b><u>Imports:</u></b>         |                               |                |                |                |                |                            |
| World                          | 95                            | 109            | 133            | 142            | 137            | 140                        |
| Developed countries            | 54                            | 57             | 63             | 71             | 66             | 66                         |
| Developing countries           | 28                            | 32             | 36             | 44             | 51             | 47                         |
| Centrally planned<br>economies | 12                            | 20             | 34             | 27             | 20             | 26                         |
| <b><u>Exports:</u></b>         |                               |                |                |                |                |                            |
| World                          | 97                            | 110            | 135            | 144            | 137            | 140                        |
| Developed countries            | 76                            | 92             | 122            | 125            | 110            | 122                        |
| Developing countries           | 13                            | 12             | 12             | 13             | 14             | 13                         |
| Centrally planned<br>economies | 7                             | 6              | 2              | 6              | 5              | 3                          |

<sup>a</sup> Forecast.Sources: FAO Monthly Bulletin of Agricultural Economics and Statistics and  
FAO Commodity Review and Outlook, 1975/76. Crop years to June 30.

## 2. Prospects for Wheat

Current estimates put 1976 wheat output at between 365 million and 385 million tons, up from 354 million tons in 1975. Most of the increase is expected to be accounted for by the USSR.

The most critical issue facing the world wheat economy is the need for accelerating production in developing countries. To accelerate growth, investments are required particularly for land improvement, irrigation and research for the development of higher yielding varieties adapted to local conditions. At the same time, it is necessary to adopt appropriate policies, especially in the fields of credit, land tenure and price support, to improve incentives to the producer and to reduce risks.

Depending upon availabilities, particularly from domestic output, the most immediate need of countries, especially those more vulnerable to fluctuations in production, is the establishment of adequate reserves. This entails large investments both for the purchase of commodities and for the creation of the necessary storage facilities.

### Factors Affecting Wheat Consumption

Among the long-term factors affecting the demand for wheat, particular account is taken of two elements: 1) population growth, which has been the main cause of the rapid rise in wheat consumption

in developing countries, and 2) changes in consumption habits: the increase in the consumption of meat and hence of grains for feed. In developed countries the price of wheat, in relation to that of coarse grains, and the availability of feed grains and other feedstuffs in general, may also have some bearing on the use of wheat for animal feed. Some increase is in any case expected following the current recovery in the animal populations in a number of countries and the lower supplies of coarse grains and nongrain feedstuffs (e.g. hay, sugar beets and potatoes) as a result of prolonged dry weather in some countries.

In the shorter-term, the levels of wheat prices, and their relationship to those of other feed and feedstuffs, are of major importance. A surprisingly inelasticity of demand for wheat with respect to price has been demonstrated in recent years in developing countries. Their unabated increase in imports, despite higher world market prices, has been in part due to concessional shipments - including food aid - from exporting countries, and the help of outside financial assistance. If wheat prices continue at levels comparable with recent years, some developing countries may have to continue to rely on financial assistance and food aid. Demand in some countries, particularly in Far East Asia, may also be affected by the price relationship between wheat and rice. In sum, the factors affecting demand, both long- and short-term, are:

- population growth
- consumption habits
- use of wheat for animal feed
- wheat prices
- price relationship between wheat and rice
- world monetary situation
- government decisions
- wheat stocks.

**Table C**  
**Evolution of Wheat Production and Demand - 1961-85**  
 (in '000 mt)

|                             | Production |         |         | Human Consumption <sup>mt</sup> |         |         | % increase<br>1975-85 |       |
|-----------------------------|------------|---------|---------|---------------------------------|---------|---------|-----------------------|-------|
|                             | 1961-65    | 1973    | 1975    | 1976                            | 1965    | 1975    |                       | 1985  |
| <b>World</b>                | 254,525    | 376,629 | 354,930 | 365-385,000                     | 202,040 | 232,939 | 276,787               | 18.8  |
| <b>Developed countries</b>  | 103,701    | 132,773 | 142,325 | 133-145,000                     | 60,109  | 60,468  | 61,094                | 1.0   |
| North America               | 48,404     | 62,567  | 75,174  | 73,100                          | 15,332  | 15,849  | 16,521                | 4.2   |
| Western Europe              | 44,565     | 55,407  | 52,973  | 53-56,500                       | 38,494  | 36,959  | 35,454                | - 4.1 |
| Oceania                     | 8,470      | 12,490  | 11,903  | 9.5-13,500                      | 1,309   | 1,632   | 1,890                 | 15.8  |
| Others                      | 2,262      | 2,309   | 2,276   |                                 | 4,893   | 6,028   | 7,228                 | 19.9  |
| <b>Developing countries</b> | 49,255     | 70,704  | 80,718  | 85-88,600                       | 61,599  | 84,678  | 115,413               | 36.3  |
| Africa                      | 4,012      | 4,787   | 3,821   | 9,500                           | 5,061   | 7,733   | 11,031                | 42.6  |
| Latin America               | 11,753     | 12,095  | 14,646  | 15-18,500                       | 11,917  | 16,393  | 22,643                | 38.1  |
| Asia & Far East             | 33,400     | 53,821  | 62,251  | 101-103,000                     | 44,474  | 60,348  | 81,474                | 35.0  |
| <b>Centrally Planned</b>    | 101,570    | 173,512 | 131,868 | 146-151,400                     | 80,332  | 87,793  | 100,280               | 14.2  |

<sup>a</sup> International Wheat Council estimates.

<sup>aa</sup> FAO estimates exclude animal and industrial consumption.

Sources: FAO, WBA, International Wheat Council.

Table 1

Leading Trade Exports in Percentage of Domestic Supply of Basic Goods & Services

|                        | 1972       |            | 1973       |            | 1974       |            | 1975       |     | Consumption Increase 1972-75 |       |       |     |        |       |
|------------------------|------------|------------|------------|------------|------------|------------|------------|-----|------------------------------|-------|-------|-----|--------|-------|
|                        | (in 100 m) | (in 100 m) | (in 100 m) | (in 100 m) | (in 100 m) | (in 100 m) | (in 100 m) |     |                              |       |       |     |        |       |
| <b>General Average</b> | 1,472      | 2,091      | 2,789      | 25.1       | 29.1       | 700        | 10         | 100 | 2,789                        | 150   | 60    | 100 | 3,000  | 10.3  |
| <b>South America</b>   |            |            |            |            |            |            |            |     |                              |       |       |     |        |       |
| Argentina              | 7,341      | 6,300      | 6,200      | - 13.0     | 20.0       | -          | 1,200      | 20  | 6,200                        | -     | 3,000 | 20  | 6,400  | 4.2   |
| Brazil                 | 204        | 2,001      | 1,500      | 203.0      | - 24.1     | 3,001      | -          | -   | 6,200                        | 3,200 | -     | -   | 5,000  | 10.5  |
| Chile                  | 600        | 207        | 600        | - 24.3     | 20.3       | 60         | -          | 10  | 202                          | -     | 60    | 15  | 625    | 14.2  |
| <b>Asia</b>            |            |            |            |            |            |            |            |     |                              |       |       |     |        |       |
| Japan                  | 1,400      | 1,007      | 2,000      | 29.0       | 10.7       | 3,100      | -          | -   | 6,007                        | 3,400 | -     | -   | 5,200  | 6.3   |
| Korea                  | 1,305      | 1,504      | 1,575      | 17.0       | 0.1        | 1,600      | -          | -   | 2,004                        | 1,200 | -     | -   | 3,230  | 21.7  |
| Thailand               | 600        | 600        | 600        | 70.0       | 1.7        | 600        | 5          | 100 | 1,070                        | 200   | -     | 100 | 1,200  | 12.7  |
| <b>Europe</b>          |            |            |            |            |            |            |            |     |                              |       |       |     |        |       |
| France                 | 14,391     | 20,730     | 26,235     | 101.0      | - 2.0      | 3,200      | -          | 100 | 20,130                       | 6,200 | -     | 100 | 20,235 | - 3.1 |
| Germany                | 6,500      | 6,000      | 11,300     | - 6.0      | 40.0       | 200        | 20         | 20  | 9,200                        | 12    | -     | 70  | 10,012 | 7.7   |
| Italy                  | 6,132      | 7,000      | 7,300      | 67.0       | - 2.0      | 1,200      | -          | -   | 6,704                        | 1,500 | -     | -   | 9,030  | 3.4   |
| United Kingdom         | 2,073      | 3,000      | 4,070      | 37.5       | 24.1       | 600        | -          | 100 | 6,700                        | 1,200 | -     | 120 | 5,000  | 23.4  |
| <b>Other</b>           |            |            |            |            |            |            |            |     |                              |       |       |     |        |       |
| Algeria                | 2,207      | 3,100      | 3,000      | 64.1       | - 3.7      | 60         | -          | -   | 3,045                        | 20    | -     | -   | 3,000  | 1.2   |
| Spain                  | 1,000      | 700        | 1,200      | - 24.0     | 100.4      | 200        | -          | 60  | 1,200                        | 200   | 2     | 100 | 1,700  | 20.0  |
| Iran                   | 600        | 600        | 600        | 10.7       | - 100.1    | 200        | 2          | -   | 1,400                        | 620   | -     | -   | 1,700  | 21.0  |
| <b>World</b>           | 3,000      | 4,200      | 6,200      | 20.0       | - 7.5      | 200        | -          | 600 | 3,200                        | 500   | 7     | 700 | 5,200  | 0.4   |

Source: UNCTAD, 1974

Table 5

World Flours: Main Producers, Exports & Imports

| Main Producer | Production        |                     | Leading importers | Exports           |                     | Leading exporters | Imports           |                     |
|---------------|-------------------|---------------------|-------------------|-------------------|---------------------|-------------------|-------------------|---------------------|
|               | 1973<br>('000 mt) | % growth<br>1969-73 |                   | 1974<br>('000 mt) | % growth<br>1970-74 |                   | 1974<br>('000 mt) | % growth<br>1970-74 |
| USSR          | 43,200            | 9.8                 | France            | 1,120             | 39.2                | Africa            | 256               | - 6.2               |
| US            | 11,307            | - 2.1               | USSR              | 892               | 15.8                | Egypt             | 200               | 30.5                |
| UK            | 3,765             | 0.5                 | US                | 656               | - 44.5              | Libya             | 56                | 38.5                |
| Japan         | 3,572             | 5.4                 | Germany           | 309               | - 11.0              | Morocco           | 51                | 609.5               |
| Spain         | 3,095             | - 4.0               | Canada            | 364               | - 32.3              | Algeria           | 51                | 11.8                |
| Iran          | 4,600             | 27.8                | Argentina         | 45                | 55.1                | Mauritius         | 40                | 57.1                |
| Egypt         | 2,335             | 37.0                | Senegal           | 9                 | - 56.9              | Lesotho           | 41                | - 50.6              |
| Argentina     | 2,298             | 4.9                 | Thailand          | 4                 | 67.2                | Zaire             | 33                | 256.2               |
| Yugoslavia    | 2,260             | 8.9                 | Jordan            | 3                 | 33.0                | Tanzania          | 25                | 10.3                |
| India         | 1,994             | - 17.9              | Angola            | 3                 | -                   | Madagascar        | 16                | 34.4                |
| Brazil        | 1,880             | - 11.2              | Iran              | 2                 | 703.2               | Sudan             | 312               | 12.6                |
| Moroc, Rep.   | 1,401             | 68.3                | Iraq              | 2                 | 243.1               | Central America   | 7                 | - 1.6               |
| Algeria       | 616               | 42.6                | Malaysia          | 1.7               | - 24.8              | Cuba              | 3                 | 48.4                |
| Philippines   | 400               | - 5.7               | India             | 1.4               | - 28.1              | Belize            |                   |                     |
| Nigeria       | 200               | 120.5               | Kenya             | 1.3               | - 96.6              | Guatemala         |                   |                     |
|               |                   |                     | Yugoslavia        | 1.9               | 1,925.0             |                   |                   |                     |

Wheat Flour: Main Producers, Exporters & Importers (continued)

| <u>Leading<br/>importers</u> | <u>Imports</u>                       |                             |
|------------------------------|--------------------------------------|-----------------------------|
|                              | <u>1974<br/>(<sup>'000</sup> mt)</u> | <u>% growth<br/>1970-74</u> |
| <u>South America</u>         |                                      |                             |
| Bolivia                      | 102                                  | 87.3                        |
| Colombia                     | 13                                   | - 5.3                       |
| Chile                        | 8                                    | - 40.5                      |
| Peru                         | 6                                    | -                           |
| Brazil                       | 5                                    | - 70.1                      |
| Ecuador                      | 5                                    | 58.2                        |
| <u>Asia</u>                  |                                      |                             |
| Vietnam, DR                  | 524                                  | 23.0                        |
| Sri Lanka                    | 408                                  | - 4.0                       |
| Korea, DPR                   | 310                                  | 852.3                       |
| Saudi Arabia                 | 240                                  | 70.7                        |
| Syria                        | 91                                   | 7.6                         |
| Indonesia                    | 74                                   | - 77.3                      |
| Jordan                       | 73                                   | - 20.5                      |
| Yemen, AR                    | 40                                   | - 25.4                      |
| Yemen, DR                    | 33                                   | 46.2                        |
| Malaysia                     | 31                                   | 30.0                        |
| Philippines                  | 28                                   | 201.0                       |
| Turkey                       | 14                                   | - 45.3                      |
| Iran                         | 15                                   | 121.3                       |
| Burma                        | 11                                   | - 55.1                      |



Table 6

1976 Wheat Production in Selected Countries  
(in million metric tons)

| <u>Region and country</u> | <u>1975</u><br><u>(provisional)</u> | <u>1976</u><br><u>(forecast)</u> |
|---------------------------|-------------------------------------|----------------------------------|
| Western Europe            | 53.0                                | 52.5-56.5                        |
| of which: EEC             | 38.1                                | 37.0-41.0                        |
| Eastern Europe            | 24.5                                | 26.0                             |
| USSR                      | 66.1                                | 80.0-85.0 <sup>a)</sup>          |
| North and Central America | 77.9                                | 72.0-76.0                        |
| of which: Canada          | 17.1                                | 16.0-20.0                        |
| US                        | 58.1                                | 53.1 <sup>b)</sup>               |
| South America             | 11.9                                | 14.5-15.5                        |
| of which: Argentina       | 8.6                                 | 8.5-9.5                          |
| Asia                      | 98.3                                | 101.0-103.0                      |
| of which: China           | 39.0                                | 40.0                             |
| India                     | 24.2                                | 27.0                             |
| Turkey                    | 14.8                                | 14.0-16.0                        |
| Africa                    | 8.9                                 | 9.5                              |
| Oceania                   | 12.4                                | 9.5-13.5                         |
| of which: Australia       | 12.0                                | 9.0-13.0                         |
| <b>WORLD TOTAL</b>        | <b>353.1</b>                        | <b>365.0-385.0</b>               |

<sup>a)</sup> In a report issued on June 22, 1976, the US Department of Agriculture forecast the 1976 USSR wheat crop at 75 million tons.

<sup>b)</sup> Midpoint of the officially forecast range of 51.1 million - 55.1 million tons.

Source: International Wheat Council.

Table 7

Wheat: Imports and Export Availabilities in 1976/77\*  
(in million tons, wheat equivalent)

| <u>Destination</u>                  | <u>Imports</u>                       |                                     |
|-------------------------------------|--------------------------------------|-------------------------------------|
|                                     | <u>1975/76</u><br><u>(estimated)</u> | <u>1976/77</u><br><u>(forecast)</u> |
| Western Europe                      | 6.6                                  | 6.6-7.1                             |
| EEC (9 member states) <sup>a)</sup> | 5.7                                  | 5.8-6.2                             |
| Other                               | 0.9                                  | 0.8-0.9                             |
| Eastern Europe                      | 4.5                                  | 4.5                                 |
| USSR                                | 11.0                                 | 6.0-8.0                             |
| North and Central America           | 1.9                                  | 2.5                                 |
| South America                       | 6.6                                  | 5.5                                 |
| Near East Asia                      | 3.1                                  | 4.0                                 |
| Far East Asia                       | 22.4                                 | 21.0-23.5                           |
| Japan                               | 5.5                                  | 5.4                                 |
| Bangladesh                          | 1.3                                  | 1.8                                 |
| India                               | 6.0                                  | 3.0-4.5                             |
| Pakistan                            | 1.5                                  | 1.5                                 |
| Korea, Rep. of                      | 1.6                                  | 1.8                                 |
| China                               | 2.5                                  | 2.5-3.5                             |
| Others                              | 4.0                                  | 5.0                                 |
| Africa                              | 9.5                                  | 9.0                                 |
| Egypt (Arab Rep. of)                | 3.7                                  | 3.9                                 |
| Algeria, Libya, Morocco,<br>Tunisia | 3.8                                  | 2.9                                 |
| Others                              | 2.0                                  | 2.2                                 |
| Others and unspecified              | <u>0.4</u>                           | <u>0.4</u>                          |
| <b>WORLD TOTAL</b>                  | <b>66.0</b>                          | <b>60.0-65.0</b>                    |

\* July/June years

Wheat: Imports and Export Availabilities in 1976/77<sup>a)</sup> (continued)

| <u>Source</u>      | <u>Export Availabilities</u>               |  |
|--------------------|--|--|
|                    | <u>1975/76</u><br><u>estimated exports</u> | <u>1976/77</u><br><u>export availabilities</u> <sup>b)</sup> |
| Argentina          | 3.5  | 4.0- 4.5   |
| Australia          | 7.7  | 6.0-10.0   |
| Canada             | 12.0                                       | 11.0-15.0  |
| EEC <sup>a)</sup>  | 7.5  | 4.0- 6.0   |
| US                 | 32.0                                       | 33.0   |
| USSR               | 1.0  | 1.5- 3.0   |
| Others             | <u>2.3</u>                                 | <u>2.5- 2.8</u>  |
| <b>WORLD TOTAL</b> | <b>66.0</b>                                | <b>65.0-70.0<sup>c)</sup></b>                                |

<sup>a)</sup> July/June years.

<sup>a)</sup> Excluding EEC intra-trade.

<sup>b)</sup> On the assumption of unchanged stocks in the five major exporting countries (Argentina, Australia, Canada, EEC and US).

<sup>c)</sup> Narrowed range. The total of the individual items comes to 62-75 million tons.

Source: International Wheat Council.

3. Prospects for Coarse Grains (including maize)

FAO's provisional estimates of world coarse grain production in 1976 have been put at around 703 million tons, a 6% increase over 1975, with the bulk of the increase expected to be in the USSR and, to a lesser extent, the US.

In the US, production is forecast at 193 million tons (vs 184 million in 1975). Based upon normal weather conditions, total production in the USSR is expected to exceed 95 million tons, vs 67 million in 1975, resulting from the planned expansion of maize and sorghum areas and rise in utilization of high-yielding varieties.

Maize, barley and rye outputs are expected to show relatively good increases, but oat production is likely to rise only slightly. Millet production is expected to remain unchanged while that of sorghum may decline as a lower output is expected in the US.

In developing countries, consumption of coarse grains is slightly higher than that of wheat and demand for coarse grains for food should continue to grow, the rate depending upon availabilities of other feedstuffs, particularly rice and wheat. Their expanding livestock sectors should also result in a concomitant increase in the demand for feed. In many regions consumption will continue to depend largely upon domestic output, since persisting balance-of-payment problems and continued currency fluctuations could limit imports.

The Major Issues

Unlike other cereals, coarse grains comprise a number of different commodities with several end-uses, for which the degree of substitution is considerable, both between individual coarse grains and between coarse grains and other commodities. There are several general considerations influencing future expansion of both output and utilization: 1) the return to more stable supply conditions; 2) the need for accelerating production growth in developing countries where production potential exists.

In addition to the need for higher-yielding varieties and improved dry farming technology, many developing countries need a comprehensive policy that would combine the necessary production, marketing, price support, industrial and infrastructure policy elements into an overall package that would ensure greater security and provide guidance to producers. For those developing countries that export coarse grains, greater assurance of markets is also needed, together with policies and programs for maintaining guaranteed supplies.

In the developed countries, the coarse grain situation presents a different set of problems. Producers have more experience and the advanced technology for growing a variety of crops and react to relative price changes by changing their cropping plans. In these circumstances, management of supply is becoming an increasingly

important objective of government policies for production, trade and price support. The aggregated effects of these policy changes have an important effect on global output, export availabilities and import requirements.

Table 8

Cereal Grains (Int. Units) Production and Consumption - 1969-85

| <u>Country</u>              | <u>Production</u><br>(million tons) |             | <u>(in '000 mt)</u> |             | <u>Human consumption</u><br>% Increase |             | <u>Per capita (kilos)</u> |             |      |      |
|-----------------------------|-------------------------------------|-------------|---------------------|-------------|--|-------------|---------------------------|-------------|------|------|
|                             | <u>1969-71</u>                      | <u>1973</u> | <u>1973</u>         | <u>1985</u> | <u>1975-85</u>                         | <u>1965</u> | <u>1975</u>               | <u>1985</u> |      |      |
|                             |                                     |             |                     |             |  |             |                           |             |      |      |
| <u>World</u>                | 609.6                               | 676.3       | 662.2               | 130,874     | 156,953                                | 190,263     | 21.2                      | 39.9        | 39.4 | 39.2 |
| <u>Developed countries</u>  | 283.5                               | 310.2       | 312.4               | 11,906      | 12,359                                 | 13,136      | 6.3                       | 16.9        | 16.3 | 15.9 |
| <u>North America</u>        | 106.5                               | 207.0       | 204.1               | 3,572       | 3,867                                  | 4,100       | 8.1                       | 16.7        | 16.3 | 15.9 |
| <u>Western Europe</u>       | 83.9                                | 93.1        | 92.0                | 4,966       | 4,839                                  | 4,567       | - 5.2                     | 14.5        | 13.3 | 11.9 |
| <u>South Africa</u>         | 7.2                                 | 4.5         | 9.7                 | 72          | 86                                     | 101         | 17.4                      | 5.2         | 5.1  | 5.0  |
| <u>Australia</u>            | 4.7                                 | 4.7         | 5.6                 |             |  |             |                           |             |      |      |
| <u>Other</u>                | 1.2                                 | 0.9         | 1.0                 | 3,030       | 3,567                                  | 4,269       | 19.7                      | 25.3        | 25.6 | 26.7 |
| <u>Developing countries</u> | 135.6                               | 130.0       | 151.2               | 69,566      | 89,306                                 | 115,672     | 29.4                      | 45.3        | 44.7 | 44.2 |
| <u>Africa</u>               | 36.7                                | 35.4        | 40.2                | 23,569      | 30,746                                 | 41,806      | 36.0                      | 96.7        | 97.3 | 98.7 |
| <u>Latin America</u>        | 46.5                                | 50.9        | 52.1                | 10,878      | 13,854                                 | 17,630      | 25.3                      | 43.9        | 42.5 | 41.2 |
| <u>Asia &amp; Far East</u>  | 50.4                                | 51.7        | 50.9                | 34,952      | 44,572                                 | 55,970      | 25.6                      | 32.0        | 31.4 | 30.5 |
| <u>Centrally planned</u>    | 100.5                               | 220.0       | 190.6               | 49,668      | 55,208                                 | 61,455      | 11.3                      | 46.9        | 45.0 | 43.7 |

Table 1

Production of Cotton, Caster, in Developing Countries - 1972-73

| Country                | 1972 (1000 mt) |                   | 1973 (1000 mt) |                   | 1974 (1000 mt) |                   | 1975 (1000 mt) |                   | Consumption<br>(1000 mt)<br>1972-73 |        |      |
|------------------------|----------------|-------------------|----------------|-------------------|----------------|-------------------|----------------|-------------------|-------------------------------------|--------|------|
|                        | Production     | Area<br>(1000 ha) | Production     | Area<br>(1000 ha) | Production     | Area<br>(1000 ha) | Production     | Area<br>(1000 ha) |                                     |        |      |
| <b>Central America</b> |                |                   |                |                   |                |                   |                |                   |                                     |        |      |
| Honduras               | 14,000         | 10,200            | 10,700         | 4.1               | 1,000          | 2,000             | 10,200         | 4,200             | 10,700                              | 11.1   |      |
| Guatemala              | 775            | 347               | 682            | 10.0              | 73             | 73                | 60             | 77                | 605                                 | 4.5    |      |
| <b>Latin America</b>   |                |                   |                |                   |                |                   |                |                   |                                     |        |      |
| Argentina              | 9,504          | 17,305            | 11,000         | 10.4              | 0,000          | 3,000             | 0,000          | 4,705             | 5,320                               | 7,725  | 12.2 |
| Brazil                 | 15,000         | 10,572            | 10,574         | 10.3              | 1,000          | 0,000             | 0              | 2,700             | 0,000                               | 15,000 | 7.1  |
| Colombia               | 1,000          | 1,000             | 1,000          | 9.2               | 0,000          | 0,000             | 40             | 0                 | 400                                 | 1,250  | 5.0  |
| Peru                   | 700            | 600               | 600            | 2.7               | 0              | 0                 | 300            | 0                 | 600                                 | 1,200  | 11.3 |
| <b>Africa</b>          |                |                   |                |                   |                |                   |                |                   |                                     |        |      |
| Nigeria                | 4,071          | 4,225             | 4,000          | 17.3              | 0              | 0                 | 4              | 0                 | 42                                  | 4,000  | 17.3 |
| Botswana               | 3,000          | 2,000             | 3,000          | 20.1              | 0              | 0                 | 1              | 0                 | 0                                   | 3,000  | 20.3 |
| Egypt                  | 3,272          | 3,325             | 3,400          | 1.0               | 0              | 0                 | 0              | 0                 | 0                                   | 3,500  | 1.6  |
| Morocco                | 2,000          | 1,542             | 1,000          | 9.6               | 0              | 0                 | 0              | 0                 | 0                                   | 2,000  | 10.7 |
| Kenya (only cast)      | 1,200          | 1,000             | 1,000          | 0                 | 0              | 0                 | 0              | 100               | 0                                   | 1,000  | 0.3  |
| Tanzania               | 802            | 1,013             | 1,000          | 4.6               | 0              | 0                 | 0              | 0                 | 0                                   | 1,200  | 7.3  |
| Sudan                  | 1,200          | 1,000             | 1,200          | 0.1               | 0              | 0                 | 0              | 0                 | 0                                   | 1,400  | 0.1  |
| Zambia                 | 500            | 600               | 600            | 0.1               | 0              | 0                 | 0              | 0                 | 0                                   | 1,015  | 10.6 |
| <b>Asia</b>            |                |                   |                |                   |                |                   |                |                   |                                     |        |      |
| India                  | 15,000         | 17,200            | 10,400         | 10.4              | 0              | 0                 | 0              | 0                 | 0                                   | 10,000 | 10.5 |
| Turkey                 | 6,000          | 5,000             | 6,000          | 20.6              | 0              | 0                 | 0              | 100               | 3,000                               | 6,000  | 20.5 |
| Thailand               | 2,000          | 2,500             | 3,200          | 20.0              | 0              | 0                 | 0              | 0                 | 0                                   | 0      | 0    |
| Korea, R.F.            | 1,000          | 1,000             | 2,170          | 10.3              | 0              | 0                 | 0              | 0                 | 0                                   | 2,700  | 15.2 |
| S. Korea (only cast)   | 1,000          | 1,000             | 2,000          | 41.3              | 0              | 0                 | 0              | 0                 | 0                                   | 2,300  | 14.4 |
| Philippines            | 1,000          | 1,200             | 1,200          | 3.1               | 0              | 0                 | 0              | 0                 | 0                                   | 1,200  | 0.6  |
| Iran                   | 600            | 900               | 1,000          | 0.0               | 0              | 0                 | 0              | 0                 | 0                                   | 1,500  | 22.1 |
| Yugoslavia             | 0,200          | 9,200             | 10,200         | 15.0              | 0              | 0                 | 0              | 0                 | 0                                   | 9,500  | 3.1  |



**4. Prospects for Maize****Current Situation**

Maize represents about half of the world output of coarse grains and the US produces about half of the world's maize. Thus what happens to the US maize economy has a profound effect on the market outlook for all coarse grains. When the US maize market slumped by 25 million tons in 1974/75, the shock was felt throughout the whole feed grains economy, even though there was little change in the production of maize or other coarse grains in the rest of the world.

**Table 10****The Leading Maize Producers: Their 1961-75 Output**

|              | <u>1961-65</u> | <u>1973</u>    | <u>1974</u>    | <u>1975</u>    | <u>% Increase</u><br><u>1973-75</u> |
|--------------|----------------|----------------|----------------|----------------|-------------------------------------|
| The US       | 95,561         | 143,435        | 118,461        | 146,487        | 2.1                                 |
| China        | 22,756         | 30,384         | 31,085         | 33,085         | - 8.9                               |
| Brazil       | 10,112         | 14,109         | 17,284         | 16,491         | 16.9                                |
| South Africa | 5,229          | 4,160          | 11,105         | 9,561          | 130.0                               |
| Yugoslavia   | 5,618          | 8,253          | 8,031          | 9,390          | 13.8                                |
| Mexico       | 7,369          | 8,355          | 7,784          | 9,300          | 11.3                                |
| France       | 2,760          | 10,620         | 8,885          | 8,143          | 23.3                                |
| Argentina    | 4,984          | 9,700          | 9,900          | 7,700          | - 20.6                              |
| World Total  | <u>216,108</u> | <u>310,706</u> | <u>293,728</u> | <u>321,144</u> | <u>3.3</u>                          |

Source: FAO.

In 1974, 17% of world production was exported, with 91.3% of exports accounted for by the US (30 mn tons), Argentina (5.6 mn), France (3.8 mn), South Africa (3 mn), Thailand (3.4 mn) and the Netherlands (1.4 mn). The leading importers in 1974 were Japan (7.9 mn), the Netherlands (4.4 mn), Italy (4.2 mn), Spain (4.1 mn), the UK (3.3 mn) and China (2.6 mn).

#### Future Prospects for Supply and Demand

The factors that are likely to stimulate demand are: developments in the demand for meat, hence for animal feed; increased industrial use, i.e. the manufacture of high-fructose corn syrup (hfcs); population growth; improved real incomes; and particularly, lower prices due to the easing of supplies.

By 1980, the US should continue to be the uncontested leader in corn production - far more efficient than any other country. Moreover, the corn wet milling industry should continue to represent 6-7% of total US corn production, and have an adequate supply of raw material (particularly for the increased manufacture of hfcs) at relatively stable prices. Corn costs are expected to be in the \$2.50/bushel range, with resulting prices somewhat lower than in June 1976 (\$2.50-2.60/bushel range).

By 1980, corn is expected to be plentiful, with world production outpacing consumption and stocks building. Over the next five years, world production is forecast to grow an average 4% annually, with the biggest annual rise to be registered by Brazil (an average 6.4%), the US (5.4%), Argentina (5.1%) and Romania (4.6%).

Table 11

Projected Maize Output by 1980

| <u>COUNTRY</u> | <u>Yield bu/acre</u> |             | <u>Production mil/bu</u> |             | <u>Annual production growth</u> |
|----------------|----------------------|-------------|--------------------------|-------------|---------------------------------|
|                | <u>1975</u>          | <u>1980</u> | <u>1975</u>              | <u>1980</u> |                                 |
| The US         | 87.2                 | 101.0       | 5,804                    | 7,460       | 5.4                             |
| China          | 30.4                 | 32.5        | 1,259                    | 1,397       | 2.1                             |
| Brazil         | 19.6                 | 20.7        | 654                      | 891         | 6.4                             |
| EEC (9)        | 78.1                 | 87.8        | 576                      | 661         | 3.0                             |
| Argentina      | 44.6                 | 52.6        | 346                      | 530         | 5.1                             |
| Mexico         | 17.8                 | 18.2        | 346                      | 381         | 1.6                             |
| South Africa   | 32.0                 | 37.4        | 356                      | 420         | 3.1                             |
| Yugoslavia     | 58.1                 | 66.1        | 354                      | 359         | 2.2                             |
| The USSR       | 50.2                 | 56.4        | 315                      | 502         | 0.8                             |
| Romania        | 38.2                 | 47.8        | 283                      | 413         | 4.6                             |
| Top 10         | 49.4                 | 56.3        | 10,120                   | 12,497      | 4.5                             |
| World Total    | 42.1                 | 47.5        | 12,416                   | 15,186      | 4.0                             |

Source: Eurofeed, No. 76.

Table 12

Main Production and Consumption - 1961-85

| <u>Country</u>              | <u>Production</u><br>(million tons) |             | <u>(in '000 mt)</u> |             | <u>Main consumption</u><br><u>% Increase</u> |                | <u>Per capita (kilos)</u> |             |      |
|-----------------------------|-------------------------------------|-------------|---------------------|-------------|--|----------------|---------------------------|-------------|------|
|                             | <u>1961-65</u>                      | <u>1973</u> | <u>1975</u>         | <u>1985</u> | <u>1965</u>                                  | <u>1975-85</u> | <u>1965</u>               | <u>1975</u> |      |
| <u>World</u>                | 216,108                             | 310,706     | 321,144             | 54,778      | 67,859                                       | 84,740         | 16.7                      | 17.0        | 17.5 |
| <u>Developed countries</u>  | 116,394                             | 179,524     | 187,411             | 7,132       | 7,847  | 8,679          | 10.3                      | 10.4        | 10.5 |
| <u>North America</u>        | 96,634                              | 146,238     | 150,087             | 2,506       | 2,783  | 2,906          | 12.1                      | 11.8        | 11.4 |
| <u>Western Europe</u>       | 14,236                              | 28,836      | 27,439              | 2,179       | 2,049  | 1,879          | 6.4                       | 5.6         | 4.9  |
| <u>Oceania</u>              | 193                                 | 241         | 344                 | 37          | 45   | 53             | 2.7                       | 2.7         | 2.7  |
| <u>Others</u>               | 5,332                               | 4,189       | 9,541               | 2,331       | 2,970  | 3,761          | 17.8                      | 26.6        |      |
| <u>Developing countries</u> | 50,749                              | 68,621      | 73,618              | 29,765      | 38,726                                       | 50,904         | 19.4                      | 19.4        | 19.4 |
| <u>Africa</u>               | 8,812                               | 10,595      | 12,655              | 8,138       | 10,806                                       | 15,068         | 33.4                      | 34.4        | 35.6 |
| <u>Latin America</u>        | 27,804                              | 37,580      | 39,423              | 10,228      | 12,900                                       | 16,438         | 41.3                      | 39.8        | 38.4 |
| <u>Asia &amp; Far East</u>  | 14,930                              | 20,440      | 21,534              | 11,328      | 14,767                                       | 19,282         | 10.2                      | 10.4        | 10.7 |
| <u>Centrally planned</u>    | 48,965                              | 62,560      | 60,411              | 17,881      | 21,286                                       | 25,157         | 16.9                      | 17.4        | 17.9 |

Source: FAO

Table 1.2

Leading Grain Producers in Developing Countries - 1965-75

|                        | Production (000 mt) |        |        | Production % increase |       |         | 1973    |         |                      | 1975    |         |                      | Consumptive increase 1973-75 |       |
|------------------------|---------------------|--------|--------|-----------------------|-------|---------|---------|---------|----------------------|---------|---------|----------------------|------------------------------|-------|
|                        | 1965                | 1973   | 1975   | 1973                  | 1975  | 1973-75 | Imports | Exports | Domestic consumption | Imports | Exports | Domestic consumption |                              |       |
|                        |                     |        |        |                       |       |         |         |         | Feed                 |         |         | Feed                 |                              | Total |
| <u>Central America</u> |                     |        |        |                       |       |         |         |         |                      |         |         |                      |                              |       |
| Mexico                 | 7,369               | 8,355  | 9,030  | 11.3                  | 1,200 | --      | 1,381   | 7,700   | 19,000               | 1,700   | --      | 500                  | 10,600                       | 8.2   |
| Guatemala              | 590                 | 701    | 770    | 9.8                   | 71    | --      | --      | 28      | 772                  | 60      | --      | 30                   | 806                          | 4.4   |
| Honduras               | 298                 | 350    | 220    | 37.1                  | 2     | 2       | 2       | 50      | 350                  | 120     | --      | 40                   | 340                          | - 2.9 |
| <u>South America</u>   |                     |        |        |                       |       |         |         |         |                      |         |         |                      |                              |       |
| Brazil                 | 10,112              | 14,109 | 16,401 | 16.9                  | --    | 1,381   | 7,700   | 13,909  | --                   | --      | 2,700   | 8,300                | 15,000                       | --    |
| Argentina              | 6,904               | 9,700  | 7,700  | -20.6                 | --    | 5,400   | 2,453   | 4,814   | --                   | --      | 2,000   | 2,720                | 4,200                        | -12.8 |
| Colombia               | 826                 | 722    | 757    | 4.8                   | 69    | --      | 75      | 783     | --                   | --      | 30      | 55                   | 716                          | - 8.6 |
| Venezuela              | 677                 | 654    | 600    | 32.2                  | 275   | --      | 80      | 727     | 216                  | --      | --      | 30                   | 820                          | 12.8  |
| Peru                   | 690                 | 616    | 625    | 1.5                   | 225   | --      | 300     | 831     | 325                  | --      | --      | 520                  | 930                          | 11.9  |
| <u>Africa</u>          |                     |        |        |                       |       |         |         |         |                      |         |         |                      |                              |       |
| Egypt                  | 1,913               | 2,508  | 2,500  | 0.3                   | 450   | --      | --      | 2,950   | 450                  | --      | --      | --                   | 2,950                        | 0     |
| Kenya                  | 1,150               | 1,600  | 1,600  | 0                     | --    | 130     | 21      | 1,604   | --                   | --      | 125     | 20                   | 1,600                        | - 0.2 |
| Ethiopia               | 763                 | 790    | 1,000  | 25.3                  | 42    | --      | --      | 840     | --                   | --      | --      | --                   | 1,000                        | 19.0  |
| Nigeria                | 754                 | 1,287  | 1,400  | 8.8                   | 2     | --      | 25      | 1,289   | 3                    | --      | --      | 30                   | 1,403                        | 8.8   |

Leading Grain Producers in Developing Countries - 1965-75 (continued)

|                           | Production<br>('000 mt.) |       |       | % Increase<br>1973-75 | 1973    |         |       | 1975  |         |         | Consumption<br>increase<br>1973-75 |       |       |
|---------------------------|--------------------------|-------|-------|-----------------------|---------|---------|-------|-------|---------|---------|------------------------------------|-------|-------|
|                           | 1965                     | 1973  | 1975  |                       | Imports | Exports | Feed  | Total | Imports | Exports |                                    | Feed  | Total |
|                           |                          |       |       |                       |         |         |       |       |         |         |                                    |       |       |
| <u>Africa (continued)</u> |                          |       |       |                       |         |         |       |       |         |         |                                    |       |       |
| Tanzania                  | 556                      | 808   | 900   | 1.4                   | 161     | --      | --    | 1,049 | 200     | --      | --                                 | 1,100 | 4.9   |
| Zaire                     | 239                      | 350   | 420   | 20.0                  | 150     | --      | --    | 500   | 200     | --      | --                                 | 620   | 24.0  |
| Ghana                     | 202                      | 438   | 483   | 10.3                  | --      | --      | --    | 438   | --      | --      | --                                 | 483   | 10.3  |
| <u>Asia</u>               |                          |       |       |                       |         |         |       |       |         |         |                                    |       |       |
| India                     | 4,593                    | 5,804 | 5,700 | 1.8                   | 6       | --      | 130   | 5,860 | --      | --      | 150                                | 5,700 | - 2.7 |
| Indonesia                 | 2,804                    | 2,350 | 3,500 | 48.9                  | 70      | 215     | 160   | 2,441 | --      | 122     | 181                                | 2,807 | 15.0  |
| Thailand                  | 816                      | 2,343 | 3,080 | 28.0                  | --      | 2,131   | 160   | 341   | --      | 2,400   | 350                                | 600   | 71.4  |
| Philippines               | 1,305                    | 2,289 | 2,574 | 12.5                  | 90      | --      | 750   | 2,320 | 50      | --      | 900                                | 2,635 | 13.6  |
| Korea, North              | 1,352                    | 1,840 | 2,600 | 61.3                  | 100     | 10      | --    | 2,010 | --      | 300     | --                                 | 2,300 | 14.4  |
| Turkey                    | 950                      | 1,100 | 1,100 | 0                     | --      | --      | 100   | 1,045 | --      | --      | 130                                | 1,100 | 5.3   |
| Pakistan                  | 513                      | 767   | 762   | - 0.7                 | --      | --      | 80    | 760   | --      | --      | 100                                | 769   | 1.2   |
| Yugoslavia                | 5,618                    | 8,256 | 9,392 | 13.8                  | 83      | 448     | 7,000 | 8,300 | --      | 520     | 7,200                              | 8,400 | 1.2   |

Sources: USDA, FAO

Cereal Grains

Table 14

Projected World Corn Balance Sheet by 1980

|        | <u>Production</u><br><u>(mill bu)</u> | <u>Consumption</u><br><u>(mill bu)</u> | <u>Ending stocks</u> |             |
|--------|---------------------------------------|--|----------------------|-------------|
|        |                                       |  | <u>Mill bu</u>       | <u>Days</u> |
| 1975   | 12,416                                | 11,840                                 | 1,086                | 32          |
| 1980   | 15,197                                | 14,455                                 | 4,380                | 105         |
| Change | + 2,602                               | + 2,340                                | + 3,150              | 69          |

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Source: Eurofeed, No. 76.

5. Prospects for Rice

Despite below-trend production and depleted stocks in rice importing countries, effective import demand for rice in a number of them was severely limited in 1975 because of relatively high market prices and persisting balance-of-payments problems. Even with reduced prices, import demand in 1976 remains weak, reflecting the continuing foreign-exchange difficulties of some important rice-deficit countries.

The bulk of exports continue to be directed to developing countries, mainly in the Far and Near East. Indonesia is the world's leading importer and contrasts with India and Bangladesh, both of which rely largely on wheat imports in meeting their foodgrains shortfall. In the past few years, the Near East has rapidly emerged as a market for high quality rice, with Iran showing the fastest growth.

Because of the instability in rice supplies and prices, consumers in many developing countries face serious hardships in years of shortages, while producers suffer losses in years of surpluses. The problems at the root of this instability are recurring production fluctuations and the inadequacy of carryover stocks.

The insufficiency of controlled irrigation and water management is the basic cause of production instability in the main rice producing countries. Currently, most of the world's paddy crop is grown under rainfed conditions and is thus subject to droughts and floods. Financial constraints, together with the limitations arising



from inadequate infrastructure, including the lack of storage facilities, are the causes for the inadequacy of rice stocks in many developing countries. While importers' production gains should reduce import requirements, the following factors will tend to sustain rice trade in the short-term:

- A 2-3% annual rise in availabilities, to keep up with the rise in per-capita consumption.
- Greater help to developing countries to cope with their balance-of-payments problems and lower international rice prices, thus enabling food grain deficits to be more fully reflected in effective demand.
- Lower average prices to allow increased offers of the US' PL480 rice exports, which, though competing with rice exporters, may serve to bolster effective demand.
- Expanded US shipments of PL480 rice to African and Asian countries, increasing the proportion of their foodgrains gap being filled by rice.
- Further increases in rice demand by Near East countries.
- A slight rise in West European countries' rice import requirements. As rice is not especially income-elastic and not used for animal feedstuff, economic upturns have little effect on rice demand.
- Soviet purchases of rice from the US, perhaps not entirely as a substitute for its traditional sources.

Table 15

Evolution of Rice Production and Demand - 1961-85  
(in million tons)

|                             | <u>Production (in mn tons)</u> |  |  | <u>Human Consumption</u>           |                            | <u>% increase</u><br><u>1975-85</u> |         |      |
|-----------------------------|--------------------------------|--|--|------------------------------------|----------------------------|-------------------------------------|---------|------|
|                             | <u>Paddy</u><br><u>1961-65</u> | <u>1973 Paddy</u><br><u>1975 Milled*</u> | <u>Milled*</u><br><u>1976</u><br><u>forecast</u> | <u>(in '000 mt)</u><br><u>1965</u> | <u>1975</u><br><u>1985</u> |                                     |         |      |
| <u>World</u>                | 253.2                          | 322.6                                    | 230.6  | 227.0                              | 237,718                    | 307,095                             | 386,488 | 25.8 |
| <u>Developed countries</u>  | 21.1                           | 22.1                                     | 24.9   | 16.7                               | 16,414                     | 17,301                              | 17,883  | 3.4  |
| <u>North America</u>        | 3.1                            | 4.2                                      | 5.8  | 3.9                                | 931                        | 1,077                               | 1,257   | 16.7 |
| <u>Western Europe</u>       | 1.4                            | 1.8                                      | 1.6  | 1.2                                | 1,340                      | 1,509                               | 1,600   | 11.3 |
| <u>Oceania</u>              | 0.1                            | 0.3                                      | 0.4  | 0.3                                | 55                         | 66                                  | 79      | 19.7 |
| <u>Others</u>               | 16.4                           | 15.8                                     | 17.1   | -                                  | 14,267                     | 14,649                              | 14,867  | 1.5  |
| <u>Developing countries</u> | 138.5                          | 179.2                                    | 190.8  | 129.4                              | 125.0                      | 177,961                             | 243,181 | 36.6 |
| <u>Africa</u>               | 3.6                            | 4.5                                      | 5.2  | 3.5                                | 4,294                      | 5,900                               | 8,846   | 49.9 |
| <u>Latin America</u>        | 9.0                            | 11.7                                     | 13.3   | 8.8                                | 8,283                      | 11,438                              | 15,039  | 31.5 |
| <u>Near &amp; Far East</u>  | 125.8                          | 163.0                                    | 172.2  | 211.5                              | 117,860                    | 160,198                             | 218,739 | 36.5 |
| <u>Centrally Planned</u>    | 93.6                           | 121.3                                    | 126.9  | 86.5                               | 90,554                     | 111,833                             | 125,424 | 12.2 |

Cereal Grains

\*Paddy converted to milled rice equivalent at a 66.7% extraction rate.

Source: FAO

**TABLE**

**Imports of Goods from the United States, 1957-58**

| Country              | 1957   |            | 1958   |            | 1957-58 | 1957  |            | 1958   |            | 1957-58 |
|----------------------|--------|------------|--------|------------|---------|-------|------------|--------|------------|---------|
|                      | Value  | % of Total | Value  | % of Total |         | Value | % of Total | Value  | % of Total |         |
| <b>South America</b> |        |            |        |            |         |       |            |        |            |         |
| Brazil               | 6,100  | 6.4        | 7,400  | 10.7       | 6,200   | 20    | 6,400      | 1,200  | 5,000      | 13.6    |
| Colombia             | 500    | 1.2        | 1,400  | 40.6       | 200     | -     | 500        | 1,000  | 500        | 68.7    |
| Peru                 | 300    | 0.8        | 500    | 10.9       | 300     | -     | 300        | 70     | 300        | 12.4    |
| <b>Africa</b>        |        |            |        |            |         |       |            |        |            |         |
| Egypt                | 1,000  | 2.0        | 2,000  | 7.7        | 1,000   | -     | 1,000      | 1,000  | 1,000      | 6.3     |
| Madagascar           | 1,000  | 1.7        | 2,000  | 10.6       | -       | -     | -          | -      | -          | -       |
| Sierra Leone         | 500    | 0.9        | 500    | 4.6        | 500     | 0     | 500        | 500    | 500        | 9.7     |
| <b>Asia</b>          |        |            |        |            |         |       |            |        |            |         |
| India                | 20,700 | 69.0       | 20,000 | 74.0       | 20,000  | 7     | 20,000     | 20,000 | 20,000     | 1.4     |
| Indonesia            | 12,300 | 20.0       | 12,300 | 7.6        | 12,300  | 1,000 | 12,300     | 12,300 | 17,000     | 10.6    |
| Malaya               | 15,000 | 17.0       | 15,000 | 3.6        | 15,000  | 0     | 15,000     | 15,000 | 13,300     | 13.5    |
| Thailand             | 11,200 | 16.0       | 15,000 | 6.7        | 9,000   | -     | 1,000      | 9,000  | 9,000      | 7.0     |
| Burma                | 7,200  | 8.0        | 6,200  | 3.1        | 5,200   | -     | 5,200      | 5,200  | 5,200      | 6.3     |
| Formosa (Taiwan)     | 4,000  | 5.0        | 6,000  | 10.0       | 4,000   | 200   | 4,000      | 40     | 4,700      | 4.5     |
| Philippines          | 3,000  | 5.0        | 6,000  | 10.0       | 3,000   | 200   | 3,000      | 70     | 3,000      | 5.1     |
| Pakistan             | 1,000  | 3.0        | 3,000  | 0.7        | 3,000   | -     | 3,000      | -      | 3,000      | 4.6     |
| Sri Lanka            | 800    | 1.0        | 1,200  | 3.0        | 800     | 300   | 1,200      | 400    | 1,400      | 9.5     |
| Malaysia             | 500    | 1.7        | 1,000  | 10.0       | 1,200   | 100   | 1,200      | 100    | 1,200      | 3.6     |
| Iran                 | 800    | 1.0        | 1,200  | 3.0        | 800     | 70    | 700        | 200    | 1,100      | 57.6    |

Source: UNCTAD, 1958

Table 17

Percent of Rice Imports and Exports in 1976  
(in million tons)

| Regions               | Imports    |                 |                  | Exports    |                 |                  |
|-----------------------|------------|-----------------|------------------|------------|-----------------|------------------|
|                       | 1974       | 1975<br>prelim. | 1976<br>forecast | 1974       | 1975<br>prelim. | 1976<br>forecast |
| Far East              | 3.6        | 3.4             | 3.5              | 4.6        | 3.8             | 4.4              |
| Bangladesh            | (0.1)      | (0.5)           | ...              | (2.0)      | (1.5)           | ...              |
| Indonesia             | (1.1)      | (0.7)           | ...              | (0.6)      | (0.6)           | ...              |
| Sri Lanka             | (0.3)      | (0.4)           | ...              | (1.1)      | (0.9)           | ...              |
| Near East in Asia     | 0.9        | 1.1             | 1.0              | 0.2        | 0.1             | 0.1              |
| Iran                  | (0.2)      | (0.4)           | ...              | 0.4        | 0.5             | 0.5              |
| Saudi Arabia          | (0.2)      | (0.2)           | ...              |            |                 |                  |
| Africa                | 1.2        | 0.8             | 0.9              | 1.7        | 2.0             | 1.6              |
| Americas              | 0.7        | 0.7             | 0.7              | 0.5        | 0.5             | 0.4              |
| Western Europe        | 0.6        | 0.6             | 0.6              | (0.4)      | (0.4)           | ...              |
| Eastern Europe & USSR | 0.4        | 0.5             | 0.4              | 0.1        | 0.1             | 0.1              |
| Oceania               | 0.1        | 0.1             | 0.1              | 0.1        | 0.2             | 0.2              |
| <b>WORLD TOTAL</b>    | <b>7.5</b> | <b>7.1</b>      | <b>7.2</b>       | <b>7.6</b> | <b>7.2</b>      | <b>7.3</b>       |

Source: FAO

Note: Totals computed from unrounded data.

Sources

1. Grindlays Bank Review
2. Financial Times
3. US Department of Agriculture
4. FAO
5. International Wheat Council

B. CANE AND BEET SUGAR AND PRODUCTS

Product Description

**Noncentrifugal sugar:** Produced by open-kettle boiling of the extracted juice. It is generally formed into loaves. In many sugar-producing countries, noncentrifugal sugar accounts for the larger share of sugar consumption, as for example in India, where it makes up 60% of sugar cane production.

**Centrifugal sugar or commercial raw sugar:** Processed by crushing of the cane to produce juice; purification of the juice (containing 93-94% water); evaporation; and crystallization, whereby the crystals are separated from the surrounding mother syrup and purged in centrifugal machines.

**Refined sugar:** Produced via affination, clarification, mud treatment, decolorization, crystallization and finishing. Sugar refining generally takes

place in large plants that have easy access to concentrated market areas. Modern refineries can refine beet or cane raws simultaneously.

Since the output of a large refinery includes numerous grades of sugar, packaging depends to a large extent on the type of sugar, and its use for industry or domestic consumption.

Commercial grades range from the large "coffee crystals," through several coarse grades used by confectioners and other manufacturers, to table granulated sugar. Very fine crystals are termed Fruit Sugar, Dessert Sugar or Superfine. Confectioners' and powdered (icing) sugars are pulverized in hammer mills with 3% cornstarch to prevent caking. Tablet and cube sugars are made from mixtures of crystals and sugar syrups molded into the desired form, then dried or baked. Heavy sucrose and invert sugar syrups for industrial use constitute a substantial part of the total refined sugar output.

**Sugar cane  
byproducts:**

1. Bicahetrap molasses, which varies in composition with country of origin, maturity of

cane, extent of milling, and methods of manufacture. World output (50 gal. for each ton of raw sugar) is used commercially for cattle feed, for fermentation into alcohol, and, to a less degree, for the production of yeast and organic chemicals.

2. Bagasse (also called megass), which is a residue from the milling process and amounts to about 25% of the cane ground, is used in the manufacture of wallboard, insulating board, paper, plastics, tile, and in dried and screened fibers for chicken litter, cattle bedding and plant mulch. Factories producing bagasse paper now operate in Peru, Brazil and the Philippines. Potential uses include the production of lignin and alpha-cellulose.
3. Cane wax, extracted by organic solvents from the clarification muds.

**Sugarbeet byproducts:** 1. Beet pulp, used as livestock feed.



2. Concentrated Steffen wastes are a source of monosodium glutamate, used as a condiment, and to a lesser extent as a source of betaine and other amino acids.
3. Beet molasses serves as animal feed (generally mixed with beet pulp) and as a base for alcoholic beverages and for yeast manufacture.

Leading industrial consumers of sugar include: bakers, confectioners, dairies and manufactures of soft drinks, alcoholic beverages, paper, plastics, toothpaste, floor wax, toys and explosives.

Many steps in the elaboration of cane and beet sugar are similar, but marked differences also exist, especially where beet sugar production is a one-stage process, as in the US and many parts of Europe. Raw cane sugar is necessarily manufactured in the cane-producing areas, but refining generally takes place in the greater population centers.

#### Consumption Trends in Developed Countries

Demand for sugar in the developed countries is expected to grow only moderately in coming years. In fact, for some developed

countries - mainly the US, which is a major sugar importer and major maize exporter - demand for beet and cane sugar may even wane in view of the increasing competition of the presently lower-priced substitute maize-based sweeteners - high-fructose corn syrup (hfc). In late 1976, there were already disappointing consumption forecasts in the US, Japan and EEC, reflecting the commissioning of hfc production facilities on an increasingly large scale.

The increased corn sweetener consumption will take place primarily in the food-processing sectors now utilizing liquid sugar - e.g. the soft drinks sector, which was particularly hit by the recent rise in sugar prices.

In the US, the hfcs' share of the total sweetener market is 10% and could double by 1980. Conversely, in Europe, which imports maize and exports sugar, the inroads made by hfcs may not be dramatic in the near term, as the average price margins are less favorable and the European sugar beet lobby is powerful. In September 1976, EEC sugar beet farmers demanded that hfcs be subject to the EEC organization for sugar; that the competition distortions be compensated by a production levy on hfcs; and that the tax systems for sweeteners be harmonized in the Community. The political and economic hurdles could be cleared, however, if wheat were used instead of maize, since it is normally in surplus in the EEC.

The wet milling of maize is well established in the US, and the supply of maize elsewhere in the world may well restrict this industry mainly to the US market. But should the hfcs erode the sugar market, there is one area where sugar can recover: protein for human and animal consumption produced from sugar. However, this development is a long-term prospect as full-scale production is not expected to start until around 1985.

In sum, the competitive situation in developed countries up to 1985 will be primarily affected by the changing relative prices of sugar and corn, which will depend on several unpredictable factors: weather conditions, government price protection schemes for sugar and corn, and fulfilled acreage and plant expansions in major sugar-producing countries.

#### Where the Potential Lies

The biggest potential for sugar consumption growth is in the developing countries - most of which are situated in the tropical and subtropical areas conducive for growing sugar cane - and is linked as much with the improvement in income levels as with the general rise in population. As a result, future demand for sugar is dependent largely on how the developing countries fare in the battle to gain a greater share of the world resources and the ability to pay for extra sugar supplies.

FAO estimates that by 1985 developing countries' total demand could increase by 12-14 million tons to reach 40-42 million tons (raw sugar value) - or a 3.6-4.3% annual rise. The growth in sugar imports by the oil-producing countries will be relatively fast, opening up vast market opportunities in this area. However, the bulk of the projected increment in developing countries' demand is in the sugar-exporting countries themselves, where the potential for investment in further processing of sugar is high. There is thus a need for financial and technical aid directed to improving productivity of cane cultivation and extension of existing processing plants in many exporting countries; assistance for costly new facilities should be reserved for the most economic schemes.

Refining Sugar in LDCs: The arguments

Some experts rule out the refining of sugar by developing countries solely for export to industrialized countries. First, the added value is not high compared to, say, soluble coffee, and considering the high cost of investment in refining operations - which is capital intensive - the returns would be minimal. Secondly, some industrialized countries have set quotas on the import of refined sugar, mainly to protect their own refining industries.

Though the Lomé Agreement between the EEC and African, Pacific and Caribbean sugar-producing countries does not explicitly rule

out imports of refined sugar, any excess of refined sugar dumped on the EEC market would certainly cause a furor among EEC refiners.

Long-haul transport of refined sugar is feasibly possible, though refiners refuse to admit this fact. One major arguing point is that it is unsanitary and would mean additional refining in the importing country. As a result, many countries refuse to put their sanitary stamp of approval - a pretext to protect their own refining operations. When imported in the US, for example, imported refined sugar is accepted only in consumer packages and large industrial packages (between 50-110 lb); sanitary considerations limit imports of bulk dry refined sugar and liquid sugar.

The main criterion for expanding sugar production or setting up a refinery should be the present and anticipated growth of the domestic (and/or regional) food processing industry, which consumes a substantial share of refined products. This is, in turn, related to the income growth rate in the country. As consumer income grows, so does the demand for processed foods, and thus sugar.

The aim for potential sugar-producing developing countries should be for self-sufficiency, in view of the expected stagnant demand for sugar in industrialized countries. For the existing sugar-exporting countries, the establishment or stepping up of refining capacity should

be made only to meet local food-processing needs or if guaranteed supply agreements could be made with importers, mainly in the region as it would mean lower transport costs.

Of significance for the prospects in the Middle East market is the recent announcement by Brazil's Companhia Uniao dos Refinadores that it plans to set up a \$10 million sugar refinery in Kuwait. In return, Kuwait has promised to import all its sugar from Brazil. As Kuwait consumes only about 500,000 bags of sugar a year and the new plant is expected to have a production capacity of more than 1 million bags, the Kuwait refinery will most likely export the bulk of the extra output to other Middle Eastern countries.

#### Trade Assurances

Since 1971 the sugar-producing countries have been lamenting the lack of an effective international sugar agreement, assuring a realistic price range and thus encouraging the growth of production in and exports from lower-cost developing countries. The 1968 Geneva agreement worked well at first, but after 1971 served no practical purpose. This was because it applied only to a small proportion of world trade. The big importers - the US, the UK and the USSR - had their special trade arrangements which assured markets to supplying countries on favorable price terms.

In the meantime, the Commonwealth Sugar Agreement has been replaced by the Lomé Convention between the EEC and the African, Caribbean and Pacific sugar-producing countries, which hopefully will provide some protection and incentive, with return linked firmly to the EEC beet price as a minimum for an assured supply outlet. But as the US Sugar Act will not be renewed, one objective of the next international agreement will be to ensure improved access to markets of high-income countries for sugar from developing countries.

According to Eurofood, observers have suggested that the recent deal by US' SuCrest with the Philippine Government could have long-term, far-reaching effects on the whole sweetener supply position through the US food industry. SuCrest has tied up a five-year direct supply contract with the Philippine Government, whereby SuCrest will purchase a major portion of its raw sugar requirements from the Philippines. SuCrest says this agreement "not only opens a new horizon in sugar purchasing, but also heralds a timely evolution and change in the traditional methods of procurement."

Table 1

Sugar: World Production, Trade and Consumption

|  |    | (in '000 tons, raw value) |             |              |                         |             |             |
|--|----|---------------------------|-------------|--------------|-------------------------|-------------|-------------|
| <b>WORLD PRODUCTION</b>                    |    | <u>1968</u>               | <u>1972</u> | <u>1975</u>  |                         |             |             |
| Raw centrifugal sugar                      |    | 66,830                    | 75,746      | 78,700       |                         |             |             |
| % growth                                   |    | <u>13.3%</u>              |             | <u>3.9%</u>  |                         |             |             |
| Refined sugar                              |    | 43,983                    | 45,992      | 49,000       | 1)                      |             |             |
| % of raw production                        |    | 65.8%                     | 60.7%       | 62.3%        |                         |             |             |
| % growth                                   |    | <u>4.6%</u>               |             | <u>6.5%</u>  |                         |             |             |
| Confectionery sugar                        | 2) | 4,504                     | 5,163       | 5,357        | 1)                      |             |             |
| % of raw production                        |    | 0.7%                      | 0.7%        | 0.7%         |                         |             |             |
| % growth                                   |    | 14.6%                     | 3.8%        |              |                         |             |             |
| <b>WORLD EXPORTS</b>                       |    | <u>1968</u>               | <u>1972</u> | <u>1974</u>  |                         |             |             |
| Raw centrifugal sugar                      |    | 20,482                    | 21,757      | 21,726       |                         |             |             |
| % growth                                   |    | <u>6.2%</u>               |             | <u>-0.1%</u> |                         |             |             |
| Refined sugar                              |    | 3,890                     | 4,701       | 4,381        |                         |             |             |
| % of raw products                          |    | 16.9%                     | 21.6%       | 20.2%        |                         |             |             |
| % growth                                   |    | <u>20.8%</u>              |             | <u>-6.8%</u> |                         |             |             |
| Sugar confectionery,<br>sugar preparations | 3) | n.a.                      | 190         | 266          | 1)                      |             |             |
| <b>WORLD CONSUMPTION</b>                   |    | <u>1968</u>               | <u>1972</u> | <u>1974</u>  | <u>FAO Estimates</u>    |             |             |
| Raw centrifugal sugar                      |    | 66,296                    | 76,008      | 79,766       | <u>1980</u>             | <u>1985</u> | <u>1990</u> |
| Consumption per capita<br>(in kg)          |    | 19.1                      | 20.4        | 20.3         | 20.9                    | 22.1        | 23.5        |
| % growth                                   |    | <u>14.6%</u>              |             | <u>4.9%</u>  | <u>5.7%</u> <u>6.7%</u> |             |             |
| Refined sugar                              |    | 44,338                    | 46,628      | 49,916       |                         |             |             |
| Per capita (in kg)                         |    | 12.7                      | 12.4        | 12.8         |                         |             |             |
| % growth                                   |    | <u>5.2%</u>               |             | <u>7.1%</u>  |                         |             |             |
| Sugar products (inc. syrups)               |    |                           |             |              |                         |             |             |
| Per capita (in kg)                         |    | 1.3                       | 1.3         | 1.3          | 1.3                     | 1.3         | 1.3         |

1) 1973

2) for some countries, includes chocolate products

3) Brussels Nomenclature 062

Source: FAO; OECD Trade Statistics; The UN's Growth of World Industry.



Table 2

Evolution of Sugar Production & Consumption by Region - 1968-75\*  
(in '000 metric tons - raw value)

|                 | Production   |              |              |                          | Consumption  |              |              |                          |
|-----------------|--------------|--------------|--------------|--------------------------|--------------|--------------|--------------|--------------------------|
|                 | 1968         | 1972         | 1975         | %<br>Increase<br>1968-75 | 1968         | 1972         | 1975         | %<br>Increase<br>1968-75 |
| North America   | 4,116        | 4,575        | 6,075        | 47.6                     | 11,088       | 11,493       | 10,198       | - 8.0                    |
| Europe**        | 25,440       | 27,047       | 26,675       | 4.9                      | 27,971       | 30,115       | 32,913       | 17.7                     |
| Oceania         | 4,297        | 4,205        | 3,214        | -25.2                    | 905          | 971          | 1,019        | 12.6                     |
| Central America | 10,616       | 10,595       | 12,381       | 16.6                     | 3,308        | 3,580        | 4,096        | 23.8                     |
| South America   | 8,074        | 10,752       | 11,370       | 40.8                     | 6,369        | 7,646        | 8,869        | 39.3                     |
| Asia            | 9,919        | 13,180       | 16,323       | 64.6                     | 13,070       | 17,586       | 17,928       | 37.2                     |
| Africa          | <u>4,266</u> | <u>5,393</u> | <u>5,196</u> | <u>19.0</u>              | <u>3,585</u> | <u>4,616</u> | <u>5,176</u> | <u>44.4</u>              |
| Total           | 66,830       | 75,746       | 81,234       | 21.6                     | 66,296       | 76,008       | 80,199       | 21.0                     |

\*cane & beet sugar

\*\*including Eastern Europe and the USSR

Source: International Sugar Organisation.

Table 3Per Capita Sugar Consumption by Region & Selected Countries - 1968-74  
(in kilos)

|                        | <u>1968</u> | <u>1972</u> | <u>1974</u> |
|------------------------|-------------|-------------|-------------|
| <u>North America</u>   | <u>50.1</u> | <u>49.8</u> | <u>47.6</u> |
| of which: the US       | 50.4        | 50.3        | 48.5        |
| <u>Europe</u>          | <u>38.4</u> | <u>40.0</u> | <u>40.2</u> |
| of which: the EEC      | 42.2        | 40.9        | 45.5        |
| USSR                   | 40.6        | 43.4        | 44.6        |
| <u>Oceania</u>         | <u>48.0</u> | <u>47.8</u> | <u>50.1</u> |
| <u>Central America</u> | <u>38.9</u> | <u>37.7</u> | <u>40.3</u> |
| <u>South America</u>   | <u>35.6</u> | <u>38.6</u> | <u>39.3</u> |
| <u>Asia</u>            | <u>6.8</u>  | <u>8.5</u>  | <u>8.5</u>  |
| of which: Japan        | 23.6        | 30.4        | 30.4        |
| Israel                 | 48.4        | 64.7        | 60.6        |
| Iraq                   | 34.4        | 32.3        | 37.1        |
| Kuwait                 | 34.6        | 36.8        | 37.4        |
| <u>Africa</u>          | <u>10.9</u> | <u>12.6</u> | <u>12.7</u> |
| of which: South Africa | 37.5        | 40.2        | 41.5        |
| Mauritius              | 39.1        | 42.4        | 41.2        |
| Libya                  | 32.2        | 36.0        | 42.4        |
| World Average          | 19.1        | 20.4        | 20.3        |

Source: International Sugar Organisation.

Table 4

The Supply & Demand Situation in Developing Sugar-Producing Countries

| Region<br>Country    | Sugar Production<br>(mm tons) |                       | Per Capita Sugar<br>Consumption (kilos) |  | Sugar Confectionery<br>& Preparations (tons) <sup>1)</sup> |                        | Refined Sugar<br>(in metric tons) |                 |
|----------------------|-------------------------------|-----------------------|---|--|--|------------------------|-----------------------------------|-----------------|
|                      | 1975                          | Z Increase<br>1972-75 | 1975                                    | Z Increase <sup>5)</sup><br>1975-80<br>1980-85 | Imports<br>1970  | Exports<br>1970        | Imports<br>1974                   | Exports<br>1974 |
| <u>Latin America</u> | 23.8                          | 11                    | 39.8                                    | --   | 3,562  | 3,424                  | n.a.                              | 10,042          |
| Guatemala            | 0.4                           | 46                    | 32.9                                    | 13.3   | 53   | 54                     | 4,000                             | 8               |
| Honduras             | 0.4                           | 24                    | 21.0                                    | 13.6   | --   | --                     | 11,000                            | --              |
| Colombia             | 1.0                           | 18                    | 31.3                                    | 9.2  | --   | 126                    | --                                | 3,076           |
| Ecuador              | 0.3                           | 16                    | 31.7                                    | 5.7  | --   | --                     | --                                | --              |
| Brazil               | 6.9                           | 13                    | 42.5                                    | 1.3  | --   | 155                    | --                                | 954             |
| Peru                 | 1.0                           | 7                     | 34.9                                    | 4.3  | --   | --                     | --                                | 48,000          |
| <u>Africa</u>        | 5.2                           | - 4                   | 12.7                                    | --   | 17,308   | 15,789 <sup>2)3)</sup> | 2,153 <sup>2)</sup>               | 220,254         |
| Sudan                | 0.1                           | 19                    | 15.6                                    | 4.8  | --   | --                     | 877,153                           | 220,254         |
| Ivory Coast          | 0.07                          | --                    | 11.5                                    | 16.2   | --   | --                     | 130,000 <sup>6)</sup>             | 21,166          |
| Kenya                | 0.2                           | 65                    | 18.8                                    | 12.3   | 575  | --                     | 52,647 <sup>7)</sup>              | --              |
| Nigeria              | 0.04                          | 90                    | 3.5                                     | 46.2   | 395  | 829                    | 70,703 <sup>8)</sup>              | --              |
| Tanzania             | 0.1                           | 41                    | 9.1                                     | 16.5   | --   | --                     | 65,576                            | --              |
| Zaire                | 0.07                          | 200                   | 3.3                                     | --   | 765  | 715                    | --                                | --              |
| <u>Asia</u>          | 16.3                          | 24                    | 8.5                                     | --   | 7,547 <sup>4)</sup>  | 9,365 <sup>4)</sup>    | 1,510,146                         | 595,761         |
| Indonesia            | 1.0                           | 12                    | 8.2                                     | 18.4   | 205  | 464                    | 110,000                           | --              |
| Philippines          | 2.7                           | 27                    | 20.5                                    | --   | 307  | 409                    | --                                | --              |
| Thailand             | 1.2                           | 73                    | 13.1                                    | 23.9   | 360  | 525                    | --                                | 563,946         |
| India                | 5.0                           | 36                    | 6.5                                     | 22.1   | --   | --                     | --                                | --              |
| World Total          | 82.2                          |                       |   |  |  |                        |                                   |                 |

1) Trade with OECD countries only; excludes chocolate-based preparations

2) excludes South Africa

3) of which, 5,986 tons imported by Middle East countries (including Iran)

4) developing countries only (excludes Iran)

5) human consumption only<sup>6)</sup> over half from India

6) over half from EEC

7) France, followed by UK, are leading exporters

Source: FAO, OECD Trade Statistics, UN

Some Opportunities in Africa

Below is a brief summary of planned expansions in sugar production in Africa.

Ivory Coast - Sugar cultivation, which began some three years ago, is being given a big push by the government, which anticipates a total production of 500,000 tons of sugar by 1985 vs 70,000 tons in 1975. These aspirations are based on a 40,000-ton capacity factory presently operating and two sugar complexes, each with a 50,000-ton capacity, expected to begin producing in 1978-79; one of the latter projects is being financed by a US and Canadian group, the other by a French group. Studies are also being made on the feasibility of four sugar complexes.

Kenya - The government is planning the expansion of five sugar mills and the construction of a new factory, as present capacity is inadequate to satisfy domestic demand, which is growing by some 7% a year. One expansion involves a Western firm which, through two of its subsidiaries, is expanding the Mumias Sugar Co, enabling it to produce up to 180,000 tons by 1981. Sugar is at present often grown on land with insufficient rainfall to ensure

a good crop. Good prospects for growing cane are in the land suitable for irrigation in the Lower Tana.

During the next three years, public investment in agriculture - research, training, irrigation, opening of new lands, improved roads - is expected to double.

Nigeria

- The country has 600 miles of waterway, the area around which could be used for sugar cultivation. Present plans call for the construction of three sugar mills: 1) a 4,000 ton per day factory being partly financed by the Commonwealth Development Corp; 2) a 2,400 tpd factory to start up in 1978; and 3) a sugar factory near Lafiagi. The first project also involves the cultivating of a sugar plantation that will eventually stretch for 15 miles; the sugar mill, to start production in 1977, is to produce a total of 100,000 tons per year by 1982.

Sudan

- The Arab countries are placing high hopes on this country to provide them with much of their food needs. The Kuwait-based Arab Fund for Economic and Social Development in cooperation with the Sudanese Government has

sketched out a possible development strategy, which would increase Sudan's food production in many areas. The infrastructure projects should begin to bear fruit during 1977 or 1978 and the sugar production gains are expected to be enough to provide the Arab world with 20% of its sugar requirements by 1985. So far, there are two sugar factories and the six more presently under construction are to reach full production by 1979-80.

C. STARCH AND STARCH DERIVATIVES

World consumption of starches and related products has been increasing as uses of starches and starch derivatives diversify and population expands. The biggest consumer of starches, glucose, dextrose and high-fructose corn syrup (hfc) is the food-processing industry for use in processing a variety of foods, including canned and powdered soups, instant desserts, pie fillings, processed meats, ice cream, sauces and gravies, baby food, canned foods, sugar confectionery products and soft drinks. Other major users include the textile, paper processing, chemical and pharmaceutical industries.

The raw materials from which starch can be extracted commercially include corn, potatoes, wheat, rice, cassava root and sorghum, which are grown in the temperate and tropical areas of the world. In most of the countries where the raw materials are produced, the manufacture of starch represents a small proportion of their use. For example, in Brazil, the world's largest producer of cassava root, most of cassava root production is used for food, although large amounts are processed into tapioca for use in Brazilian industries.

The most important recent development in the starch industry which augurs well for its fast future growth potential is the use of enzymes to produce high-fructose corn syrup (hfc). This breakthrough

has already changed the outlook for the sweetener industry in the US, a major corn producer: by 1980, hfc is forecast to account for some 20% of the sweetener market vs the present 10%. The future growth of the hfc production in other industrialized countries will depend on the average price margins between corn and sugar, and refiners' acceptance. (Further details on the potential for hfc manufacture are given in the product profile on sugar in Section B.)

The use of the sophisticated technology to produce hfcs is excluded in the developing countries with a poorly developed food-processing industry, particularly the beverage sector which is a major consumer of hfcs. It should also be noted that efficiency of a wet milling operation depends on the quality of the raw material to be used.

In the absence of recent figures on world, regional or country production and consumption of starch (the only worldwide study to be found was done in 1965 by the US Department of Commerce), an evaluation of the prospects for starch processing was made by country, based on grain production and company interest. (See also Tables 4, 9, 10 and 12 in



Section A for grain production in developing countries.) Below are the countries considered to have potential, and details on present production and processing:

AFRICA

Kenya - Maize production: 1.6 million metric tons in 1975. A Western firm recently teamed up with the government in the operation of a maize wet milling plant to produce glucose and other sweeteners, which is expected to also supply the East African Community.

Egypt - Maize production: some 2.5 million metric tons; wheat output: 25.9 million metric tons. Egyptian demand for starch is expected to rise an average 10% over the next decade. The major drawback: the country's economic climate.

Nigeria - Corn production: 1.4 million metric tons, an 8.8% rise over 1972. Restricting factor: present government policy toward foreign investment.

Sudan - Coarse grain production: 1.5 million metric tons; cassava production: 1.1 million mt.

Zambia - Coarse grain production: 880,000 mt; cassava output: 146,000 mt.

Other countries in Africa that show potential for starch production in the long-term are Tunisia and Algeria.

ASIA

Indonesia - Maize production: 3.5 million mt in 1975, a 49% rise over 1972; cassava output: 9.4 million mt; rice output: 23.1 million mt. Over the next 10 years, market demand for starch is forecast to average an annual 4%.

Thailand - Maize output: 3 million mt; cassava production: 3.8 million mt; rice output: 15 million mt. Tapioca flour is being produced by various-sized plants.

Philippines - Corn production: 2.6 million mt; rice output: 6.3 million mt. There are presently several plants producing corn products, one of which was recently expanded.

Vietnam - Has potential for starch manufacture. Present drawback is the country's economic environment.

LATIN AMERICA

Brazil - Maize production: 16.5 million in 1975, a 16.9% increase over 1973. Cassava production: 30 million mt in 1974; rice output: 7.6 million mt. Some 10 firms are manufacturing cornstarch; and there are between 1,500 and 2,000 manioc starch producers. The demand for starch and related products, which is increasing in all end-user industries, is expected to average an annual 2% growth over the next 10 years.

OTHER

Yugoslavia - Wheat production: 4.4 million mt; corn output: 9.4 million mt. Yugoslavia presently has four starch factories (two using wheat, two using corn), but by 1980 these are expected to supply only 50% of the country's starch needs. More recently a Western firm signed a licensing-cooperation venture with the government involving the construction of a wet-milling plant with a design capacity for processing 85,000 tons of corn annually.

**D. MEAT AND PRODUCTS**  
**(including poultry & animal fats)**

**1. Meat & Products**

All projections point to a rapid rise in demand for meat, milk and eggs. In some countries, many farmers possess so little land that even if intensively cultivated, it could not yield sufficient crops to provide an adequate income, and they thus prefer to raise animals to increase the value of their farms' output. Livestock provides manure for the fields, useful byproducts such as wool, skins and feathers and, in several regions, draught power.

The target rates for the annual output growth of livestock products for the 1962-85 period for the developing world are: ruminant meat 2.9%; pork 3.9%; poultry meat 5.6%; milk 2.8% and eggs 4.8%. The high growth rates for poultry production (poultry meat and eggs) are due to several factors: the proven rapidity with which modern technology can be applied in the poultry industry, the speed at which flocks can be built up, and the relatively moderate tonnages of concentrated feed required to ensure a profitable operation.

Cattle production is more complex. Development programs for the cattle industry must contain three traditional components - i.e. breeding, feeding and health - for which new orientations are

continuously required to take into account the permanent ecological but changing economic situation of the several countries. Nevertheless, the developing countries will rely on cattle for about half their meat supplies in 1985 and for virtually all of their milk requirements.

Developing countries in the temperate zones have successfully utilized cattle breeds from the developed countries for many decades and face no important adaptation problems. For developing countries in the tropics and subtropics, attempts have been made, chiefly in developed countries, to create breeds which will do well in these zones and some successes have been obtained.

Similarly, the development of feed supplies requires a different approach in most developing countries from the traditional methods used by the more advanced countries. While in some parts of Latin America there still exist considerable areas of unexploited grassland, elsewhere the animal feed problem focuses on the management of rangelands in the low rainfall areas where much overgrazing is found as a result of a steady increase in the human and animal population.

Most difficult, perhaps, are the problems of controlling the numerous livestock diseases of the tropics and subtropics. The International Institute of Tropical Agriculture at Ibadan in Nigeria, for one, is experimenting with crops and farming systems that could contribute to improving the supply of animal feedstuffs.

There exists much scope for reducing the infant mortality of calves and lambs in the less favored countries, where animal mortality is as high as 50% in many cases. Furthermore, in these countries, improvements are needed in animal raising, through better supply of feeds, in the meat and milk producing performance of animals, and in eradicating disease. Many countries are presently inhibited from developing a meat export business, mainly because their production areas cannot yet be designated as disease free. It would be a waste of investment resources to open up large areas of hitherto unused land without parallel investment in disease control.

African animal trypanosomiasis, a disease borne by the tse-tse fly (glossina) is one of the chief causes of underexploitation of the hydro-pastoral resources of tropical Africa. If trypanosomiasis were brought under control, a supplementary cattle population estimated at about 120 million head could be carried in this zone, which could mean 1.5 million tons, or at least \$750 million worth, of meat per year. It would make large new areas available for food crop production as well as providing the feed for the increased herds of cattle.

Other essential components of livestock development include adequate roads and transport for getting the animals to the market in good condition, the modernisation of existing slaughterhouses and milk plants and building of new ones, as well as the creation of refrigerated storage facilities.

One major constraint in developing countries is lack of trained personnel, starting with the farmers, few of whom have had contact with modern methods of livestock management, the advisers in animal nutrition and the veterinarians, up to the staff of the slaughterhouses and the milk-processing plants, and even the hygiene inspectors at the plants and for the wholesale and retail markets.

Unless rapid progress is made in developing their livestock sectors, most developing countries will become heavily deficit in animal products by 1985.

In the short and medium term, developing countries will have to rely on their poultry and pig industries to fill their increased demand for meat, as both pigs and poultry possess two important advantages over cattle. First of all, they convert grain and other food concentrates into meat much more efficiently and less wastefully than cattle, which is an important consideration in the many developing countries where it is difficult to grow a sufficient supply of cereals for human consumption. Secondly, poultry and pigs lend themselves far more easily to production by small-scale farmers and can make an important addition to their incomes and a valuable improvement to their families' diet.

In 1975, beef exports from developing countries fell for the third consecutive year to an estimated 388,000 tons, mainly because of continuing import restrictions in the EEC and other West European outlets.

### Preservation

Preservation by drying is one of the oldest methods of preserving meat products. Many pork and a few beef items are cured with salt, sugar, sodium or potassium nitrate, or nitrate and may be smoked. Both fresh and cured meat may be canned in tins or placed in glass containers followed by heat sterilization.

For international trade, where prolonged shipment and storage make the handling of fresh products impracticable, freezing is employed. Edible offals, fresh pork and veal are the most perishable. Good quality fattened beef and lamb keep relatively well at temperatures slightly above freezing. If meat is to be frozen, wrapping in moisture- and vapor-proof material will prevent "freezer burn" (dehydration). Rapid freezing to low temperatures is important to secure a high quality product and quick frozen products should be subsequently stored at 0-10°F.



Poultry

The term poultry covers a variety of birds including chickens, ducks, geese, turkeys and guinea fowl. Of these, chickens are more widely distributed than any other class of farm livestock. Ducks are numerous in many countries: in Southeast Asia their numbers often exceed those of chickens. Turkeys are also raised on a very large scale in certain areas.

Some advantages of poultry raising are that it can often be combined conveniently with other kinds of farming and that soil of high fertility is not needed. In many places in Southeast Asia, duck farming is complementary to rice production. The ducks feed mainly on vegetation and insects in the water channels of the paddy areas. Eggs are a rich source of highly digestible animal protein and an important contribution to the palatability of many dishes. Weight for weight, eggs contain about the same amount of animal protein as pork and poultry meat, about three quarters that of beef and two thirds that of whole milk cheese. Eggs are protected by their shells against adulteration and to some extent against deterioration. Poultry provides fresh meat in conveniently small portions.

Table 1World Meat Production - 1963-74

('000 mt)

|                             | <u>1963</u> | <u>1972</u> | <u>1974</u> | <u>%<br/>Increase<br/>1963-74</u> |
|-----------------------------|-------------|-------------|-------------|-----------------------------------|
| <b><u>WORLD</u></b>         | 82,611.0    | 109,641.0   | 115,637.0   | 40.0                              |
| Developed countries         | 40,055.0    | 53,688.0    | 55,927.0    | 39.6                              |
| Centrally planned economies | 26,922.0    | 36,180.0    | 38,891.0    | 44.5                              |
| Developing countries        | 15,635.0    | 19,773.0    | 20,819.0    | 33.2                              |
| <b><u>Africa</u></b>        | 2,740.0     | 3,191.0     | 3,189.0     | 16.4                              |
| Nigeria                     | 413.0       | 461.0       | 434.0       | 5.1                               |
| Egypt                       | 283.0       | 375.0       | 389.0       | 37.5                              |
| Ethiopia                    | 416.0       | 411.0       | 364.0       | -12.5                             |
| Sudan                       | 179.0       | 312.0       | 312.0       | 74.3                              |
| Zaire                       | 162.0       | 178.0       | 184.0       | 13.6                              |
| <b><u>Latin America</u></b> | 8,299.0     | 10,561.0    | 11,256.0    | 35.6                              |
| Brazil                      | 2,249.0     | 3,334.0     | 3,685.0     | 63.9                              |
| Argentina                   | 2,701.0     | 2,859.0     | 2,860.0     | 5.9                               |
| Colombia                    | 233.0       | 382.0       | 468.0       | 100.9                             |
| Uruguay                     | 390.0       | 380.0       | 450.0       | 15.4                              |
| <b><u>Asia</u></b>          | 4,553.0     | 5,966.0     | 6,316.0     | 38.7                              |
| India                       | 684.0       | 781.0       | 813.0       | 18.9                              |
| Philippines                 | 390.0       | 554.0       | 643.0       | 64.9                              |
| Iran                        | 286.0       | 359.0       | 378.0       | 32.2                              |
| Thailand                    | 317.0       | 373.0       | 406.0       | 28.1                              |
| Yugoslavia                  | 614.0       | 783.0       | 848.0       | 38.1                              |

Source: FAO

Table 2

Poultry Meat and Egg Production

('000 mt)

|                             | <u>Poultry Meat</u> |             |             | <u>% Increase<br/>1965-74</u> | <u>Eggs</u>                 |             |             | <u>% Increase<br/>1965-74</u> |      |
|-----------------------------|---------------------|-------------|-------------|-------------------------------|-----------------------------|-------------|-------------|-------------------------------|------|
|                             | <u>1961-65</u>      | <u>1972</u> | <u>1974</u> |                               | <u>1961-65</u>              | <u>1972</u> | <u>1974</u> |                               |      |
| <u>WORLD</u>                | 11,650.0            | 19,611.0    | 20,665.0    | 77.4                          | <u>WORLD</u>                | 16,516.2    | 22,601.1    | 23,191.4                      | 40.4 |
| Developed countries         | 7,104.0             | 11,909.0    | 12,319.0    | 73.4                          | Developed countries         | 9,014.6     | 11,475.0    | 11,166.5                      | 23.9 |
| Centrally planned economies | 3,215.0             | 5,133.0     | 5,619.0     | 74.8                          | Centrally planned economies | 5,367.0     | 7,629.4     | 8,315.7                       | 54.9 |
| Developing countries        | 1,330.0             | 2,409.0     | 2,727.0     | 105.0                         | Developing countries        | 2,134.5     | 3,496.7     | 3,709.2                       | 73.8 |
| <u>Africa</u>               | 261.0               | 306.0       | 421.0       | 61.3                          | <u>Africa</u>               | 300.4       | 411.7       | 431.1                         | 43.5 |
| Egypt                       | —                   | —           | 84.0        | —                             | Nigeria                     | —           | —           | 102.1                         | —    |
| Ethiopia                    | —                   | —           | 59.0        | —                             | Ethiopia                    | —           | —           | 69.8                          | —    |
| Nigeria                     | —                   | —           | 53.0        | —                             | <u>Latin America</u>        | 1,030.1     | 1,640.7     | 1,765.8                       | 70.1 |
| <u>Latin America</u>        | 536.0               | 1,179.0     | 1,319.0     | 146.1                         | Brazil                      | —           | —           | 500.1                         | —    |
| Brazil                      | —                   | —           | 369.0       | —                             | Argentina                   | —           | —           | 200.1                         | —    |
| Argentina                   | —                   | —           | 221.0       | —                             | Colombia                    | —           | —           | 130.0                         | —    |
| Venezuela                   | —                   | —           | 141.0       | —                             | Venezuela                   | —           | —           | 86.4                          | —    |
| Peru                        | —                   | —           | 92.0        | —                             | <u>Asia</u>                 | 791.8       | 1,409.8     | 1,505.4                       | 90.1 |
| Colombia                    | —                   | —           | 50.0        | —                             | Korea, Rep.                 | —           | —           | 200.0                         | —    |
| <u>Asia</u>                 | 531.0               | 911.0       | 904.0       | 85.3                          | Thailand                    | —           | —           | 106.6                         | —    |
| Philippines                 | —                   | —           | 124.0       | —                             | Philippines                 | —           | —           | 157.9                         | —    |

Meat & Products

**Beef and Veal Production (continued)**

|               | Beef Production |      |       | % Increase |      |       |
|---------------|-----------------|------|-------|------------|------|-------|
|               | 1961-65         | 1972 | 1974  | 1961-65    | 1972 | 1974  |
| India         | -               | -    | 109.0 | -          | -    | 135.0 |
| Thailand      | -               | -    | 66.0  | -          | -    | 139.3 |
| Indonesia     | -               | -    | 71.0  | -          | -    | 106.2 |
| West Malaysia | -               | -    | 66.0  | -          | -    | 81.2  |
| Korea, Rep.   | -               | -    | 50.0  | -          | -    | 68.0  |
| Yugoslavia    | -               | -    | 170.0 | -          | -    | 160.6 |

Source: FAO

**Table 3**  
**Projected Meat Consumption by 1985<sup>a</sup>**

|                             | ('000 mt) |           |           | % Increase<br>1975-85 | Per capita<br>(in kilos) |       |       |
|-----------------------------|-----------|-----------|-----------|-----------------------|--------------------------|-------|-------|
|                             | 1965      | 1975      | 1985      |                       | 1965                     | 1975  | 1985  |
| <u>WORLD</u>                | 93,212.0  | 123,253.0 | 166,114.0 | 36.4                  | 28.4                     | 30.9  | 34.6  |
| Developed countries         | 48,561.0  | 59,621.0  | 73,618.0  | 23.5                  | 70.4                     | 78.7  | 88.9  |
| Centrally planned economies | 27,294.0  | 37,801.0  | 53,882.0  | 42.5                  | 25.8                     | 30.8  | 38.3  |
| Developing countries        | 17,357.0  | 25,830.0  | 40,615.0  | 57.2                  | 11.3                     | 12.9  | 15.5  |
| <u>Africa</u>               | 2,975.0   | 4,302.0   | 7,089.0   | 64.8                  | 12.2                     | 13.6  | 16.7  |
| Nigeria                     | 409.0     | 638.0     | 1,403.0   | 119.9                 | 8.4                      | 10.1  | 16.6  |
| Egypt                       | 352.0     | 532.0     | 977.0     | 83.6                  | 12.0                     | 14.2  | 20.7  |
| Ethiopia                    | 418.0     | 575.0     | 828.0     | 44.0                  | 19.0                     | 20.4  | 21.7  |
| Sudan                       | 335.0     | 453.0     | 656.0     | 44.8                  | 24.4                     | 24.9  | 26.3  |
| <u>Latin America</u>        | 8,634.0   | 12,570.0  | 18,436.0  | 46.7                  | 34.9                     | 38.6  | 43.0  |
| Brazil                      | 2,289.0   | 3,976.0   | 6,300.0   | 60.5                  | 27.7                     | 36.2  | 44.0  |
| Argentina                   | 2,455.0   | 2,906.0   | 3,460.0   | 19.1                  | 110.9                    | 114.5 | 120.6 |
| Colombia                    | 577.0     | 873.0     | 1,372.0   | 57.2                  | 30.6                     | 33.7  | 39.1  |
| Venezuela                   | 344.0     | 491.0     | 738.0     | 50.3                  | 37.9                     | 40.2  | 45.2  |
| <u>Asia</u>                 | 3,692.0   | 5,566.0   | 9,102.0   | 63.5                  | 4.1                      | 4.8   | 6.1   |
| India                       | 670.0     | 1,009.0   | 1,530.0   | 49.0                  | 1.4                      | 1.6   | 1.9   |

Projected Meat Consumption by 1985<sup>a</sup> (continued)

|             | ('000 mt.) |       | 1985    | % Increase<br>1975-85 | Per capita<br>(in kilos) |      |      |
|-------------|------------|-------|---------|-----------------------|--------------------------|------|------|
|             | 1975       | 1985  |         |                       | 1975                     | 1985 |      |
| Thailand    | 259.0      | 694.0 | 1,525.0 | 144.4                 | 8.4                      | 14.6 | 25.6 |
| Iran        | 287.0      | 651.0 | 1,223.0 | 87.9                  | 11.7                     | 19.8 | 27.2 |
| Turkey      | 308.0      | 651.0 | 1,241.0 | 90.6                  | 11.5                     | 16.0 | 23.3 |
| Philippines | 497.0      | 647.0 | 924.0   | 42.8                  | 15.3                     | 14.3 | 14.6 |
| Indonesia   | 342.0      | 478.0 | 781.0   | 63.4                  | 3.2                      | 3.5  | 4.4  |
| Malaysia    | 547.0      | 852.0 | 1,238.0 | 63.2                  | 28.2                     | 40.0 | 52.5 |

<sup>a</sup> Excluding poultry meat.

Sources: FAO

Table 4  
Projected Poultry Meat Consumption by 1985

|                             | (in '000 mt) |          | % Increase<br>1975-85 | Per capita<br>(in kilos) |      |
|-----------------------------|--------------|----------|-----------------------|--------------------------|------|
|                             | 1965         | 1975     |                       | 1965                     | 1975 |
| <u>WORLD</u>                | 13,511.0     | 19,329.0 | 29,007.0              | 4.1                      | 4.8  |
| Developed countries         | 7,977.0      | 10,845.0 | 15,295.0              | 11.6                     | 14.3 |
| Centrally planned economies | 3,720.0      | 5,459.0  | 8,165.0               | 3.5                      | 4.5  |
| Developing countries        | 1,815.0      | 3,025.0  | 5,626.0               | 1.2                      | 1.5  |
| <u>Africa</u>               | 293.0        | 442.0    | 792.0                 | 1.2                      | 1.4  |
| Egypt                       | 60.0         | 101.0    | 232.0                 | 2.0                      | 2.7  |
| Nigeria                     | 56.0         | 86.0     | 178.0                 | 0.5                      | 0.6  |
| Ethiopia                    | 47.0         | 67.0     | 98.0                  | 2.2                      | 2.4  |
| <u>Latin America</u>        | 844.0        | 1,401.0  | 2,391.0               | 3.4                      | 4.3  |
| Brazil                      | 239.0        | 453.0    | 763.0                 | 2.9                      | 4.1  |
| Argentina                   | 162.0        | 277.0    | 547.0                 | 7.4                      | 10.9 |
| Venezuela                   | 73.0         | 105.0    | 159.0                 | 8.1                      | 8.6  |
| Peru                        | 40.0         | 60.0     | 104.0                 | 3.5                      | 3.9  |
|                             |              |          | 73.3                  |                          | 5.1  |

Projected Meat Consumption by 1985 (continued)

|                     | (in '000 mt.) |       | 1985    | 1972-85 | Per capita<br>(in kilos) |      |      |
|---------------------|---------------|-------|---------|---------|--------------------------|------|------|
|                     | 1965          | 1975  |         |         | 1965                     | 1975 | 1985 |
| <u>Asia</u>         | 513.0         | 863.0 | 1,715.0 | 98.7    | 0.6                      | 0.7  | 1.1  |
| <u>Thailand</u>     | 39.0          | 139.0 | 474.0   | 201.0   | 1.3                      | 3.2  | 7.9  |
| <u> Korea, Rep.</u> | 26.0          | 71.0  | 199.0   | 100.3   | 0.9                      | 2.1  | 4.8  |
| <u> Philippines</u> | 90.0          | 118.0 | 168.0   | 42.4    | 2.8                      | 2.6  | 2.7  |
| <u> India</u>       | 65.0          | 101.0 | 162.0   | 60.4    | 0.1                      | 0.2  | 0.2  |
| <u> Iran</u>        | 19.0          | 55.0  | 148.0   | 169.1   | 0.8                      | 1.7  | 3.3  |
| <u> Turkey</u>      | 21.0          | 47.0  | 113.0   | 140.4   | 0.7                      | 1.2  | 2.1  |
| <u> Yugoslavia</u>  | 104.0         | 170.0 | 279.0   | 56.7    | 5.3                      | 8.3  | 12.0 |



Table 2

Projected Meat Consumption by 1985

|                             | (in '000 mt.) |          |          | % Increase<br>1975-85 | Per capita<br>(in kilos) |      |      |
|-----------------------------|---------------|----------|----------|-----------------------|--------------------------|------|------|
|                             | 1965          | 1975     | 1985     |                       | 1965                     | 1975 | 1985 |
| <u>WORLD</u>                | 16,965.0      | 22,100.0 | 29,317.0 | 32.7                  | 5.2                      | 5.5  | 6.0  |
| Developed countries         | 9,622.0       | 11,355.0 | 13,022.0 | 14.7                  | 13.9                     | 15.0 | 15.7 |
| Centrally planned economies | 5,156.0       | 7,264.0  | 10,437.0 | 43.7                  | 4.9                      | 5.9  | 7.4  |
| Developing countries        | 2,188.0       | 3,481.0  | 5,858.0  | 68.3                  | 1.4                      | 1.7  | 2.2  |
| <u>Africa</u>               | 258.0         | 305.0    | 657.0    | 70.6                  | 1.1                      | 1.2  | 1.6  |
| Nigeria                     | 52.0          | 82.0     | 187.0    | 128.0                 | 1.1                      | 1.3  | 2.2  |
| Ethiopia                    | 71.0          | 99.0     | 144.0    | 45.5                  | 3.2                      | 3.5  | 3.8  |
| Egypt                       | 35.0          | 55.0     | 109.0    | 98.2                  | 1.2                      | 1.5  | 2.3  |
| <u>Latin America</u>        | 1,070.0       | 1,604.0  | 2,631.0  | 56.2                  | 4.3                      | 5.2  | 6.1  |
| Brazil                      | 296.0         | 537.0    | 883.0    | 64.4                  | 3.6                      | 4.9  | 6.1  |
| Argentina                   | 136.0         | 175.0    | 221.0    | 26.3                  | 6.2                      | 6.9  | 7.7  |
| Colombia                    | 68.0          | 104.0    | 167.0    | 60.6                  | 3.6                      | 4.0  | 4.8  |
| Venezuela                   | 57.0          | 82.0     | 124.0    | 51.2                  | 6.3                      | 6.7  | 7.6  |

Estimated Meat Consumption by 1985 (continued)

|             | (in '000 mt.) |         | % Increase<br>1975-85 | Per capita<br>(in kilos) |      |     |
|-------------|---------------|---------|-----------------------|--------------------------|------|-----|
|             | 1965          | 1985    |                       | 1965                     | 1985 |     |
| <u>Asia</u> | 655.0         | 1,053.0 | 1,071.0               | 0.7                      | 0.9  | 1.2 |
| Thailand    | 96.0          | 213.0   | 465.0                 | 3.1                      | 5.0  | 7.8 |
| Korea, Rep- | 71.0          | 166.0   | 394.0                 | 2.6                      | 4.9  | 9.5 |
| Iran        | 32.0          | 80.0    | 190.0                 | 1.3                      | 2.4  | 4.2 |
| Philippines | 101.0         | 132.0   | 100.0                 | 3.1                      | 2.9  | 3.0 |
| Indonesia   | 69.0          | 95.0    | 153.0                 | 0.6                      | 0.7  | 0.9 |
| Yugoslavia  | 97.0          | 150.0   | 223.0                 | 5.0                      | 7.4  | 9.6 |

Table 6

World Trade of Meat & Products - 1969-74

('000 mt)

|   | <u>Imports</u> |             |             | <u>Exports</u> |             |             |
|---|----------------|-------------|-------------|----------------|-------------|-------------|
|   | <u>1969</u>    | <u>1972</u> | <u>1974</u> | <u>1969</u>    | <u>1972</u> | <u>1974</u> |
| <u>Total world trade of meat</u>              | 5,401.5        | 6,511.4     | 6,074.1     | 5,523.1        | 6,615.8     | 6,428.6     |
| <u>% Growth</u>                               |                | 20.5%       | 6.7%        |                | 19.8%       | -2.8%       |
| <u>Developing countries</u>                   | 464.1          | 582.3       | 595.8       | 1,202.5        | 1,309.6     | 840.4       |
| <b>1. <u>CURED MEAT</u></b>                   |                |             |             |                |             |             |
| <u>World</u>                                  | 456.2          | 418.3       | 359.4       | 470.6          | 427.3       | 352.8       |
| <u>Developing countries</u>                   | 35.6           | 38.4        | 33.8        | 16.5           | 3.8         | 3.4         |
| <u>% of total meat trade</u>                  | 7.8%           | 9.2%        | 9.4%        | 3.5%           | 0.9%        | 1.0%        |
| <u>Africa</u>                                 | 5.5            | 3.7         | 4.1         | 2.0            | 1.5         | 2.0         |
| <u>Latin America</u>                          | 20.0           | 20.0        | 20.8        | 7.3            | 1.3         | 0.5         |
| <u>Asia</u>                                   | 8.8            | 10.2        | 4.7         | 7.2            | 1.0         | 0.9         |
| <b>2. <u>CANNED MEAT</u></b>                  |                |             |             |                |             |             |
| <u>World</u>                                  | 741.3          | 860.1       | 849.2       | 758.8          | 858.7       | 892.4       |
| <u>Developing countries</u>                   | 123.1          | 134.7       | 155.3       | 192.9          | 169.0       | 135.2       |
| <u>% of total meat trade</u>                  | 16.6%          | 15.7%       | 18.3%       | 25.4%          | 19.7%       | 15.2%       |
| <u>Africa</u>                                 | 11.6           | 13.8        | 13.8        | 21.6           | 21.3        | 16.4        |
| <u>Latin America</u>                          | 42.4           | 53.6        | 64.1        | 165.7          | 143.8       | 112.3       |
| <u>Asia</u>                                   | 51.7           | 49.7        | 57.5        | 5.4            | 3.6         | 6.4         |
| <b>3. <u>FRESH CHILLED OR FROZEN MEAT</u></b> |                |             |             |                |             |             |
| <u>World</u>                                  | 4,204.0        | 4,233.0     | 4,865.0     | 4,293.7        | 5,329.8     | 5,183.4     |
| <u>Developing countries</u>                   | 305.4          | 409.2       | 406.7       | 993.2          | 1,136.8     | 701.8       |
| <u>% of total meat trade</u>                  | 7.3%           | 9.7%        | 8.4%        | 23.1%          | 21.3%       | 13.5%       |
| <u>Africa</u>                                 | 40.6           | 44.3        | 30.8        | 43.4           | 64.1        | 59.8        |
| <u>Latin America</u>                          | 101.6          | 159.1       | 131.7       | 935.6          | 1,044.4     | 596.3       |
| <u>Asia</u>                                   | 142.2          | 172.1       | 212.5       | 13.7           | 27.6        | 44.7        |

Table 7

Leading Meat Importing and Exporting Developing Countries

('000 mt)

|             | <u>Imports 1974</u> |             | <u>Exports 1974</u> |
|-------------|---------------------|-------------|---------------------|
| Cuba        | 35.0                | Argentina   | 265.7               |
| Jamaica     | 20.9                | Uruguay     | 104.4               |
| Yugoslavia  | 19.9                | Yugoslavia  | 56.5                |
| Peru        | 19.0                | Brazil      | 173.7               |
| Chile       | 18.0                | Paraguay    | 31.8                |
| Korea, Rep. | 16.0                | Korea, Rep. | 15.6                |
| Iran        | 12.2                | Turkey      | 15.7                |
| Saïre       | 11.2                |             |                     |
| Zambia      | 9.9                 |             |                     |
| Egypt       | 7.9                 |             |                     |
| Iraq        | 10.0                |             |                     |

**Table 8**  
**Dualist Meat Trade - 1969-74**  
('000 mt)

|                             | Imports |       |       | Exports |       |       |
|-----------------------------|---------|-------|-------|---------|-------|-------|
|                             | 1969    | 1972  | 1974  | 1969    | 1972  | 1974  |
| <b>WORLD</b>                | 412.0   | 599.7 | 615.7 | 430.2   | 500.8 | 654.0 |
| Developed countries         | 304.0   | 395.7 | 382.4 | 2.1     | 443.1 | 403.7 |
| Centrally planned economies | 36.3    | 52.1  | 82.1  | 99.8    | 135.8 | 168.0 |
| Developing countries        | 71.7    | 111.9 | 151.3 | 2.1     | 1.9   | 2.3   |
| <b>Africa</b>               | 2.0     | 5.5   | 5.6   | 0.1     | 0.18  | 0.25  |
| Zaire                       | -       | -     | 2.5   | -       | -     | 0.1   |
| Egypt                       | -       | -     | 1.2   | -       | -     | 0.33  |
| Ivory Coast                 | -       | -     | 0.1   | -       | -     | 0.1   |
| Angola                      | -       | -     | -     | -       | -     | -     |
| <b>Latin America</b>        | 21.2    | 36.6  | 41.7  | 0.4     | 0.34  | 0.33  |
| <b>Asia</b>                 | 43.5    | 62.8  | 95.2  | 1.7     | 1.3   | 1.7   |
| Iran                        | -       | -     | 10.0  | -       | -     | -     |
| Iran                        | -       | -     | 2.0   | -       | -     | -     |
| S. Malaysia                 | -       | -     | 0.4   | -       | -     | 0.2   |
| Philippines                 | -       | -     | -     | -       | -     | 0.3   |
| Thailand                    | -       | -     | 0.5   | -       | -     | -     |

\* There are no significant exports for LDCs

**Table 9**  
**Imports and Exports of Meat\***  
('000 mt)

|                             | Imports |       | Exports |       |
|-----------------------------|---------|-------|---------|-------|
|                             | 1969    | 1972  | 1969    | 1972  |
| <u>WORLD</u>                |         |       |         |       |
| Developed countries         | 344.4   | 431.0 | 367.0   | 456.6 |
| Centrally planned economies | 225.9   | 253.8 | 220.7   | 267.7 |
| Developing countries        | 32.7    | 62.9  | 119.8   | 139.4 |
|                             | 85.8    | 114.3 | 26.5    | 29.5  |
| <u>Africa</u>               | 1.1     | 1.9   | 0.5     | 0.5   |
| <u>Latin America</u>        | 7.3     | 5.9   | 3.7     | 1.1   |
| <u>Asia</u>                 | 75.9    | 104.9 | 22.4    | 27.9  |
| <u>Iraq</u>                 | -       | -     | -       | -     |
| <u>W. Malaysia</u>          | -       | -     | -       | -     |
| <u>Thailand</u>             | -       | -     | -       | -     |
| <u>Yugoslavia</u>           | -       | -     | -       | -     |

\* There is no significant egg trade in Africa and in Latin America.

2. Animal Fats

Uses

Animal byproducts are used in three major sectors: the first, and perhaps the most important, is in livestock and poultry production which utilize animal fats and proteins in efficient high energy rations; the second is such industries as chemicals, paints, plastic materials, pharmaceuticals, cosmetics, textiles, metallurgy, rubber, and the preparation of agricultural pesticides and fertilizers, which produce some 3,000 products containing tallow or tallow derivatives. The third is the traditional soap industry in which tallow represents the basic ingredient.

The use of synthetic detergents in laundry soap (as well as the use of petrolsum wax in candle production) caused a decline in tallow utilization for a decade or more; however, increasing concern for ecological considerations plus research yielding efficient tallow-based laundry soaps for use in hard water, both hot or cold, has triggered a turn-around situation. Despite the constant challenge from competing commodities, animal fats and proteins have maintained their important role in world trade and remain one of the most economical and efficient of the earth's renewable resources.

### Processing

The extent of processing applied to fats depends upon their source, quality and ultimate use. Many fats are used for edible purposes after only a single processing step (i.e. clarification by settling or filtering). Tremendous quantities of butter and lard are used without special treatment after churning or rendering. However, the growing demand for bland-tasting and stable solid oils and shortenings led to extensive processing techniques. But in the less industrialized countries, processing is limited by lack of facilities and added costs. The nonglyceride components contribute practically all of the color and flavor to fats. In addition, such materials as the free fatty acids, waxes, color, bodies, mucilaginous materials, phospholipids and gossypol contribute other undesirable properties in fats used for edible purposes and to some extent for industrial applications. Many of these can be removed by treatment with caustic soda or soda ash. The refining may be done in a tank or in a continuous system.

In cases where further color removal is desired, the fat may be treated with any of dozens of chemical and physical bleaching agents. It is often desirable to remove the traces of waxes and the higher melting glycerides from fats. Waxes can generally be removed by rather rapid chilling and then filtering.



Tallows and hydrolyzed animal fats may be dewatered for simultaneous production of hard fats (high in stearic acid content for special uses such as in making candles) and of liquid oil called oleo oil. For most edible purposes and for some commercial applications it is desirable to produce solid fats. Many shortenings and margarines contain hydrogenated (hardened) oils as their major ingredients.

The rendering process is applied on a large scale in the production of animal fats such as tallow, lard, bone fat and whale oil. It consists of cutting or chopping the fatty tissue into small pieces, which are boiled in open vats or cooked in steam digesters. The fat is gradually liberated from the cells and floats to the surface of the water where it is collected by skimming. The membranous matter (greaves) is separated from the aqueous (gluey) phase by pressing in hydraulic or screw presses; additional fat is thereby obtained. The residue is used for animal feed or fertilizer.

### Production

A sharp drop in US production, with a resulting decline in exports, caused both world production and trade in tallow and greases during 1975 to decline significantly from levels of the previous year. Current prospects for 1976 indicate small gains in

both world production and trade over last year's totals. The drop in US production more than offset recovery in Oceania and continued annual gains in Asia, Eastern Europe and South America.

In South America production of tallow and grease has continued upward since 1971. All producers in this area recorded gains from 1974 levels, with Argentina and Brasil showing the largest absolute increases. World tallow and grease production in 1976 is expected to grow only slightly. Increases in North America, South America and Oceania are expected to offset declines in Europe and Asia. The severity of the drought in Europe will have a definite impact on the level of tallow output through lower yields per animal and the level of distress slaughterings. However, panic slaughterings could have long-term impact on production of tallow through reduced slaughter in the future. In the USSR, the fat content in processed meats has been increased and this move could reduce the output of tallow in that country.

### Trade

Trade patterns in tallow and greases have altered slightly since 1970, but not as dramatically as those for lard. The US, Australia, Canada, New Zealand and the EEC account for 98% of the total world exports in 1975. The major markets for US tallow and greases

are Japan, Egypt, South Korea, Pakistan, India, the EEC, Brazil, Spain, Colombia and Mexico. The availability of funding under various types of government programs and AID financing determines the level of shipments going to most countries in Asia, Africa and South America.

The EEC as a unit continues to be the world's largest direct importer of tallow and greases. Japan ranks second followed by South Korea, Egypt, Taiwan, Spain, Brazil, the USSR, Pakistan and South Africa. Other importing countries such as Brazil, Colombia, Mexico, Pakistan, India and Bangladesh depend upon the US as their principal supplier of tallow and greases. Their purchases are often obtained under various types of government-assistance programs.

World trade in tallow and grease in 1976 may show a smaller gain than previously anticipated because of the slower pace in economic recovery overseas and stiffer competition from coconut and palm kernel oils. Market prices are likely to come under considerable pressure as the accumulated levels of stocks rise in the major producing exporting countries.

Table 10Lard & Tallow Production - 1961-74

('000 mt)

|                             | <u>1961-65</u> | <u>1972</u> | <u>1974</u> | <u>% increase<br/>1965-74</u> |
|-----------------------------|----------------|-------------|-------------|-------------------------------|
| <u>WORLD</u>                | 7,066.8        | 8,485.7     | 8,740.3     | 23.7                          |
| Developed countries         | 4,902.3        | 5,568.3     | 5,694.0     | 16.1                          |
| Centrally planned economies | 509.4          | 2,244.8     | 2,359.9     | 363.3                         |
| Developing countries        | 538.1          | 672.6       | 686.5       | 27.6                          |
| <u>Africa</u>               | 0.22           | 0.27        | 0.29        | 31.8                          |
| Angola                      | na             | na          | 0.29        | --                            |
| <u>Latin America</u>        | 486.1          | 555.8       | 566.7       | 24.2                          |
| Brazil                      | na             | na          | 197.0       | --                            |
| Argentina                   | na             | na          | 157.9       | --                            |
| Peru                        | na             | na          | 19.4        | --                            |
| Colombia                    | na             | na          | 31.0        | --                            |
| <u>Asia</u>                 | 81.8           | 116.6       | 119.5       | 46.1                          |
| Philippines                 | na             | na          | 62.4        | --                            |
| India                       | na             | na          | 33.2        | --                            |
| Iran                        | na             | na          | 17.4        | --                            |
| Yugoslavia                  | na             | na          | 141.0       | --                            |

Table 11

Breakdown of Lard and Tallow Production in  
Developing Countries in 1974

('000 mt)

|                      | <u>Lard</u> |                      | <u>Tallow</u> |
|----------------------|-------------|----------------------|---------------|
| Developing countries | 312.0       | Developing countries | 374.5         |
| <u>Africa</u>        | 0.29        | <u>Africa</u>        | (1)           |
| Angola               | 0.29        | <u>Latin America</u> | 316.6         |
| <u>Latin America</u> | 290.1       | Argentina            | 135.0         |
| Brazil               | 117.0       | Brazil               | 80.0          |
| Argentina            | 22.9        | Colombia             | 22.0          |
| Peru                 | 14.6        | Uruguay              | 14.0          |
| Ecuador              | 11.5        | Venezuela            | 12.0          |
| Colombia             | 9.0         | <u>Asia</u>          | 57.9          |
| <u>Asia</u>          | 61.6        | India                | 33.2          |
| Philippines          | 61.6        | Iran                 | 17.4          |
| Yugoslavia           | 130.0       | Turkey               | 6.5           |
|                      |             | Yugoslavia           | 11.0          |

(1) - insignificant

Table 12Animal Fat Trade - 1963-74\*

('000 mt)

|                             | <u>Imports</u> |             |             | <u>Exports</u> |             |             |
|-----------------------------|----------------|-------------|-------------|----------------|-------------|-------------|
|                             | <u>1963</u>    | <u>1972</u> | <u>1974</u> | <u>1963</u>    | <u>1972</u> | <u>1974</u> |
| <u>WORLD</u>                | 1,746.8        | 2,318.7     | 2,304.3     | 1,783.8        | 2,324.7     | 2,404.8     |
| Developed countries         | 1,112.9        | 1,446.0     | 1,390.2     | 1,658.4        | 2,019.7     | 2,242.0     |
| Centrally planned economies | 182.2          | 82.4        | 85.6        | 69.1           | 239.7       | 203.1       |
| Developing countries        | 446.7          | 790.5       | 918.5       | 56.1           | 65.2        | 39.7        |
| <u>Africa</u>               | 45.6           | 102.2       | 102.7       | 0.55           | 0.07        | 0.12        |
| Egypt                       | 51.5           | 48.5        | 100.0       |                |             |             |
| Kenya                       | 4.8            | 7.8         | 11.7        |                |             |             |
| <u>Latin America</u>        | 192.2          | 321.2       | 404.2       | 50.1           | 48.7        | 23.5        |
| Brazil                      | 6.3            | 51.8        | 63.7        |                |             |             |
| Colombia                    | 17.5           | 35.0        | 52.3        |                |             |             |
| Argentina                   | --             | --          | --          | 44.9           | 44.6        | 19.2        |
| <u>Asia</u>                 | 201.0          | 364.5       | 428.4       | 5.5            | 16.4        | 16.1        |
| Korea, Rep                  | 20.2           | 75.5        | 97.5        |                |             |             |
| India                       | 5.7            | 65.5        | 80.0        | --             | 0.2         | 2.5         |
| Bangladesh                  | 11.8           | 20.0        | 20.0        |                |             |             |
| Pakistan                    | 18.4           | 31.5        | 37.7        |                |             |             |
| Yugoslavia                  | 19.7           | 2.9         | 30.9        | 0.2            | 4.1         | 7.5         |

\*Trade figures include lard and other rendered pig and poultry fat.

Table 13  
Projected Animal Fat Consumption by 1985

|                             | (in '000 metric tons) |         |         | % Increase<br>1975-85 | Per Capita (in kilos)       |      |      |     |
|-----------------------------|-----------------------|---------|---------|-----------------------|-----------------------------|------|------|-----|
|                             | 1965                  | 1975    | 1985    |                       | 1965                        | 1975 | 1985 |     |
| <u>WORLD</u>                | 5,550.0               | 6,609.0 | 8,058.0 | 21.9                  | <u>WORLD</u>                | 1.7  | 1.7  | 1.7 |
| Developed countries         | 2,948.0               | 3,224.0 | 3,459.0 | 7.3                   | Developed countries         | 4.3  | 4.3  | 4.2 |
| Centrally planned economies | 1,753.0               | 2,151.0 | 2,725.0 | 26.7                  | Centrally planned economies | 1.7  | 1.8  | 1.9 |
| Developing countries        | 849.0                 | 1,234.0 | 1,873.0 | 51.8                  | Developing countries        | 0.6  | 0.6  | 0.7 |
| <u>Africa</u>               | 91.0                  | 129.0   | 201.0   | 55.8                  | <u>Africa</u>               | 0.4  | 0.4  | 0.5 |
| <u>Latin America</u>        | 410.0                 | 575.0   | 820.0   | 42.6                  | Kenya                       | 1.1  | 1.3  | 1.5 |
| Brazil                      | 135.0                 | 135.0   | 196.0   | 45.2                  | <u>Latin America</u>        | 1.7  | 1.8  | 1.9 |
| Bolivia                     | 27.4                  | 41.0    | 66.0    | 61.0                  | Bolivia                     | 6.4  | 7.7  | 9.4 |
| Argentina                   | 41.0                  | 51.0    | 63.0    | 23.5                  | Uruguay                     | 3.1  | 3.1  | 3.2 |
| Peru                        | 29.0                  | 41.0    | 63.0    | 53.7                  | Ecuador                     | 2.2  | 2.5  | 3.2 |
| Colombia                    | 24.0                  | 37.0    | 59.0    | 59.5                  | Peru                        | 2.6  | 2.7  | 3.1 |
| <u>Asia</u>                 | 277.0                 | 417.0   | 669.0   | 60.4                  | <u>Asia</u>                 | 0.3  | 0.4  | 0.4 |
| India                       | 131.0                 | 187.0   | 270.0   | 44.4                  | Korea, Rep.                 | 0.8  | 1.6  | 3.3 |
| Korea, Rep.                 | 22.0                  | 54.0    | 137.0   | 153.7                 | Iran                        | 1.0  | 1.1  | 1.8 |
| Iran                        | 24.0                  | 46.0    | 81.0    | 76.1                  | Yugoslavia                  | 6.0  | 6.7  | 7.4 |
| Yugoslavia                  | 117.0                 | 144.0   | 172.0   | 19.4                  |                             |      |      |     |

Source: FAO

E. FISH AND FISH PRODUCTS

As fish is a highly perishable food which does not keep for long after it is caught, particularly in hot climates, it cannot be distributed to areas distant from the catching or landing points unless it is properly preserved. Furthermore, the vast amounts of fish caught seasonally or in glut periods can be made available for consumption only by processing into a product with long shelf life.

Frozen fish - Although the production of frozen fish has not increased markedly in the developing world, this form of preservation has contributed to a remarkable increase of fish consumption in a number of developing countries.

Canned fish - The growth of canned fish production - which in 1973 accounted for 15% of fish for food vs 12% in 1960 - has been growing slowly due to the rising cost of cans and labor. The tropical countries are the biggest importers of canned fish. The technical complexity and scale of production required for profitability have prevented the establishment of large canning operations in developing



countries. The availability of retortable, flexible pouches offers some encouragement, though more research is required to make such ventures successful.

Cured fish - Although cured fish production (salted, dried or smoked) has remained relatively stable, the share of catch processed in these ways has declined from 24% in 1960 to 17% in 1973. This decline can be almost entirely attributed to changed market and distribution patterns in industrialized countries, reflected in the growth of the freezing industry. In developing countries, where cured fish is the most important product for the lower socioeconomic groups, production has continued at about the same level.

Fishmeal and oil - The share of the world's catch for reduction to fish meal and oil reached maximum of 30% in 1973 and is expected to maintain this share over the next decade.

The status of the fishing industry in developing countries is summarized below by country, based on FAO's survey of the fishery products industries in the developing world:

Africa

- Senegal** - Artisanal as well as modern industrial methods are used to process tuna and shrimp. The goal is to improve the artisanal methods and modernize the industrial sector.
- Ghana** - Its fishery resources are harvested by: traditional canoes, medium-range motorized vessels and deep-sea vessels. The most important resources exploited at present are the Sardinella and mackerels. The abundant tuna resources off Ghana have, so far, been exploited mainly by foreign-manned vessels operating under license. Shrimp resources are currently under investigation for commercial exploitation. In addition Lake Volta yields some 44,000 tons of fresh-water fish and mollusks. Ghana's per-capita fish consumption, even in the interior of the country, is one of the highest in Africa.

**Ivory Coast** - Less than 10% of the country's total catch is canned or frozen, the rest is sold fresh. Abidjan has a tuna-canning plant and numerous large, ice, freezing and cold-storage plants. A factory producing fermented fish sauce, of the "Nuoc-man" type used in the region as a protein-rich additive, was recently established.

**Gambia** - Lobster, shrimp, bonga, barracuda and shark are the most significant resources being utilized by an improved artisanal and processing industry, primarily for export and secondarily to increase the distribution and marketing of such products within the country.

Asia

**India** - Two thirds of the fish caught is consumed fresh near the point of landing. The greater part of the balance is cured by simple traditional techniques and eaten by the poorer sections of the population. Industrially processed products are mainly for export. Small quantities of sardines and mackerels are canned for sale to institutions and to towns in the northern part of the country. Fishmeal production

is on a small scale. The utilization of installed capacity in the fish-processing industry is very low and hampered by the lack of a steady flow of raw material and of profitable markets.

**Sri Lanka -** Fish is mainly utilized as food, 90% fresh, with local production supplying more than 50% of the total. Small quantities of less popular species are cured for distribution to remote areas of the country.

**Far East -** In most of the countries the bulk of the catch is consumed by the domestic market but there are exports of frozen crustacea and tuna to developed markets, and of traditionally salted, dried and fermented products, mainly within the region. The production of salted and dried fish products is declining in Malaysia, the Republic of Korea and other countries where improved infrastructure has allowed expansion of fresh fish distribution and growth of the frozen fish trade. Nevertheless traditionally processed products are expected to remain important for several decades and efforts are being made to improve the processing techniques. The fishmeal sector has developed into a major industry in Thailand and now utilizes about 20% of the country's total catch.

Latin America - Considerable scope exists in all the maritime countries of the region for exploiting new resources or for a more efficient utilization of some existing ones. There is a generally favorable attitude toward fish consumption but poor handling and preservation, at sea and ashore, inhibit wider consumption and exports. While technology and knowhow have been adopted from developed industries, particularly from the US and Europe, deficiencies in application are common. Fish production for local consumption has been somewhat neglected so that the import of canned and cured products, and fishmeal, is often needed. On average, less than 50% of the installed capacity is utilized.

Table 1  
Fish Catch and Processing - 1963-85  
( '000 mt)

| <u>Catch &amp; Disposition</u>            | <u>1963</u> | <u>1970</u>              | <u>1973</u> | <u>1985</u>      |
|---|-------------|--------------------------|-------------|------------------|
| WORLD                                     | 46,600.0    | 70,000.0                 | 65,800.0    | 96,600.0         |
| Frozen                                    | 4,800.0     | 9,700.0                  | 12,000.0    | na               |
| Cured                                     | 8,500.0     | 8,100.0                  | 8,100.0     | na               |
| Canned                                    | 4,100.0     | 6,200.0                  | 7,000.0     | na               |
| Total processed for human consumption     | 17,400.0    | 24,000.0                 | 27,000.0    | na               |
| Reduction & other purposes                | 13,000.0    | 26,500.0                 | 18,500.0    | 26,200.0         |
|   |             | <u>of which</u>          |             |                  |
| <u>Main Catching Developing Countries</u> | <u>1973</u> | <u>processed for:</u>    |             | <u>feed meal</u> |
|   |             | <u>human consumption</u> |             |                  |
| Peru                                      | 2,219.3     | 133.8                    | 1,925.4     |                  |
| India                                     | 1,958.0     | 501.1                    | 104.1       |                  |
| Thailand                                  | 1,678.1     | 296.6                    | 583.6       |                  |
| Korea, Rep.*                              | 1,346.6     | 240.3                    | 16.7        |                  |
| Philippines                               | 1,248.2     | 288.3                    | na          |                  |
| Chile*                                    | 792.0       | 89.9                     | 578.9       |                  |
| Vietnam                                   | 713.5       | 253.6                    | na          |                  |
| Mexico                                    | 479.8       | 140.0                    | 127.9       |                  |
| Angola                                    | 467.2       | 38.9                     | 415.1       |                  |
| Burma                                     | 463.3       | 287.3                    | na          |                  |
| W. Malaysia                               | 371.2       | 47.9                     | na          |                  |
| Argentina                                 | 277.7       | 170.1                    | 54.5        |                  |
| Pakistan                                  | 214.2       | 55.1                     | 114.9       |                  |
| Uganda                                    | 169.0       | 69.0                     | na          |                  |

\*1972

Source: FAO

Table 2  
Fish Trade in 1973  
(<sup>1</sup>000 mt)

|                      | <u>Imports</u>     | <u>Exports</u>    |
|----------------------|--------------------|-------------------|
|                      | <u>1973</u>        | <u>1973</u>       |
| <u>WORLD</u>         | 6,933.0            | 6,676.0           |
| North America        | 1,308.0            | 735.0             |
| Europe               | 3,973.0            | 3,081.0           |
| USSR                 | 16.0               | 302.0             |
| <u>Africa</u>        | 332.0              | 593.0             |
| Ghana                | 76.6 <sup>1</sup>  | 0                 |
| Mozambique           | 149.0 <sup>1</sup> | 2.0 <sup>1</sup>  |
| Zaire                | 36.0 <sup>1</sup>  | -                 |
| Mauritania           | 55.0 <sup>3</sup>  | 22.6 <sup>2</sup> |
| Angola               | 3.3                | 163.0             |
| Senegal              | 7.9 <sup>1</sup>   | 24.7 <sup>1</sup> |
| Morocco              |                    | 377.4             |
| <u>South America</u> | 127.0              | 514.0             |
| Brazil               | 56.0               | 1                 |
| Colombia             | 28.2 <sup>2</sup>  | 1                 |
| Cuba                 | 410.5              | 1                 |
| Peru                 | 0.3                | 391.3             |
| Chile                | 0.5 <sup>1</sup>   | 29.6              |
| Argentina            | 15.2 <sup>1</sup>  | 25.4 <sup>1</sup> |
| <u>Asia</u>          | 1,074.0            | 1,326.0           |
| Singapore            | 132.0              | 26.5              |
| Hong Kong            | 81.6               | 14.2              |
| W. Malaysia          | 67.1 <sup>1</sup>  | 40.6              |
| Sri Lanka            | 32.0 <sup>2</sup>  | -                 |
| Philippines          | 41.3               | 14.3              |
| Korea, Rep.          | 21.8               | 176.2             |
| Thailand             | 11.3               | 98.5              |
| Indonesia            | 4.5 <sup>1</sup>   | 40.6 <sup>1</sup> |
| Pakistan             | -                  | 39.2 <sup>1</sup> |
| India                | 0.3 <sup>1</sup>   | 36.0 <sup>1</sup> |

<sup>1</sup>1972    <sup>2</sup>1971    <sup>3</sup>1970    <sup>1</sup>= insignificant

Source: FAO

Table 3

Fish Consumption - 1965-65

|                             | Per capita (in kilos) |       |       | ('000 mt) |          |          | % Increase<br>1975-65 |
|-----------------------------|-----------------------|-------|-------|-----------|----------|----------|-----------------------|
|                             | 1965                  | 1975  | 1985  | 1965      | 1975     | 1985     |                       |
| WORLD                       | 10.2                  | 12.2  | 14.1  | 35,191.0  | 48,537.0 | 68,235.0 | 40.6                  |
| Developed countries         | 19.6                  | 22.4  | 24.6  | 13,499.0  | 16,983.0 | 20,391.0 | 20.1                  |
| Centrally planned economies | 11.0                  | 13.4  | 16.7  | 11,645.0  | 16,462.0 | 23,504.0 | 42.8                  |
| Developing countries        | 6.5                   | 7.5   | 9.3   | 10,046.0  | 15,092.0 | 24,340.0 | 61.3                  |
| <u>Africa</u>               | 6.8                   | 7.7   | 10.7  | 1,648.0   | 2,443.0  | 4,539.0  | 85.8                  |
| Gabon                       | 27.1                  | 33.1  | 39.2  | 370.0     | 633.0    | 1,774.0  | 180.3                 |
| Gambia                      | 20.6                  | 24.7  | 29.7  | 183.0     | 245.0    | 382.0    | 55.9                  |
| Ghana                       | 24.3                  | 24.8  | 28.5  | 110.0     | 154.0    | 229.0    | 48.7                  |
| Senegal                     | 29.8                  | 26.3  | 25.4  | 91.0      | 144.0    | 206.0    | 90.6                  |
| <u>Latin America</u>        | 6.5                   | 7.6   | 9.1   | 1,602.0   | 2,475.0  | 3,904.0  | 57.7                  |
| Peru                        | 17.1                  | 19.1  | 24.6  | 488.0     | 885.0    | 1,513.0  | 80.0                  |
| Argentina                   | 10.1                  | 11.6  | 13.2  | 222.0     | 293.0    | 379.0    | 29.4                  |
| <u>Asia</u>                 | 7.3                   | 8.3   | 10.0  | 6,466.0   | 7,964.0  | 9,652.0  | 21.2                  |
| Korea, Rep.                 | 17.6                  | 27.8  | 36.6  | 1,201.0   | 1,878.0  | 3,012.0  | 60.4                  |
| Thailand                    | 17.6                  | 24.9  | 34.7  | 1,048.0   | 1,440.0  | 2,230.0  | 54.9                  |
| Vietnam, Rep.               | 23.9                  | 26.2  | 31.8  | 541.0     | 1,065.0  | 2,071.1  | 94.5                  |
| W. Malaysia                 | 24.7                  | 26.0  | 28.1  | 865.0     | 1,154.0  | 1,634.0  | 41.6                  |
| Philippines                 | 26.7                  | 25.5  | 25.9  | 486.0     | 943.0    | 1,512.0  | 60.3                  |
| North Korea                 | 12.9                  | 16.7  | 22.5  | 492.0     | 641.0    | 853.0    | 33.1                  |
| Vietnam, Rep.               | 306.0                 | 515.0 | 773.0 | 306.0     | 515.0    | 773.0    | 50.1                  |
| Vietnam (North)             | 254.0                 | 366.0 | 504.0 | 254.0     | 366.0    | 504.0    | 59.6                  |
| North Korea                 | 156.0                 | 265.0 | 453.0 | 156.0     | 265.0    | 453.0    | 70.9                  |



## **F. MILK AND PRODUCTS**

Milk production in the developing countries where it is technically and economically feasible meets several aims: First and foremost is the provision of nutritional food to the population. Second, it helps to intensify and diversify the agricultural sector. And third, it creates employment.

However, because of the costs involved and the low-income level of the population, milk products are a luxury product in developing countries. The more sophisticated milk products -- e.g. processed cheese, yogurt and ice cream -- are consumed by mainly the high-income group, which is concentrated in the country's major cities. As a result, for most developing countries, small-scale dairy operations are considered more viable than large industrial integrated plants, at least in the near future. For the lesser developed countries, the main opportunities lie in the processing of evaporated, condensed and powdered milk.

As the satisfaction of local demand is the main determinant in the establishment of a dairy operation, rather than export opportunities, an overview of world production and trade would not be useful for the purposes of this product profile.

For BI's evaluation of the potential for dairy processing in developing countries, it has relied on the FAO's recommendations for dairy schemes in developing countries and company views. Below is a brief resumé of the potential by country:

Africa

Kenya

Expansion of the dairy processing industry is needed to meet rising market demand. The FAO recommends increased capacity for cheese production. Two dairy companies recognise the market potential (one for ice cream production), but feel that the infrastructure should be developed first.

Angola

Economic and political situation is a deterring factor.

Ghana

Evaporated milk production since 1971.

Ivory Coast

Potential for ice cream production.

Kenya

Evaporated milk has been produced in the country since 1967 in collaboration with local cooperatives. Has potential for exports.

Nigeria

Potential to develop ice cream industry and baby foods. Uninviting government attitude toward foreign investment.

Senegal

Potential for milk processing (e.g. ice cream) but lacks infrastructure.

Sudan

Immediate need is for condensed and liquid milk installations. Prospects are good, thanks to Arab investments to develop the country's agricultural sector.

Tanzania

Already has three dairy plants and two under construction. FAO recommends expansion and modernizing of milk plants and collection centers and sees opportunity for cheese production.

Zambia

Need for additional milk plants to meet requirements.

South America

Argentina

Potential for increased production and exports.

Bolivia

Presently has eight milk-processing plants and 48 milk-collecting centers. Milk plants are needed in the Santa Cruz and Beni areas.

Brazil

Demand for dairy products is expected to increase 8% annually. Boasts numerous milk-processing factories and collection centers, produces ice cream and has plants to construct two additional milk-processing units.

Paraguay

Potential to expand milk-processing capacity to supply both rising local demand and exports.

Peru

Produces evaporated milk, has small-scale cheese producing operation.

Venezuela

Needs to modernize present milk and cheese processing facilities to satisfy domestic market and partly for exports.

Venezuela

Has potential to increase milk processing capacity. Stable political climate and long-term local market potential are plus factors.

Asia

Bangladesh

Processing capacities, both operating and under construction, should be enough to satisfy demand for the next five years.

India

Nationwide milk program has been underway for several years. Have set up milk collection centers and developed own dairy-processing equipment. Presently export some butter and cheese to Thailand. Import dry milk for reserve under the food aid program.

Malaysia

Produces evaporated milk but has need for additional recombining plants as demand is partly supplied by imports.

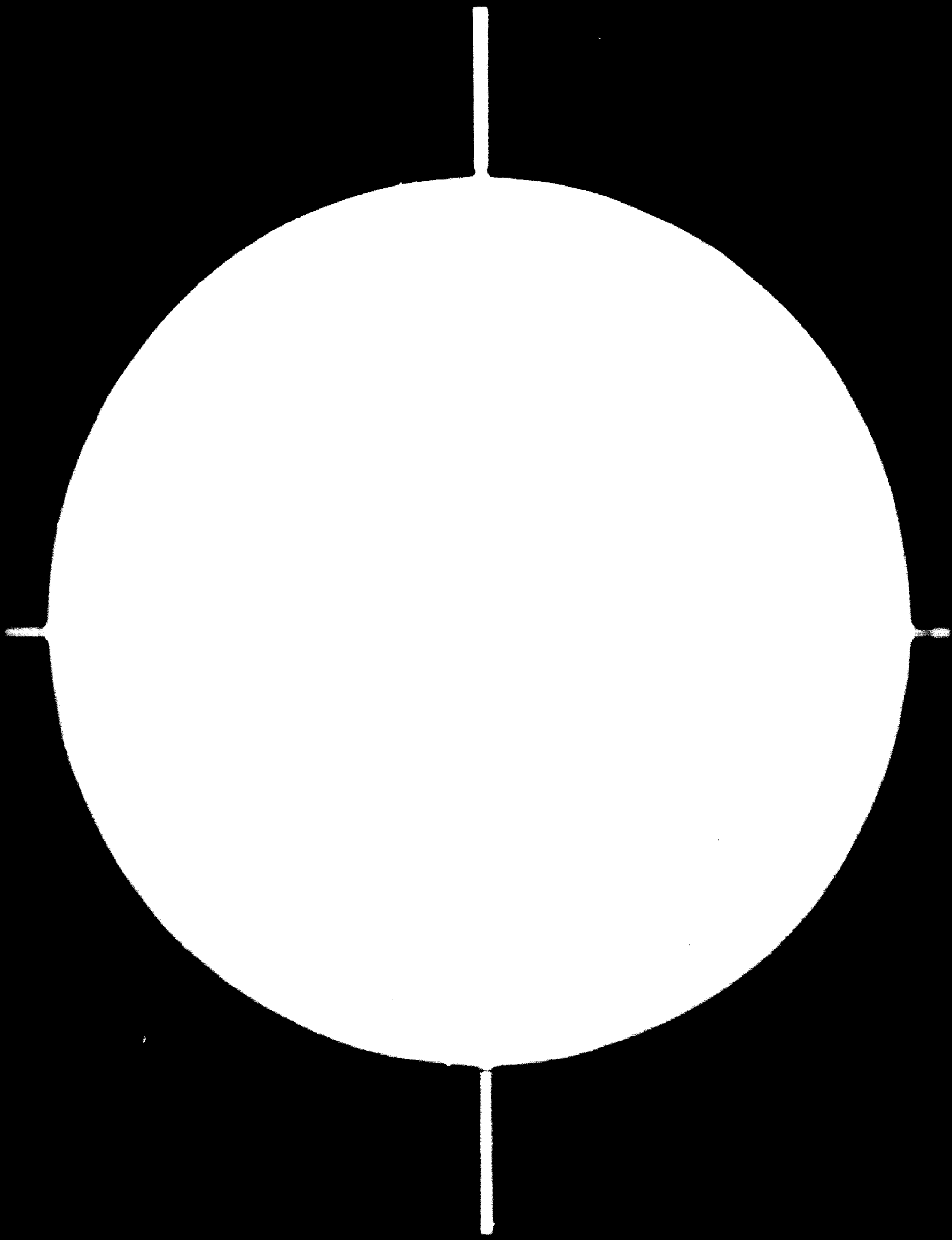
Philippines

Seen as having potential for production of milk products. Already has local milk-processing operations; produces evaporated milk.

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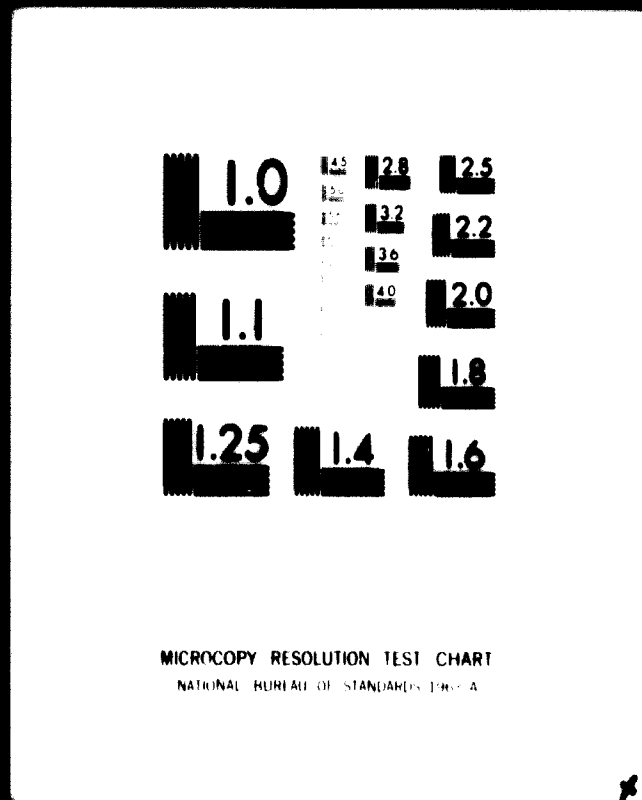


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Sri Lanka

Although additional plant capacity has already been ordered, further expansion is needed to meet domestic demand.

Thailand

A countrywide development program is underway. Need additional milk plants.

ICER

Numerous opportunities at regional level.

ICER

Opportunities for additional recombining plants.

Turkey

According to the FAO, the dairy sector, which has underutilized capacity, needs improved roads, a restructuring and technical assistance rather than further investment, though one company cites this country as having the potential to produce dairy products.

G. COFFEE AND PRODUCTS

Facts and Trends

Coffee has played a vital role in the economic development of the coffee-producing developing countries, accounting for up to over 50% of export earnings for most major producers. However, in the producing countries, the average share of foreign-exchange earnings from coffee sales has declined from 13% in 1970 to 7.4% in 1974. Due to severe frosts, droughts and pestilence that affected prime growing areas in many coffee-producing countries, plus a reduction in coffee tree plantings, world production has declined and placed the world coffee economy in a vulnerable situation. All 78 coffee-producing countries are in the Third World. For those countries that depend heavily on this crop for their export earnings, low yields and decreased demand can create havoc to the economy and, consequently, political instability.

Up to 1973 the world coffee economy had been governed by the International Coffee Agreement (ICA), which endeavored, via various price and quota mechanisms, to balance supply and demand equitably between consumers and producers. The agreement was extended for two years, but did not cover export quotas nor include a price stabilization mechanism or export/import price controls. As a result, coffee prices

have varied widely, and are continuously moving upward, after more than doubling over the past three years. The main reasons for the high jump in prices are the frost and drought in Brazil and political instability and wars in some African countries. A new agreement was expected to be ratified in October 1976.

Worldwide, there are about four million coffee estates plus scores of smaller units. Due to the increasing labor costs, total acreage devoted to coffee is not likely to be expanded in the future.

The two most important and widely grown species of coffee are Arabica, which is used for freeze-dried coffee, and Robusta, which is processed into instant soluble coffee. Arabica coffee beans are grown in 59 of the 78 producing countries, while Robustas are grown largely in the low areas in Africa and Asia. The main producers of the Robusta species are: Ivory Coast, Uganda, Indonesia, Angola and Cameroon.

### Production

Over the last 20 years, world coffee production has been fluctuating: from 55 million 60-kilo bags of green coffee in 1957/58 to 81 million in 1965/66, down to 58 million in 1970/71, then up again to 77.4 million in 1974/75. Estimates for total production in 1975/76

have been put at around 72 million bags, with export availability at 53.6 million. Forecasts for 1976/77 range from 62.1 million (USDA) to 60 million (Commonwealth Secretariat).

The leading coffee-producing countries are:

- Latin America - Brazil, Colombia, Mexico and El Salvador
- Africa - Ivory Coast, Angola, Uganda and Ethiopia
- Asia - Indonesia and India (both account for a small but increasing amount)

Comparatively, Guatemala, Costa Rica, Cameroon and Kenya are small-sized producers.

Table 1

Distribution of World Exportable Production  
Among the Main Producers

|             | <u>% of world total</u> |                     |
|-------------|-------------------------|---------------------|
|             | <u>1974/75</u>          | <u>1975/76 est.</u> |
| Brazil      | 32.1                    | 41                  |
| Colombia    | 11.9                    | 10                  |
| Ivory Coast | 6.8                     | 7                   |
| Uganda      | 5.3                     | 5                   |
| Angola      | 5.0                     | 7                   |

Table 2

Exportable Production by Coffee Type

|                           | <u>1972/73</u> | <u>% share</u> | <u>1975/76</u> |
|---------------------------|----------------|----------------|----------------|
| Arabicas, Colombian milds | 16             |                | 17             |
| Arabicas, other milds     | 22             |                | 26             |
| Unwashed Arabicas         | 33             |                | 20             |
| Robustas                  | 29             |                | 29             |

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Source: International Coffee Organization

The trend is toward the introduction of the Robusta species in some Latin American producing countries, mainly Brazil, which - along with notably El Salvador - has been buying Robustas directly from African producers, or via the US, for blending by domestic soluble coffee processors.

Coffee processing consists of roasting, spray drying and freeze-drying. Coffee roasting is generally carried out by small-sized establishments on a local or regional basis in most of the consuming countries, though the number of large industrial establishments is increasing. The production of soluble coffee requires a more sophisticated technology and is highly concentrated.

There are about 30 major coffee processors worldwide. Most of the important coffee distributors also own their own processing establishments.

Prospects for World Demand

World coffee demand in 1975 is estimated at 5 million tons and is expected to continue to grow at 2.8% annually, to reach 6-7 million tons by 1985. However, world average per capita consumption has been stagnating around 0.4 kg, and should remain at this level over the next 10 years. The biggest coffee drinkers are in the US and Western Europe. Though the share of world consumption held by developing and socialist countries is small, it has been expanding and should continue to rise over the next 10 years (see Table 3). The extent of coffee consumption in a country depends primarily on price and local drinking habits.

Table 3Breakdown of World Demand and  
Per Capita Consumption by Region - 1965-85

|                               | <u>% share</u> |             |             | <u>Per capita consumption (in kg)</u> |             |             |
|-------------------------------|----------------|-------------|-------------|---------------------------------------|-------------|-------------|
|                               | <u>1965</u>    | <u>1975</u> | <u>1985</u> | <u>1965</u>                           | <u>1975</u> | <u>1985</u> |
| North America                 | 33.0           | 20.0        | 30.0        | 6.0                                   | 6.3         | 7.0         |
| Western Europe                | 33.0           | 32.0        | 29.0        | 3.7                                   | 4.4         | 5.2         |
| Developing countries          | 29.0           | 31.0        | 33.0        |                                       |             |             |
| Africa                        | 4.0            | 4.3         | 4.8         | 0.7                                   | 0.7         | 0.8         |
| Latin America                 | 20.0           | 22.0        | 23.0        | 3.3                                   | 3.5         | 3.7         |
| Near East                     | 0.8            | 0.9         | 1.2         | 0.2                                   | 0.2         | 0.3         |
| Asia and Far East             | 4.0            | 4.0         | 4.2         | 0.2                                   | 0.2         | 0.2         |
| Eastern Europe<br>(inc. USSR) | <u>3.6</u>     | <u>3.0</u>  | <u>6.7</u>  | <u>0.4</u>                            | <u>0.7</u>  | <u>1.1</u>  |
| World average                 |                |             |             | 1.8                                   | 1.8         | 1.4         |

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Source: FAO

Table 4

Per Capita Consumption in  
Selected Countries - 1960-75  
 (in kg)

|                 | <u>1960</u> | <u>1970</u> | <u>1975<sup>a</sup></u> |
|-----------------|-------------|-------------|-------------------------|
| West Germany    | 3.5         | 5.2         | 5.6                     |
| France          | 4.3         | 4.7         | 4.9                     |
| Italy           | 1.9         | 2.9         | 3.2                     |
| The Netherlands | 5.0         | 6.2         | 7.1                     |
| Denmark         | 9.0         | 10.6        | 11.0                    |
| Spain           | 0.3         | 1.6         | 1.7                     |
| The UK          | 1.1         | 1.6         | 1.8                     |
| Sweden          | 9.8         | 12.0        | 14.0                    |
| Switzerland     | 4.8         | 5.8         | 5.9                     |
| The US          | 7.2         | 6.3         | 5.8                     |
| The USSR        | 0.1         | 0.3         | 0.6                     |

<sup>a</sup>Estimates.

Source: FAO

Though relatively small, demand has been increasing in the following areas: North Africa: Algeria, Morocco, Tunisia and Libya; Africa: Egypt, Sudan and Mali; Asia: Singapore; and the Middle East: Saudi Arabia, Kuwait, Turkey and Qatar. Over the next 10 years demand for coffee is likely to double in Eastern Europe, where per capita



consumption is now comparatively low (0.7 kg per capita) but is increasing faster than in most other consuming areas.

Worldwide, the soluble-type coffees are most popular in the US. They have begun to catch on in the traditional coffee-drinking West European countries but at a slow pace, due to consumer dissatisfaction with the taste. The soluble coffee - spray dried - market is also expanding fast in Eastern Europe, particularly in Poland and to a lesser extent in the GDR and Romania.

The growth in consumption of soluble coffee, of course, has been at the expense of regular coffee, and is expected to continue, due mainly to the boost in coffee prices. Compared to roasted coffee, the retail price increase for soluble coffee is less noticeable, as the relative share of the raw product is lower. This price difference should be the deciding factor for many consumers to shift to the drinking of soluble coffee.

The best reference for long-term factors influencing coffee demand can be found in a study of the US market, which is outlined below.

The US Market

In the US, which is the world's most important coffee importer, the aggregate demand for coffee has been relatively steady until recently. Total coffee consumption has remained at a high level due to a growing population, but, on a per capita basis, the green coffee consumed has declined from 7.2 kg in 1960 to 6.0 in 1974. The reasons:

- relatively fewer persons are drinking coffee
- coffee drinkers average fewer cups per day
- the extraction rate in converting green coffee to soluble is increasing as is the market for soluble coffee.

Dissatisfaction with the taste, preference for cold beverages and changes in eating habits are also responsible for the drop in per capita consumption. A major, rather than modest, change in price or income appears to have the greater influence on consumption in the long term.

In the US the trend has been toward a consumer preference for soluble coffee, particularly freeze dried. There is also an increasing demand for decaffeinated instant coffee. In the type of coffee preferred, mild coffee is the predominant choice.

The US imports both green coffee and processed coffee (roasted and soluble). Interestingly, imports of soluble and roasted coffee have increased, while that of green coffee has declined over the last 15 years: from 24.5 million 60-kilo bags in 1962 to 20.3 million in 1975.

Its leading green coffee suppliers are Brazil, Colombia, Mexico, El Salvador and Guatemala. The African share of the US' green coffee market however has been making some inroads: up to 1975 Angola and Uganda have been its most important suppliers.

The quantity of roasted coffee imported into the US is historically quite small (generally less than 40,000 bags of green equivalent annually), with some 90% originating in Brazil, Mexico and the Dominican Republic. For soluble coffee, the US relies mainly on Brazil and France, followed by the UK, Canada, Spain, West Germany and El Salvador.

Coffee roasting has become a highly concentrated industry as a result of the decline in the number of roasting establishments over the past 10 years.

Table 5

Roastings of Green Coffee in the US - 1966-75  
(in million 60-kilo bags)

|               | <u>1966</u> | <u>1970</u> | <u>1974</u> |
|---------------|-------------|-------------|-------------|
| Roastings     | 21.3        | 20.1        | 18.7        |
| - for regular | 17.8        | 16.7        | 15.6        |
| - for soluble | 3.5         | 3.3         | 3.1         |

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Source: Bureau of Census, US Department of Commerce

US Coffee Consumption. A typical drinker in 1962 consumed 3.12 cups per day; the comparable rate was 2.25 cups in 1974 and 2.20 cups in 1975, the decline due to drinkers taking less coffee rather than to a loss of coffee drinkers. An indication of the trends in coffee consumption is given in Table 6, below.

Table 6

The US: Estimated Distribution of Coffee  
By Place of Consumption and Type of Coffee - 1966-74

|   | <u>1966</u> | <u>1970</u> | <u>1974</u> |
|---|-------------|-------------|-------------|
| (million pounds of green coffee equivalent) |             |             |             |
| Total                                       | 2,824       | 2,775       | 2,680       |
| - households                                | 1,903       | 1,770       | 1,717       |
| - eating places                             | 398         | 397         | 352         |
| - at work                                   | 444         | 524         | 527         |
| - institutions                              | 56          | 59          | 59          |
| - other                                     | 23          | 25          | 25          |
| (cups per day per person)                   |             |             |             |
| - regular coffee                            | 2.23        | 1.91        | 1.50        |
| - soluble                                   | 0.63        | 0.66        | 0.75        |
| - % regular                                 | 78.0%       | 74.3%       | 66.7%       |
| - % soluble                                 | 22.0%       | 25.7%       | 33.3%       |

The greatest loss in coffee consumption over the past eight years has occurred at home. However, that is to be expected since about 75% of all coffee is consumed at home. The small decline in restaurant coffee drinking has been compensated by a rise in coffee drinking at work and institutions. Soluble coffee is also increasing its share of the total number of cups drunk per person.

European Market

In Western Europe, West Germany, France and Italy are the three leading importers, followed by the Netherlands, Sweden, the UK and Spain.

European demand for coffee and coffee products amounted to 1.6 million tons (in green coffee equivalent) in 1975 and is expected to reach more than 2 million tons in 1985.

The per capita consumption of coffee and coffee products varies widely among the European countries. The market for soluble coffee is opening slowly and shows the best prospects in the long term in the UK, France and West Germany. Soluble coffee presently accounts for some 20% of the coffee market in Europe; in the traditionally high coffee-consuming countries such as Italy, Norway, Sweden and Denmark, its share of the market is below 5% (these percentages are calculated on the basis of cup equivalent for regular and soluble coffee). In the long term soluble coffee is not expected to exceed 40% of the coffee market.

Table 7

Evolution of Soluble Coffee Consumption in Europe  
(in '000 tons)

| <u>Countries</u>   | <u>1967/68</u> | <u>1970/71</u> | <u>1973/74</u> | <u>Share of<br/>soluble coffee</u> |
|--|----------------|----------------|----------------|------------------------------------|
| The UK   | 23.0           | 37.0           | 47.2           | 88%                                |
| West Germany   | 16.6           | 16.8           | 20.0           | 25%                                |
| France   | 8.0            | 10.5           | 13.0           | 22%                                |
| Spain  | 2.8            | 5.6            | 8.1            | 33%                                |
| Switzerland  | 2.8            | 3.4            | 3.7            | 35%                                |
| The Netherlands  | 2.1            | 2.0            | 3.1            | 16%                                |
| Belgium  | 1.4            | 1.4            | 1.6            | 7%                                 |
| Italy  | 0.7            | 1.3            | 1.8            | 4%                                 |
| Scandinavian countries                                       | 1.3            | 1.4            | 1.7            | 4%                                 |
| Other West European countries<br>(Portugal, Austria, Greece) | 1.6            | 1.9            | 2.6            | 8%                                 |
| Eastern Europe (inc. USSR)                                   | 1.1            | 1.5            | 1.5            | 3%                                 |

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Source: Belamere estimates

Prospects for Coffee Processing by Producing Countries

The structure of the domestic coffee industry and local government incentives determine a producing country's ability to manufacture and export soluble coffee. In other words, an efficient industry together with a discriminatory fiscal policy and incentives for exports could place a producing country in a better position to increase its amount of processing and enhance its export capabilities. The processing most adaptable to developing countries is spray dried or agglomerated, both of which are less sophisticated than the freeze-dried process. To meet specific market requirements, the producing country should be able to assure the necessary blending.

Over the past decade the most important technical development in the coffee world has been the increased extraction rate in soluble coffee processing: from 27.8% in 1952, to 37% in 1965, to the current 40%.

When planning to penetrate new markets, developing countries are often faced with several obstacles, the main one being protective tariff barriers. Moreover, installed capacities in industrialized countries are often capable of meeting rising demand and technological changes. A few of the green coffee producers which provide adequate blending of granulated coffees can use the price advantage to increase their share of the industrial coffee market in industrialized countries.



The countries that stand out as the most promising markets for spray-dried soluble coffee are the UK, Spain and Eastern Europe as well as other traditional tea or other beverage-drinking countries.

The following major coffee suppliers are currently producing soluble coffee:

- Brazil
- Ivory Coast
- Colombia
- Mexico
- El Salvador
- Guatemala
- India
- Uganda
- Venezuela
- Costa Rica
- Ecuador

Other producing countries processing coffee into soluble are:

- Jamaica
- Nicaragua
- Trinidad

Of these countries, Brazil and Ivory Coast are the most important exporters of soluble coffee. Mexico is the largest exporter of roasted coffee, followed by Ivory Coast.

Table 8Main Producers' Roasted and Soluble Coffee Exports - 1971/72

| <u>Country</u> | <u>Roasted</u>                      |                                     | <u>Soluble</u>                      |                                     |
|----------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
|                | <u>Exports</u><br><u>'000 bags*</u> | <u>% of total</u><br><u>exports</u> | <u>Exports</u><br><u>'000 bags*</u> | <u>% of total</u><br><u>exports</u> |
| Brasil         | --                                  | --                                  | 1,616.4                             | 8.0                                 |
| Ivory Coast    | 5.8                                 | 1.5                                 | 214.5                               | 5.4                                 |
| Mexico         | 148.5                               | 8.9                                 | 12.5                                | 0.8                                 |
| Colombia       | --                                  | --                                  | 12.5                                | 2.0                                 |
| El Salvador    | 0.2                                 | --                                  | 31.9                                | 1.5                                 |
| Guatemala      | 0.2                                 | --                                  | 27.3                                | 1.5                                 |
| India          | 0.2                                 | --                                  | 17.6                                | 2.6                                 |
| Uganda         | --                                  | --                                  | 17.6                                | 2.6                                 |
| Sri Lanka      | --                                  | --                                  | 17.6                                | 2.6                                 |

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\*60-kilo bags

Table 9Statistical Profile: Coffee  
(in million tons)

|  | <u>average</u><br><u>1969/71</u> | <u>1974/75</u> | <u>1975/76*</u> | <u>1976**</u> | <u>Average rate</u><br><u>of growth</u><br><u>1965-75</u> |
|--|----------------------------------|----------------|-----------------|---------------|---|
| Production                                 | 3.9                              | 3.9            | 4.9             | 4.4           | 1.8   |
| Carryover stocks in<br>producing countries | 3.5                              | 2.5            | 3.0             | --            | - 6.1   |
| Consumption in<br>producing countries      | 1.2                              | 1.1            | 1.1             |               | 2.4   |
| Exports                                    | 3.2                              | 3.2            | 3.4             |               | 1.9   |
| Value of exports<br>(in \$ billion)        | (2.6)                            | (4.1)          | (4.0)           |               | 7.5   |
| Net imports                                | 3.2                              | 3.2            | 3.4             |               | 1.9   |
| Developing countries                       | 0.14                             | 0.14           | 0.14            |               | 2.0   |
| Developed countries                        | 2.9                              | 2.9            | 3.0             |               | 1.6   |
| Centrally planned countries                | 0.17                             | 0.19           | 0.2             |               | 5.9   |

\* Preliminary

\*\* Estimate

Source: FAO

SOURCES

- Pan American Coffee Bureau
- US Department of Agriculture
- FAO
- Belamare

## H. COCOA AND PRODUCTS

### Some Facts

Cocoa is a tropical product grown exclusively in developing countries and consumed mainly in the developed nations.

There are two principal commercial types of cocoa beans: "bulk" cocoas, which account for 90% of world output; and "flavor" cocoas, which are used for blending purposes in chocolate manufacture and usually sold with a premium over the price of the standard bulk.

Cocoa is a seasonal product, sensible to frost and drought. Cocoa trees are also often victims of numerous plant diseases which can destroy up to 40% of the potential crop. Frost and drought have occasionally been the cause of drastic shortfalls in production, which not only change the distribution pattern of exports among producing countries but widely influence price variations.

The main processed products used by the food industry are: cocoa butter, cocoa paste and cocoa powder (sweetened and unsweetened). Chocolate and chocolate products are for final consumption.

Cocoa Bean Production

Cocoa bean production is concentrated in five main countries - Ghana, Brazil, Nigeria, Ivory Coast and Cameroon - which account for 80% of world output. All five producers plan further increases in their cocoa production over the next 10 years. Among small and medium-sized producers, Malaysia, a new producing country, and, to a lesser extent, the Philippines and Papua, New Guinea, show good prospects (see Table 4).

Total world production of cocoa beans in 1975/76 is estimated to have dropped to 1.47 million tons (of which, grindings estimated at 1.46 million tons) from a high of 1.59 million tons (grindings: 1.56 million tons) in 1971/72.

Grindings

Roasting-grinding, which consists mainly of producing intermediate products for the confectionary industry, is done almost entirely in the consuming countries. The producing countries account for only some 30% of total world grindings. Brazil, Ivory Coast and Ecuador process the highest percentage of their production: 49%, 26% and 33% respectively.

The geographical distribution of grinding has changed considerably over the last 25 years. Rising labor costs in important consuming countries, increasing international involvement of chocolate manufacturers and industrialization policies of the cocoa-producing countries have contributed to an expansion of grinding facilities in some main producing countries.

The level of world grindings provides a very good indicator of world consumption of cocoa-based products. However, because of the increasing volume of international trade in cocoa products (e.g. cocoa butter and powder) and in chocolate and chocolate products, the grindings in individual countries no longer are a good measure of consumption of cocoa-based products in these countries. The Netherlands, for one, is a large cocoa bean importer, but the majority of its grindings is supplied to foreign chocolate manufacturers (mainly in the UK, the US and West Germany) in the form of processed cocoa products.

The current leading importers of cocoa beans are: the US, West Germany, the USSR, the Netherlands, the UK, Spain, France, Italy and Japan. Western Europe currently accounts for about 50% of the total world imports; the East European countries (including the USSR), which have doubled their imports over the last decade, account for some 21%; and the US' share is about 20%, having dropped from 26%.

Table 1Evolution of World Cocoa Bean Production and Grindings - 1964-85  
(in '000 tons)

|                  | <u>Tons</u> | <u>% Increase</u> | <u>Grindings</u> |
|------------------|-------------|-------------------|------------------|
| 1964/65          | 1,525       |                   | 1,379            |
| 1971/72          | 1,589       | - 5               | 1,560            |
| 1975/76          | 1,472       | + 1.5             | 1,462            |
| 1979/80 forecast | 1,790       | + 21.6            | 1,810*           |
| 1985             | 2,300       | + 28.5            | 2,010*           |

\*Estimated consumption, assuming \$.50 per lb cocoa beans at 1975 prices.

Table 2Evolution of Cocoa Bean Production and Trade by Region - 1965-75  
(in '000 tons)

|                       | <u>Production</u> |              |                   | <u>Exports</u> |              |                   | <u>Imports</u> |              |                   |
|-----------------------|-------------------|--------------|-------------------|----------------|--------------|-------------------|----------------|--------------|-------------------|
|                       | <u>1965</u>       | <u>1975</u>  | <u>% Increase</u> | <u>1965</u>    | <u>1975</u>  | <u>% Increase</u> | <u>1965</u>    | <u>1975</u>  | <u>% Increase</u> |
| Africa                | 1,193             | 1,001        | - 16.1            | 572            | 640          | - 26.6            | 7              | 8            | 14.3              |
| North & Latin America | 299               | 413          | 38.1              | 210            | 240          | 14.3              | 327            | 210          | - 35.8            |
| Asia, Oceania         | 33                | 58           | 75.8              | 29             | 44           | 51.7              | 65             | 65           | --                |
| Eastern Europe        | --                | --           | --                | --             | --           | --                | 164            | 260          | 58.5              |
| Western Europe        | --                | --           | --                | --             | --           | --                | 561            | 530          | - 4.1             |
| <b>Total</b>          | <b>1,525</b>      | <b>1,472</b> | <b>- 3.5</b>      | <b>1,111</b>   | <b>1,075</b> | <b>- 3.2</b>      | <b>1,124</b>   | <b>1,004</b> | <b>- 3.6</b>      |



World Cocoa Industry

The manufacture of cocoa-based products has undergone major changes over the last 10 years. Partly due to rising labor costs, many countries have introduced automation in the grinding of cocoa beans and manufacture of chocolate products.

A limited number of companies are involved in the chocolate and cocoa products sector, and the trend is toward greater concentration, as the manufacture of most cocoa products requires a sophisticated technology and economies of scale can be achieved. (The value added is relatively low in cocoa processing.) There is also a move toward diversification. Mergers have often resulted in the absorption of independent, cocoa-producing and chocolate manufacturers by large companies producing a wide variety of commodities; at the same time, chocolate manufacturers are diversifying into other product lines.

The following companies account for over 80% of the total US and West European chocolate markets: Nestlé and Interfood SA (Switzerland); Cadbury-Schweppes Ltd, United Biscuits Holding Ltd and Rowntree MacKintosh Ltd (UK); and Mars Inc, Hershey Foods Corp, W.R. Grace & Co and General Foods (US).

The total output of cocoa-processed products is around 5.4 million tons, of which cocoa butter accounts for 178,000 tons and cocoa powder for 190,000 tons.

#### Consumption Trends

In the past, world demand for cocoa has followed the same general trends as production, except of course for some seasonal variations, as for example in 1971/2 and 1974/75, when cocoa production exceeded consumption. World demand for cocoa is estimated at 1.5 million tons in 1975 and the prospects for 1985 are considered to be fairly good. Depending on the price of cocoa beans, estimates for 1985 range from a low of 1.9 million tons to a high of 2.2 million. Consumption growth in the USSR and in some East European countries has been and should continue to be responsible for much of the future increase in cocoa consumption. The potential demand in India and China is high, but in the short term is expected to grow at a slow pace.

Various factors determine the world demand for cocoa: population growth, per capita income, cocoa bean (and sugar) prices. The limiting factors are the wider acceptance of cocoa butter substitutes and artificial chocolate flavoring, particularly if cocoa prices remain at a high level and these substitutes continue to

has a large price advantage. Furthermore, the shift in demand from plain chocolate toward more sophisticated chocolate products in the major consuming countries augurs well for the wider use of substitutes.

Production Trends and 1985 Prospects

Since 1950, the geographical distribution of cocoa production has shifted in importance from Latin America in favor of Africa and Asia, which is illustrated in the table below, based on five-year average production:

|                | <u>% Share of World Production</u> |                |
|----------------|------------------------------------|----------------|
|                | <u>1950/55</u>                     | <u>1970/75</u> |
| Africa         | 64.5                               | 70.9           |
| Latin America  | 34.4                               | 25.9           |
| Asia & Oceania | 1.1                                | 3.2            |

In the percentage share of world production, Ghana leads with 26% (vs 31% in 1950-55), followed by Nigeria with 15% (vs 13%), the Ivory Coast with 14% (vs 8%), Brazil with 15% (vs 16%) and Cameroon with 9% (vs 8%). The 1985 prospects are for a further erosion of Nigeria's and Ghana's shares, with the Ivory Coast emerging as the leading producer.

Table 3Forecasted Shares of World Production up to 1985

|             | <u>% Share of Production</u> |                |                |                |
|-------------|------------------------------|----------------|----------------|----------------|
|             | <u>1950/55</u>               | <u>1975/76</u> | <u>1979/80</u> | <u>1984/85</u> |
| Ivory Coast | 8                            | 14             | 21             | 22             |
| Ghana       | 31                           | 26             | 24             | 21             |
| Brazil      | 16                           | 15             | 16             | 19             |
| Nigeria     | 13                           | 15             | 13             | 14             |
| Cameroon    | 8                            | 9              | 7              | 7              |
| Other       | 24                           | 21             | 19             | 17             |

Source: International Cocoa Organization.

The factors that have played a major role in increasing cocoa production in each country include:

- Development of effective insecticides and fungicides, early maturing, high yielding hybrid varieties and fertilizers to correct soil deficiencies;
- Increasing government involvement in expansion rehabilitation and new plantings;
- Better organized credit schemes; and
- Improved infrastructure (roads), better storage and port-handling facilities.

Table 4

1985 Forecasts for Cocoa Production  
in the Main Producing Countries

|                  | <u>Land Area (in '000 ha)</u> |                |                | <u>Production ('000 tons)</u> |                |                |
|------------------|-------------------------------|----------------|----------------|-------------------------------|----------------|----------------|
|                  | <u>1974/75</u>                | <u>1979/80</u> | <u>1984/85</u> | <u>1974/75</u>                | <u>1979/80</u> | <u>1984/85</u> |
| Ivory Coast      | 832                           | 984            | --             | 231                           | 368            | 502            |
| Ghana            | 1,336                         | 1,395          | --             | 411                           | 428            | 479            |
| Nigeria          | 650                           | 760            | --             | 234                           | 237            | 315            |
| Brazil           | 541                           | 676            | --             | 183                           | 249-280        | 390-441        |
| Cameroon         | 430                           | 498            | --             | 112                           | 133            | 165            |
| Papua New Guinea | --                            | --             | --             | 30                            | 40             | 50             |
| Malaysia         | --                            | 45             | --             | --                            | --             | 38             |
| World Total      |                               |                |                | 1,512                         | 1,790          | 2,300          |

Source: International Cocoa Organization.

Since 1950, however, few changes have occurred with respect to land clearing, harvesting, fermenting and drying, which are still being done by manual labor. The looming problem for many producing countries are the more rigorous quality-control specifications required by importing countries.

Prospects for the Leading Cocoa Producers

The prospects for production in each country will depend upon many factors - depending on the country - the main ones being:

- Normal weather conditions
- Political and economic stability
- Characteristics of existing stocks of cocoa trees
- Producer price policy
- Government programs for existing plantations and the rate of new plantings.

Processing Prospects for Producing Countries

As the value added is relatively low, the proportion of beans to be processed into intermediate products in producing countries should be high in order to increase the value added locally and, to a certain extent, to overcome the technical problems involved in storing and transporting massive supplies of cocoa beans. It is hoped that more processing in producing countries will mean an end to the widely varying price fluctuations that have characterized the cocoa market.

But finding a market for processed cocoa products may be a problem. In the developed consuming countries tariff barriers may be set up to protect their own cocoa processors. And in the developing countries, the technological processes used may not be sophisticated enough to further process the intermediate products. For example, Eastern Europe has mainly the technology only to treat cocoa beans, which limits the penetration of this growing market in the near term.

Apart from South America, where demand for processed products for final consumption is already above the average in developing countries, the prospects for further processing of final products in other producing countries are dim over the next 10 years.

Table 5

Evolution of Cocoa Bean Production & Trade by Country - 1965-75  
('000 tons)

| Main<br>producing<br>countries | Production |      | Z<br>Increase<br>1965-75 | 1985<br>Forecast | Z<br>Increase<br>1975-85 | Main<br>exporting<br>countries |      | Exports |        | Z<br>Increase   | Main<br>importing<br>countries |      | Imports |        | Z<br>Increase |
|--------------------------------|------------|------|--------------------------|------------------|--------------------------|--------------------------------|------|---------|--------|-----------------|--------------------------------|------|---------|--------|---------------|
|                                | 1965       | 1975 |                          |                  |                          | 1965                           | 1975 | 1965    | 1975   |                 | 1965                           | 1975 | 1965    | 1975   |               |
| Ghana                          | 500        | 381  | - 34.3                   | 400              | 26.0                     | Ghana                          | 374  | 320     | - 14.4 | US              | 204                            | 181  | - 36.3  |        |               |
| Brazil                         | 118        | 225  | 90.7                     | 440              | 95.6                     | Ivory Coast                    | 123  | 177     | 43.9   | West Germany    | 141                            | 157  | 11.3    |        |               |
| Nigeria                        | 298        | 220  | 26.2                     | 320              | 45.5                     | Nigeria                        | 221  | 142     | - 35.7 | The USSR        | 89                             | 157  | 76.4    |        |               |
| Ivory Coast                    | 147        | 210  | 42.9                     | 500              | 138.1                    | Brazil                         | 106  | 127     | 19.8   | The Netherlands | 114                            | 113  | - 0.9   |        |               |
| Cameroon                       | 87         | 130  | 49.4                     | 170              | 30.8                     | Cameroon                       | 74   | 77      | 4.1    | The UK          | 90                             | 80   | - 11.1  |        |               |
| Ecuador                        | 50         | 60   | 20.0                     | na               | --                       | Ecuador                        | 42   | 62      | 47.6   | Spain           | 33                             | 34   | 3.0     |        |               |
| Papua New<br>Guinea            | 21         | 35   | 66.7                     | 50               | 42.9                     | Papua New<br>Guinea            | 22   | 36      | 63.6   | France          | 50                             | 36   | - 28.0  |        |               |
|                                |            |      |                          |                  |                          |                                |      |         |        |                 | Italy                          | 42   | 30      | - 28.6 |               |
|                                |            |      |                          |                  |                          |                                |      |         |        |                 | Japan                          | 33   | 28      | - 15.2 |               |







**Table 8**  
**Cocoa Powder & Cocoa Production & Trade by Country**  
 (in '000 tons)

| Main Producers  | Production |      | Main exporters  | Exports |         | Main importers  | Imports |         | Z growth |
|-----------------|------------|------|-----------------|---------|---------|-----------------|---------|---------|----------|
|                 | 1965       | 1973 |                 | 1965/70 | 1974/75 |                 | 1965/70 | 1974/75 |          |
| Ghana           | na         | 1.0  | Ghana           | 23      | 22      | The US          | 50      | 58      | 16.0     |
| Ivory Coast     | na         | 6    | Brazil          | 10      | 19      | The UK          | 7       | 16      | 128.5    |
| Ecuador         | na         | 2    | Ivory Coast     | 8       | 12      | West Germany    | 6       | 9       | 50.0     |
| Venezuela       | na         | 4    | Nigeria         | 5       | 9       | France          | 4       | 16      | 200.0    |
| The Netherlands | 20         | 50   | Cameroon        | 8       | 11      | The Netherlands | 1       | 5       | 400.0    |
| West Germany    | 27         | 39   | Ecuador         | na      | na      | Canada          | 6       | 9       | 50.0     |
| The UK          | 20         | 21   | The Netherlands | 34      | 40      | Belgium         | 1.5     | 3       | 100.0    |
| France          | 8          | 9    | Germany         | 14      | 16      | Italy           | 0.5     | 3       | 500.0    |
| Italy           | 9          | 3    | The UK          | 5       | 9       |                 |         |         |          |
| Australia       | 4          | 6    | France          | 2       | 4       |                 |         |         |          |
| Austria         | 2          | 4    |                 |         |         |                 |         |         |          |
| Canada          | 3          | 4    |                 |         |         |                 |         |         |          |
| Poland          | 3          | 4    |                 |         |         |                 |         |         |          |
| Czechoslovakia  | 3          | 3    |                 |         |         |                 |         |         |          |
| Japan           | 2          | 3    |                 |         |         |                 |         |         |          |
| Philippines     | 1          | 4    |                 |         |         |                 |         |         |          |

Table 2

Cocoa Powder & Cocoa Production & Trade by Region  
(in '000 tons)

|                              | <u>Production</u> |             | <u>Exports</u> |                |                | <u>Imports</u> |                |                |
|------------------------------|-------------------|-------------|----------------|----------------|----------------|----------------|----------------|----------------|
|                              | <u>1965</u>       | <u>1973</u> | <u>1965/70</u> | <u>1974/75</u> | <u>1965/70</u> | <u>1974/75</u> | <u>1965/70</u> | <u>1974/75</u> |
| Africa                       | —                 | 7           | 45             | 54             | 1              | 1              | —              | —              |
| Americas                     | 18                | 20          | 14             | 26             | 58             | 73             | 25.9           | 25.9           |
| Asia, Oceania                | 4                 | 8           | 1              | 3              | 6              | 10             | 66.7           | 66.7           |
| Western Europe               | 110               | 145         | 60             | 71             | 27             | 60             | 122.2          | 122.2          |
| Eastern Europe <sup>1)</sup> | 2                 | 10          | —              | —              | 2              | 4              | 100.0          | 100.0          |
| <u>Total</u>                 | 154               | 190         | 120            | 154            | 94             | 149            | 56.5           | 56.5           |

1) Excluding the USSR.

Table 10

Cocoa Paste Trade - 1965-73  
(in '000 tons)

|                       | <u>Exports</u> |                |                       | <u>Imports</u> |                |                       |
|-----------------------|----------------|----------------|-----------------------|----------------|----------------|-----------------------|
|                       | <u>1965/70</u> | <u>1973/74</u> | <u>%<br/>increase</u> | <u>1965/70</u> | <u>1973/74</u> | <u>%<br/>increase</u> |
| <b>Africa</b>         | 5.9            | 19.2           | 225.4                 | 0.1            | 0.2            | 100.0                 |
| of which:             |                |                |                       |                |                |                       |
| Ghana                 | 1.7            | 3.8            | 123.5                 | --             | --             | --                    |
| Ivory Coast           | 4.9            | 12.8           | 161.2                 | --             | --             | --                    |
| Nigeria               | --             | --             | --                    | --             | --             | --                    |
| Cameroon              | --             | 1.7            | --                    | --             | --             | --                    |
| <b>Americas</b>       | 2.9            | 17.6           | 506.9                 | 5.0            | 14.0           | 140.0                 |
| of which:             |                |                |                       |                |                |                       |
| Brazil                | --             | 9.5            | --                    | --             | --             | --                    |
| The US                | --             | --             | --                    | 3.6            | 11.6           | 128.2                 |
| <b>Western Europe</b> | 5.6            | 5.7            | 1.8                   | 16.6           | 19.7           | 18.7                  |
| of which:             |                |                |                       |                |                |                       |
| France                | --             | --             | --                    | 6.1            | 8.6            | 41.0                  |
| The UK                | --             | --             | --                    | 1.5            | 4.4            | 193.3                 |
| Ireland               | --             | --             | --                    | 2.9            | 2.4            | - 13.8                |
| Italy                 | --             | --             | --                    | --             | 1.7            | --                    |
| <b>Asia, Oceania</b>  | --             | 0.5            | --                    | --             | --             | --                    |
| <b>Eastern Europe</b> | --             | --             | --                    | --             | <u>4.0</u>     | --                    |
| <b>Total</b>          | <b>15.0</b>    | <b>43.0</b>    |                       | <b>21.2</b>    | <b>33.7</b>    |                       |

Table 11  
Chocolate & Chocolate Products Output & Trade by Country - 1965-74  
 (in '000 tons)

| Main<br>producers | Production       |                    | Main<br>exporters      | Exports |         | Main<br>importers | Imports |         |
|-------------------|------------------|--------------------|------------------------|---------|---------|-------------------|---------|---------|
|                   | 1965             | 1974               |                        | 1965/70 | 1973/74 |                   | 1965/70 | 1973/74 |
| Ghana             | na               | na                 | Ghana                  | —       | —       | Ghana             | —       | 0.1     |
| Brazil            | na               | na                 | Brazil                 | 0.1     | 1.2     | Brazil            | —       | —       |
| Ivory Coast       | na               | na                 | Ivory Coast            | —       | —       | Ivory Coast       | —       | —       |
| Nigeria           | na               | na                 | Nigeria                | —       | —       | Nigeria           | —       | —       |
| Cameroon          | na               | na                 | Cameroon               | 1.6     | 3.6     | Cameroon          | —       | 0.1     |
| The US            | 700 <sup>a</sup> | 2,611 <sup>a</sup> | The Netherlands        | 59      | 83      | Denmark           | 5       | 10      |
| West Germany      | 200              | 407                | Ireland                | 52      | 46      | The Netherlands   | 13      | 26      |
| The Netherlands   | —                | 131                | West Germany           | 14      | 44      | Norway            | 2       | 5       |
| France            | 128              | 180                | Belgium,<br>Luxembourg | 25      | 44      | West Germany      | 57      | 76      |
| Canada            | 72               | 86                 | Switzerland            | 14      | 17      | Belgium           | 15      | 23      |
| Japan             | 99               | 123                | France                 | 10      | 15      | Switzerland       | 6       | 8       |
| Poland            | 31               | 103                | Sweden                 | 3       | 7       | France            | 24      | 45      |
| Spain             | 7                | 76                 | The US                 | 5       | 13      | Sweden            | 2       | 6       |
| The USSR          | 26               | 81                 | Australia              | 12      | 6       | Canada            | 6       | 6       |
| Switzerland       | 54               | 70                 | New Zealand            | 2       | 8       | The US            | 30      | 27      |
| Belgium           | 65               | 89                 |                        |         |         | The UK            | 52      | 60      |
| Australia         | 42               | 50                 |                        |         |         |                   |         |         |

Table 12

Chocolate & Chocolate Products Output & Trade by Region - 1965-74  
(in '000 tons)

|                     | Production |                    | Exports |         | Imports |         | Z<br>growth |
|---------------------|------------|--------------------|---------|---------|---------|---------|-------------|
|                     | 1965/70    | 1974               | 1965/70 | 1973/74 | 1965/70 | 1973/74 |             |
| Africa <sup>1</sup> | 18         | 31                 | 2       | 4       | 5       | 5.3     | 6.0         |
| Americas            | 1,790      | 2,711 <sup>2</sup> | 6       | 18      | 37      | 35      | - 5.4       |
| Asia, Oceania       | 110        | 213 <sup>3</sup>   | 6       | 17      | 10      | 21      | 110.0       |
| Western Europe      | 948        | 1,246              | na      | na      | 187     | 292     | 56.1        |
| Eastern Europe      | 150        | 307                | --      | --      | 2       | 4       | 100.0       |
| Total               | 3,000      | 5,000              | 252     | 301     | 241     | 357     | 48.1        |

<sup>1</sup>Including South Africa.

<sup>2</sup>Including the US' 2.6 million tons.

<sup>3</sup>Including Australia and New Zealand (68,000 tons).

Table 13

Grindings of Cocoa Beans

Grindings in Major Consuming Countries - 1972-75

|                 | <u>Grinding</u><br><u>('000 tons)</u> |             | <u>% of total grinded</u><br><u>cocoa beans</u> |
|-----------------|---------------------------------------|-------------|---|
|                 | <u>1972</u>                           | <u>1975</u> |   |
| The US          | 289                                   | 210         | 14.4  |
| The USSR        | 132                                   | 145         | 10.0  |
| West Germany    | 139                                   | 140         | 9.6   |
| The Netherlands | 124                                   | 113         | 8.8   |
| The UK          | 98                                    | 75          | 5.1   |
| Spain           | 31                                    | 34          | 2.3   |
| Poland          | 32                                    | 34          | 2.3   |
| France          | 48                                    | 34          | 2.3   |
| Japan           | 36                                    | 28          | 1.9   |



Table 14  
Grindings in Producing Countries - 1972-75

|             | <u>Grindings</u><br>( <u>'000 tons</u> ) |             | <u>% of domestic</u><br><u>cocoa bean</u><br><u>production</u> | <u>% of total</u><br><u>grinded</u><br><u>cocoa beans</u> |
|-------------|--|-------------|--|---|
|             | <u>1972</u>                              | <u>1975</u> |  |   |
| Brazil      | 89                                       | 110         | 49   | 7.5   |
| Ivory Coast | 39                                       | 55          | 25   | 2.1   |
| Ghana       | 52                                       | 50          | 13   | 3.0   |
| Colombia    | 35                                       | 35          |  | 2.4   |
| Cameroon    | 33                                       | 30          | 23   | 2.1   |
| Nigeria     | 26                                       | 30          | 14   | 2.0   |
| Mexico      | 16                                       | 22          | --   | 1.5   |
| Ecuador     | 15                                       | 20          | 33   | 1.4   |

Table 15  
Grindings by Region

|                             | <u>Grindings</u><br>(in <u>'000 tons</u> ) |             | <u>% of 1975 cocoa</u><br><u>production</u> | <u>% of 1975</u><br><u>total grinding</u> |
|-----------------------------|--|-------------|---|---|
|                             | <u>1972</u>                                | <u>1975</u> |   |   |
| Africa                      | 156  | 175         | 17.5  | 12  |
| Latin America               | 193  | 218         | 53.0  | 15  |
| Asia, Oceania <sup>1)</sup> | 43   | 42          | 7.2   | 3   |
| Western Europe              | 586  | 525         | --  | 34  |
| Eastern Europe              | 238  | 254         | --  | 17  |
| US & Canada                 | 308  | 220         | --  | 15  |
| Japan                       | 36   | 28          | --  | 1   |
| Australia                   | 16   | 15          | --  | 2   |

<sup>1)</sup> Excluding Japan & Australia.

Table 16

FAO's Forecasted 1985 Cocoa Consumption\*

| <u>Country</u>                          |                    | <u>1965</u> | <u>1970</u> | <u>1975</u> | <u>1985</u> |
|---|--------------------|-------------|-------------|-------------|-------------|
| World                                   | Total ('000 mt)    | 1,253       | 1,433       | 1,500       | 2,060       |
|   | Per capita (in kg) | 1.2         | 1.2         | 1.3         | 1.4         |
|   | % growth           | 14.6        | 4.0         |             | 43.8        |
| North America                           | Total              | 372         | 406         | 400         | 529         |
|   | Per capita         | 1.7         | 1.8         | 1.8         | 2.0         |
|   | % growth           | 9.1         | 0           |             | 30.4        |
| Western Europe                          | Total              | 525         | 577         | 560         | 735         |
|   | Per capita         | 1.5         | 1.6         | 1.7         | 1.9         |
|   | % growth           | .0          | 8.1         |             | 27.3        |
| Oceania<br>Australia and<br>New Zealand | Total              | 16          | 18          | 20          | 26          |
|   | Per capita         | 1.1         | 1.2         | 1.2         | 1.3         |
|   | % growth           | 14          | 12.9        |             | 46.3        |
| Developing<br>Countries                 | Total              | 115         | 147         | 182         | 287         |
|   | Per capita         | --          | --          | --          | --          |
|   | % growth           | 27.8        | 24.2        |             | 95.7        |
| Africa                                  | Total              | 8           | 16          | 20          | 35          |
|   | Per capita         | 0.1         | 0.1         | 0.1         | 0.1         |
|   | % growth           | 3.7         | 26.5        |             | 120.7       |
| Latin America                           | Total              | 88          | 107         | 133         | 206         |
|   | Per capita         | 0.4         | 0.4         | 0.4         | 0.5         |
|   | % growth           | 22.6        | 24.2        |             | 91.5        |
| Near East                               | Total              | 5           | 6           | 8           | 15          |
|   | Per capita         | --          | --          | --          | 0.1         |
|   | % growth           | 18.2        | 31.2        |             | 141.3       |
| Asia and<br>Far East                    | Total              | 14          | 17          | 20          | 30          |
|   | Per capita         | --          | --          | --          | --          |
|   | % growth           | 21.5        | 19.8        |             | 82.3        |
| Centrally<br>Planned<br>Countries       | Total              | 175         | 220         | 263         | 371         |
|   | Per capita         | --          | --          | --          | --          |
|   | % growth           | 26          | 19.6        |             | 68.9        |

\*Total consumption figures are in '000 metric tons,  
per capita figures in kilos.

## I. TEA AND PRODUCTS

### Facts and Trends

The main activities of the tea industry are:

- growing and processing
- distribution, including selling and buying (either at auction or directly)
- blending, packaging and retailing.

Tea growing is concentrated mainly in South Asia, China, the USSR, Africa and South America. Worldwide, tea plantations cover an area estimated at 1.5 million hectares.

The total area devoted to tea is not expected to change dramatically in the future; however, geographically the breakdown should show slight differences. Some main producers (e.g. Indonesia, Taiwan and Sri Lanka) are being pressured into growing food crops in tea areas, which so far has resulted in a slight reduction of their total tea acreage, while other tea-producing countries (mainly in Africa) are expanding their tea plantations.

Over the past decade the most significant expansions in tea-growing acreage has occurred in: Kenya (a 167% rise), Turkey (164%), Mauritius (136%), Uganda (110%), Tanzania (100%), Argentina (33%) and Malawi (28%).

The world tea trade is concerned almost entirely with black tea, which is produced through fermentation. Green tea, which is unfermented, is produced and consumed mainly in China, Japan and Taiwan, and is exported to a limited number of foreign markets, the most important being the North African countries. Oolong tea, a third category obtained through semifermentation, is prepared in South China and Taiwan. These classes result from different processes applied to the same kind of leaf, or even to leaves of the same plant, though various regions generally specialise in one type.

The tea sorted in producers' factories is not sold as such to consumers but always blended to meet the characteristics and tastes of consumers in different countries.

Such merchandising innovations as iced tea, the tea bag and instant tea have served to popularise tea. Iced tea was first introduced at the St. Louis World's Fair in 1904; the tea bag replaced loose tea as the most popular form during the '50s; and soluble, or instant, tea was first distributed widely around 1960.

Production

World tea production has been put at around 1.7 million metric tons in 1975, up from an average annual 1.3 million tons during the 1966-70 period. To date growth has been averaging a 3.5% increase per year, but over the long term should taper off to about 2.8% or even lower. Short-term prospects show production decreases in some areas due to political changes (e.g. nationalisation in Uganda and Mozambique) and bad weather conditions (e.g. frost in Argentina, insufficient rainfall in Indonesia).

The main tea producers are India, China and Sri Lanka, whose production range is between 100,000 and 500,000 tons a year. The medium-sized producers (between 25,000-100,000 tons) include, in order of importance, Japan, the USSR, Indonesia, Kenya, Turkey, Iran, Argentina, Malawi and Taiwan.

Most of the important producing countries are already blending, packaging and producing instant tea. Over the last five years, India's production of instant tea has been averaging an annual 200-350 tons; Kenya's annual output is around 200 tons; Uganda, which has been producing instant tea for over 10 years, reached an output of more than 100 tons in 1971 but has since almost stopped production due to disrupting internal factors; Sri Lanka only recently started instant-tea production. Among developed countries, the UK, West Germany, the US and Switzerland are the major instant tea processors.

Trade

The percent of total output that is exported varies greatly from country to country: for example, India exports about 45% of total production, China 31%, Sri Lanka 94%. In 1975 exports totaled 745,700 tons (\$663 million), 44% of total production (1.7 million tons).

In recent years India has been outranking Sri Lanka as an exporter, and Turkey, Kenya, Rwanda, Uganda and Argentina have shown a steady increase in their exports.

The UK and Ireland alone account for almost a third of world tea imports. The fastest growth in imports over the last decade has occurred in Bulgaria, Hungary, Poland, Yugoslavia, France, Greece, Spain, Iceland, Arab countries, Iran, Afghanistan, Nepal, Libya and Chili.

World Demand

Tea is consumed by about half of the world's population, yet it is second to coffee in commercial importance, largely because a significant portion of the world's tea crop is consumed in the growing regions.

Total world demand for tea is expected to reach at least 2.1 million metric tons by 1985 (vs. 1.8 million in 1975), 20% of which will be sold in tea bags and 1.5% as instant tea.

Demand, however, has been slowing down in the traditionally high importing countries - particularly the UK, whose market apparently has reached saturation. Though demand is rising in the Middle Eastern, North African and East European countries, this increase is not expected to compensate for this market loss.

#### Processing Prospects in LDCs

The processing of tea (instant tea, tea bags, blending and packaging) is done almost entirely in importing countries. Apart from historical factors, the reasons given for maintaining these operations in the importing countries are not always justified, technically or economically.

Instant tea. The market for instant powdered tea is relatively narrow. Instant tea and mixes have proven to be the most popular in the US, where water soluble instant tea is used for food summer drinks, by the institutional market and in vending machines. Demand is closely linked with the rising demand for convenience-type food products and follows wide public acceptance of soluble coffee.

The rise in the consumption of instant tea has been at the expense of leaf tea and does not correspond to the creation of a new consumer market.

A more logical procedure is to manufacture instant tea from the fermented tea or the fresh green leaf in the producing area rather than from the teas imported by the consuming countries. One advantage of local production is that inferior-quality tea can be utilized. For shipping, quality packaging is needed to protect its characteristics and flavor.

The producing countries that are processing tea to obtain either tea concentrates or tea powder from fermented or green leaves include Sri Lanka, India, Kenya and Uganda. As newcomers to the field, the African tea-producing countries generally boast the most modern equipment, but due to mismanagement and other problems, most of these countries still have underutilized capacity.

Tea bags. New processing methods produce a high percentage of breakage, fannings and dusts which find end-uses in many blends, particularly for tea bags. The introduction of tea bags has resulted in an increase in total tea consumption.

In the UK, 40% of the total tea trade is expected to consist of bags within the next few years. In the US, 50% of the tea consumed is already in the form of bags. In Western Europe, tea bags are



rising steadily in popularity. And in Japan, traditionally a green-tea consuming country, black tea in bags constitutes 40% of tea imports. Producers would do well to respond to this trend by raising their production of teas suitable for bags.

Blending and packaging. An opportunity for the producing countries lies in the blending and packaging of teas in collaboration with major tea blenders and importers. Such a move is recommended only if a new market has been assured. For example, the Middle Eastern countries demand blends other than that destined for the traditional markets (e.g. the UK and the US). Eastern Europe is another promising area, particularly for India and Sri Lanka, both of which have trade agreements with these countries.

In evaluating the market prospects, consideration should be given to the type of water and teas required for the blending as well as to the cost advantages and adjustments for price variations. The capital investment would mean that the target market would pay more for the final, packed product.

African countries which are medium-sized producers of good quality tea - i.e. Kenya, Uganda, Tanzania and Malawi - are in a good position to fulfill their own needs as well as those of their neighboring countries and expanding markets.

Table 1

Tea: Overall Outlook

| <u>World production</u><br>( <sup>'000</sup> metric tons)  | <u>1961-65</u> | <u>1972</u> | <u>1975</u> | <u>FAO forecast</u> |             |             |
|--|----------------|-------------|-------------|---------------------|-------------|-------------|
| Tea, black and green                                       | 1,120.0        | 1,522.5     | 1,678.0     |                     |             |             |
| % growth   | 35.9%          | 10.2%       |             |                     |             |             |
| Instant tea  |                |             |             | <u>1980</u>         | <u>1985</u> | <u>1990</u> |
| % of raw production  | 0.01%          |             | 1.0%        | 1.25%               | 1.50%       | 1.55%       |
| Tea bags   | 8.0%           | 9.0%        | 10.0%       | 18.0%               | 20.0%       | 25.0%       |
| <u>World exports</u><br>(metric tons)                      | <u>1965</u>    | <u>1970</u> | <u>1975</u> | <u>FAO forecast</u> |             |             |
| Raw product  | 601,100        | 642,000     | 745,700     | <u>1980</u>         | <u>1985</u> | <u>1990</u> |
| % growth   | 6.8%           | 16.1%       |             |                     |             |             |
| <u>World consumption</u><br>( <sup>'000</sup> metric tons) | <u>1965</u>    | <u>1970</u> | <u>1975</u> | <u>1980</u>         | <u>1985</u> | <u>1990</u> |
| Total  | 1,333          | 1,554       | 1,782       | 2,068               | 2,405       | 2,705       |
| % growth   | 16.7%          | 14.7%       |             | 16.0%               | 35.0%       | 57.0%       |
| Developed countries  | 450            | 492         | 513         | 538                 | 567         | 597         |
| of which:  |                |             |             |                     |             |             |
| North America  | 65             | 68          | 75          | 82                  | 91          | 100         |
| Western Europe   | 255            | 263         | 259         | 257                 | 254         | 253         |
| Centrally planned  | 256            | 286         | 316         | 350                 | 384         | 419         |
| Developing countries                                       | 628            | 775         | 953         | 1,180               | 1,454       | 1,779       |
| of which:  |                |             |             |                     |             |             |
| Africa   | 41             | 55          | 66          | 80                  | 99          | 122         |
| Latin America  | 194            | 243         | 299         | 366                 | 445         | 536         |
| Asia & Far East  | 264            | 320         | 393         | 490                 | 610         | 753         |
| Near East  | 127            | 156         | 193         | 241                 | 296         | 364         |

Source: FAO, Tea Committee, market estimates.

Table 21985 Tea Consumption Forecasts  
for Selected Countries

|                 | <u>'000 metric tons</u> |             | <u>Per capita (in kilos)</u> |             |
|-----------------|-------------------------|-------------|------------------------------|-------------|
|                 | <u>1972/74</u>          | <u>1985</u> | <u>1972/74</u>               | <u>1985</u> |
| The US          | 76.0                    | 91.0        | 0.36                         | 0.39        |
| Argentina       | 10.0                    | 15.6        | 0.41                         | 0.54        |
| The UK          | 200.1                   | 196.0       | 3.57                         | 3.34        |
| Ireland         | 11.5                    | 14.0        | 3.81                         | 4.00        |
| Denmark         | 1.9                     | 2.0         | 0.38                         | 0.38        |
| The Netherlands | 8.8                     | 11.0        | 0.65                         | 0.75        |
| Australia       | 26.7                    | 29.0        | 2.03                         | 1.78        |
| New Zealand     | 7.8                     | 10.0        | 2.62                         | 2.79        |
| Japan           | 113.6                   | 139.0       | 1.05                         | 1.14        |
| Kenya           | 6.4                     | 12.0        | 0.52                         | 0.65        |
| Pakistan        | 40.4                    | 52.0        | 0.61                         | 0.53        |
| Turkey          | 29.8                    | 43.0        | 0.80                         | 0.83        |
| Sri Lanka       | 20.1                    | 21.0        | 1.52                         | 1.24        |
| Iran            | 45.0                    | 62.0        | 1.41                         | 1.38        |
| Iraq            | 23.1                    | 42.0        | 2.22                         | 2.69        |
| Sudan           | 17.9                    | 25.0        | 1.02                         | 0.99        |
| Syria           | 4.1                     | 8.0         | 0.60                         | 1.07        |
| Jordan          | 2.5                     | 4.0         | 1.00                         | 1.07        |
| India           | 250.0                   | 454.0       | 0.42                         | 0.57        |
| Tunisia         | 6.3                     | 8.0         | 1.16                         | 1.06        |
| The USSR        | 107.6                   | 127.0       | 0.43                         | 0.45        |
| Poland          | 7.7                     | 15.0        | 0.37                         | 0.41        |

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Source: FAO.

Table 3

## Tea Production &amp; Trade by Country

| Main producing countries | Production         |                  | Main competitors | Exports           |                  | Importing regions           | Imports          |              | % Growth 1964/75 |
|--------------------------|--------------------|------------------|------------------|-------------------|------------------|-----------------------------|------------------|--------------|------------------|
|                          | 1975 ('000 tons)   | % Growth 1965/75 |                  | 1975 ('000 tons)  | % Growth 1965/75 |                             | 1975 ('000 tons) | % Share 1975 |                  |
| India                    | 409.4              | 34               | Sri Lanka        | 212.4             | 2.9              | The UK                      | 206.6            | 28.4         | 88               |
| China                    | 310.0 <sup>a</sup> | 20               | India            | 219.4             | 4.2              | Asia                        | 150.9            | 20.8         | 23               |
| Sri Lanka                | 213.7              | - 6              | China            | 53.0              | 66.0             | Africa                      | 97.4             | 13.9         | 91               |
| Japan                    | 105.5              | 36               | Kenya            | 52.7              | 200.5            | North America <sup>ab</sup> | 93.8             | 12.9         | 15               |
| The USSR                 | 83.0               | 67               | Indonesia        | 45.9              | 43.0             | Eastern Europe              | 71.6             | 9.9          | 121              |
| Indonesia                | 65.0 <sup>a</sup>  | 40               | Argentina        | 25.0 <sup>a</sup> | 195.0            | Western Europe              | 39.5             | 5.4          | 155              |
| Kenya                    | 56.3               | 104              | Bangladesh       | 24.1              | 83.0             | Oceania                     | 35.1             | 4.8          | 8                |
| Turkey                   | 43.0 <sup>a</sup>  | 229              | Malawi           | 24.2              | 97.4             | Producing countries         | 17.8             | 2.5          | 92               |
| Iran                     | 44.0               | 194              | Taiwan           | 20.2              | 33.0             | Latin America               | 14.0             | 1.9          | 68               |
| Argentina                | 34.0 <sup>a</sup>  | 98               | Uganda           | 17.0              | 171.5            |                             |                  |              |                  |
| Bangladesh               | 29.4               | 23               | Turkey           | 12.0              | 679.0            |                             |                  |              |                  |
| Malawi                   | 26.3               | 103              | Mozambique       | 12.2              | 37.0             |                             |                  |              |                  |
| Taiwan                   | 26.0               | 26               | Tanzania         | 10.4              | 121.0            |                             |                  |              |                  |
| Mozambique               | 13.2               | 20               | Brazil           | 5.0               | 156.0            |                             |                  |              |                  |
| Uganda                   | 16.4               | 120              | Rwanda           | 3.0 <sup>a</sup>  | 1,000.0          |                             |                  |              |                  |
| Tanzania                 | 13.7               | 142              | Japan            | 2.2               | 0.66             |                             |                  |              |                  |
|                          |                    |                  | Vietnam, North   | 2.1               | 653.0            |                             |                  |              |                  |
|                          |                    |                  | Vietnam, South   | 2.2               | 104.0            |                             |                  |              |                  |

<sup>a</sup> Incomplete figures. <sup>ab</sup> Including the USSR. Source: International Tea Committee: Annual Statistical Bulletin 1976.

Table 4Major Tea Importing Countries

|                                   | 1975<br>( <u>'000 tons</u> ) | <u>% Growth</u><br><u>1964/75</u> |
|-----------------------------------|------------------------------|-----------------------------------|
| <u>Europe &amp; North America</u> |                              |                                   |
| The UK                            | 193.5                        | 0.9                               |
| The US                            | 71.8                         | 19.0                              |
| The Netherlands                   | 33.0                         | 14                                |
| Canada                            | 20.0                         | 3                                 |
| Poland                            | 14.0                         | 191                               |
| Germany, West                     | 9.7                          | 8                                 |
| France                            | 5.3                          | 128                               |
| <u>Asia</u>                       |                              |                                   |
| Pakistan                          | 52.0                         | 32                                |
| Iraq                              | 31.2                         | 53                                |
| Afghanistan                       | 15.0                         | 130                               |
| Arabian States                    | 19.0                         | 121                               |
| Iran                              | 13.0                         | 121                               |
| Syria                             | 6.0                          | 3                                 |
| <u>Africa</u>                     |                              |                                   |
| Egypt                             | 15.0                         | 53                                |
| Morocco                           | 13.6                         | 1                                 |
| Sudan                             | 12.0                         | 70                                |
| Libya                             | 13.0                         | 175                               |
| <u>Latin America</u>              |                              |                                   |
| Chile                             | 16.6                         | 252                               |
| Central America                   | 0.2                          | 100                               |
| Bolivia                           | 0.4                          | 24                                |
| Uruguay                           | 0.5                          | 70                                |

Source: International Tea Council, pp 26-27.

J. ANIMAL FEEDSTUFF

All of the cereal grains, such as corn (maize), oats, barley, wheat and the grain sorghums are rich in starch and high in digestibility, but they are low in protein and calcium, the latter an important bone - building mineral nutrient. Moreover, their protein is of rather poor quality.

To rectify these deficiencies for use as livestock feed, the cereal grains are mixed with other feeds or with special supplements such as amino acids, vitamins and minerals. They can, to a considerable extent, be used interchangeably.

Various oil meals are secured as byproducts from the processing of soybeans, peanuts and other oil-rich seeds for oil production. Cottonseed, soybean and peanut oil meal generally contain at least 41% protein and rank high in digestibility and feeding value. Linseed oil meal, the byproduct from flax seed, has somewhat less protein, usually 32-43%; but because of its palatability and its laxative and conditioning effect it is one of the most popular livestock feeds. Coconut or copra oil meal has only about 20% protein, but both rank high as feed for dairy cows.

From the beet sugar and the cane sugar factories come beet molasses, beet pulp and cane molasses or blackstrap molasses - all of which are palatable feeds, low in protein and high in carbohydrates.

In the industrialized countries some 70% of total cereal consumption is for animal feed, while in the developing countries the share used for animal feed averages less than 10%. The amount of cereal grains going into animal feed in selected developing countries is given in Tables 4, 9 and 12 (broken down according to wheat, coarse grains and maize) in the product profile of cereal grains in Section A, above. FAO's projections for inputs of concentrates in both developing and developed countries by 1980 are given in Table 1, below.

#### New Protein Sources

The recent series of crises in the world feed market have opened up new marketing opportunities for products that can be substituted for cereals in the compound feed industry. In order to safeguard its competitive position, therefore, the industry is increasing its search for cheaper ingredients. Products that can serve as cereal substitutes and fillers in compound feeds include manio, banana flour and recycled waste products such as citrus pulp, sugar beet pulp, grape pulp and coffee hulls. Some of these products are of particular interest to developing countries. Whether these cereal

replacers can be produced at competitive prices depends largely on the availability of cheap energy to convert these raw materials into worthwhile feed ingredients. (Manio is, for instance, sun dried, which reduces its processing costs to a minimum.) Therefore, only countries with abundant and cheap energy sources could profitably venture into this type of project.



Table 1

Inputs of Concentrates: Projections for 1980\*  
(developed and developing countries)

(on the assumption of constant feedstuff waste)

|   | million<br>tons | million<br>feed units | million tons<br>of protein |
|---|-----------------|-----------------------|----------------------------|
| <u>Grains</u>                                     | 314.5           | 338.9 (59.6)          | 31.0 (27.7)                |
| of which maize                                    | 182.3           | 209.6                 | 16.5                       |
| various   | 44.1            | 37.7                  | 4.9                        |
| barley  | 18.8            | 18.8                  | 2.1                        |
| sorghum   | 40.8            | 42.9                  | 4.1                        |
| wheat   | 28.3            | 29.7                  | 3.4                        |
| <u>Oilcake</u>                                    | 56.6            | 42.3 (7.5)            | 25.8 (23.1)                |
| of which groundnuts & soya                        | 40.4            | 32.4                  | 20.4                       |
| sesame, cottonseed                                | 6.8             | 4.5                   | 2.8                        |
| rapeseed  | 3.6             | 2.4                   | 1.2                        |
| linseed   | 1.7             | 0.9                   | 0.5                        |
| palm kernels & copra                              | 2.9             | 1.5                   | 0.5                        |
| sunflower seed                                    | 1.2             | 0.6                   | 0.4                        |
| <u>Fish meal &amp; petroleum yeast</u>            | 10.0            | 10.0 (1.8)            | 7.0 (8.3)                  |
| <u>Urea</u>                                       | 1.5             | 14.3 (2.5)            | 9.8 (8.8)                  |
| <u>Bran</u>                                       | 137.0           | 47.0 (8.3)            | 7.9 (7.4)                  |
| <u>Sugar, molasses, cassava,<br/>dried pulses</u> | --              | 46.0 (8.1)            | 7.5 (6.7)                  |
| <u>"Others"</u>                                   | --              | 69.0 (12.2)           | 22.4 (20.0)                |
|   |                 | <u>567.5 (100.0)</u>  | <u>111.4 (100.0)</u>       |

|                              | Barley units |         |        | Soya cake units |        |        |
|------------------------------|--------------|---------|--------|-----------------|--------|--------|
|                              | "1965"       | 1980    | +      | "1965"          | 1980   | +      |
| Western Europe               | 96,652       | 139,661 | 43,009 | 23,024          | 34,114 | 11,090 |
| Eastern Europe               | 46,758       | 65,602  | 18,854 | 9,299           | 13,139 | 3,840  |
| The USSR                     | 54,434       | 101,590 | 47,156 | 9,132           | 18,424 | 9,292  |
| North America                | 157,553      | 171,390 | 13,857 | 36,697          | 40,893 | 4,196  |
| Río de la Plata<br>countries | 4,282        | 7,183   | 2,901  | --              | --     | --     |
| Other Latin America          | 21,612       | 48,807  | 27,195 | 136             | 1,346  | 1,210  |

Inputs of concentrates: Projections for 1980\* (continued)

|   | <u>Barley units</u> |             |          | <u>Soya cake units</u> |             |          |
|---|---------------------|-------------|----------|------------------------|-------------|----------|
|   | <u>"1965"</u>       | <u>1980</u> | <u>+</u> | <u>"1965"</u>          | <u>1980</u> | <u>+</u> |
| <u>Africa south of the Sahara</u>                 |                     |             |          |                        |             |          |
| Savannah zone                                     | 350                 | 551         | 201      | --                     | --          | --       |
| West Africa                                       | 926                 | 3,027       | 2,101    | --                     | --          | --       |
| Central Africa                                    | 126                 | 238         | 112      | --                     | --          | --       |
| Ethiopia & Sudan                                  | 959                 | 1,922       | 963      | --                     | --          | --       |
| East & South Africa                               | 4,707               | 7,979       | 3,272    | 674                    | 1,100       | 426      |
| <u>Africa north of the Sahara &amp; Near East</u> |                     |             |          |                        |             |          |
|   | 11,833              | 17,580      | 5,747    | --                     | --          | --       |
| <u>India, Pakistan, Ceylon, Nepal</u>             |                     |             |          |                        |             |          |
|   | 24,423              | 32,322      | 7,899    | 1,322                  | 1,527       | 205      |
| China   | 57,297              | 92,966      | 35,669   | 6,897                  | 11,192      | 4,295    |
| Japan   | 8,041               | 24,046      | 16,005   | 4,015                  | 7,945       | 3,930    |
| Other East Asia                                   | 10,481              | 26,078      | 15,597   | 967                    | 2,948       | 1,981    |
| Australia   | 12,861              | 15,700      | 2,839    | 2,285                  | 2,898       | 613      |

\*FAO projections made in 1970

**ANNEX**

ANNEX A

COUNTRIES BEING SURVEYED

AFRICA

|             |          |
|-------------|----------|
| Angola      | Senegal  |
| Egypt       | Somalia  |
| Ethiopia    | Sudan    |
| Ghana       | Tanzania |
| Ivory Coast | Tunisia  |
| Kenya       | Uganda   |
| Niger       | Zaire    |
| Nigeria     | Zambia   |

ASIA

|                           |             |
|---------------------------|-------------|
| Bangladesh                | Malaysia    |
| Cambodia (Khmer Republic) |             |
| India                     | Pakistan    |
| Indonesia                 | Philippines |
| Iran                      | Sri Lanka   |
| Iraq                      | Thailand    |
| Korea D.R.                | Turkey      |
| Korea R.                  | Vietnam     |

SOUTH AMERICA

|           |           |
|-----------|-----------|
| Argentina | Paraguay  |
| Bolivia   | Peru      |
| Brazil    | Uruguay   |
| Colombia  | Venezuela |
| Ecuador   |           |

CENTRAL AMERICA

|            |
|------------|
| Honduras   |
|            |
|            |
| Yugoslavia |

ANNEX B

SAMPLE OF COVERING LETTER & QUESTIONNAIRE



## **Business International S.A.**

Subsidiary of Business International Corporation

Business International (BI) has been contracted by UNIDO (United Nations Industrial Development Organization) to survey long-term market trends and investment potential for 12 product categories of the food processing and agro-industrial sector in developing countries (see attached list) and to solicit the views of companies involved in these product areas.

As your organization represents a major factor in the international production and trade of one or more of these selected products, we feel your comments and considerations are essential in providing a reliably sharp picture of the future development opportunities for these products in developing countries. We would thus very much appreciate your cooperation in completing the enclosed questionnaire.

Our objective, with the aid of your cooperation, is to find new concepts and opportunities for the industrialization of developing countries, and to assess potential areas for the establishment of processing capacities for each product group in the selected countries. We are now preparing a product profile for each relevant product group which outlines the main characteristics and trends of future growth and which we will send to interested companies for further discussion.

In return for your cooperation, you will be given a copy of the final report, and an opportunity to participate in a panel to be set up by BI in order to comment on the report and submit suggestions for changes. Further, your participation can lead to a dialogue between your company, UNIDO and prominent government representatives of developing countries, which could provide opportunities of mutual benefit to all parties concerned.

./.

Your response to the questionnaire will be kept strictly confidential and your company's name anonymous in the presentation of this information in the final report. In case you choose not to complete the detailed profile, another approach would be for you to treat the questions as hypothetical, namely: "Which countries in your view have the greatest potential for processing products which you are now processing or plan to process in the future?" ... "And which country would be your choice if you were planning expansion and why?"

Since the first part of this survey must be completed within the coming weeks, we would appreciate your response by the first week of October. Thank you in advance for your prompt reply and cooperation in this venture. If you wish to discuss any details of the survey, please do not hesitate to contact us.

Sincerely yours,



J.R. Mikton  
Research Director

JEM/mc



# Business International S.A.

Subsidiary of Business International Corporation

1. The enclosed questionnaire has been filled out by:

| <u>Name</u> | <u>Title</u> | <u>Telephone Extension</u> |
|-------------|--------------|----------------------------|
| _____       | _____        | _____                      |
| _____       | _____        | _____                      |

2. We are  are not  interested in obtaining Business International's product profile.

3. We are  are not  interested in participating in the panel to be set up by BI to discuss the final report.

4. The enclosed questionnaire has not been filled out for the following reasons:

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QUESTIONNAIRE

Name of Company: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone No.: \_\_\_\_\_

Name and Title of persons responsible for filling out this questionnaire:

|       |       |
|-------|-------|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

1. Products currently being processed or produced by your company domestically or abroad:

A. Grain cereals:

- |                               |                                |                                 |                                  |
|-------------------------------|--------------------------------|---------------------------------|----------------------------------|
| <input type="checkbox"/> rice | <input type="checkbox"/> maize | <input type="checkbox"/> wheat  | <input type="checkbox"/> sorghum |
| <input type="checkbox"/> oats | <input type="checkbox"/> rye   | <input type="checkbox"/> millet | <input type="checkbox"/> barley  |

- |   |                          |   |                          |
|---|--------------------------|---|--------------------------|
| B. Cane and beet sugar                              | <input type="checkbox"/> | H. Animal fats, edible (lard, shortening) | <input type="checkbox"/> |
| C. Starch & starch derivatives                      | <input type="checkbox"/> | I. Coffee and products                    | <input type="checkbox"/> |
| D. Meat and meat products                           | <input type="checkbox"/> | J. Cocoa beans and products               | <input type="checkbox"/> |
| E. Fish and fish products                           | <input type="checkbox"/> | K. Tea and products                       | <input type="checkbox"/> |
| F. Poultry products                                 | <input type="checkbox"/> | L. Animal feedstuff and liquid supplement | <input type="checkbox"/> |
| G. Milk & milk products (cheese, butter, ice cream) | <input type="checkbox"/> |   |                          |

2. Does your company plan to diversify into any other product groups not checked off above. If so, which product lines \_\_\_\_\_

\_\_\_\_\_

3. If any of the products are being produced or processed by your company in any of the countries listed in Annex A or other developing countries (LDCs), on the next page please list the LDC countries, products being processed in that country, type of ownership (joint venture, partnership, limited liability, etc.) or whether on a contract manufacturing basis or a licensing venture, and reasons for such investments in each LDC.



4. What percent of your company's total production is being produced in developing countries? \_\_\_\_\_ % (approximate)

5. Would the existence of government incentive schemes modify your assessment of whether or not to invest in a particular LDC?  yes  no

What types of incentive schemes would you consider the most important?

---

6. In general, what has been your experience in working with developing countries?  favorable  unfavorable. Has your company ever set up an installation which ultimately failed. If so, for what reasons? (Please use back page if necessary.)

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7. To lower the risks, would you consider new forms of cooperation in LDCs, such as participating in an equity-sharing consortium?  yes  no

Agreements with local government participation?  yes  no

a. What other types of cooperation would your company be receptive to (describe)?

---

---

8. Would you accept a minority equity share in a LDC-based company?  yes  no

a. If not, would majority management control then be desirable?  yes  no

b. If you do not have management control, would you accept technical and/or managerial responsibility for a fee after the plant has gone on stream?  yes  no

c. Would your company accept export marketing demands for the products to be processed locally?  yes  no

9. What are the most important issues that you would like to discuss with developing countries? \_\_\_\_\_

---

a. What assurances would you demand for protection of technology, trademarks, etc?

---

---

b. Are you prepared to enter into a long-term supply contract at fixed prices, even if they appear somewhat elevated from today's prices?  yes  no

What would be your conditions? \_\_\_\_\_







16. In order to better determine a developing country's potential for further processing in each product area, your assessment of the markets in which you are now operating would be most helpful. (Please indicate whether answers refer to total market or only your own operations.) Would you thus be so kind as to complete to the best of your ability the following forms for each separately listed product group. (If you need extra copies of this questionnaire, please let us know and we will send them to you.)



















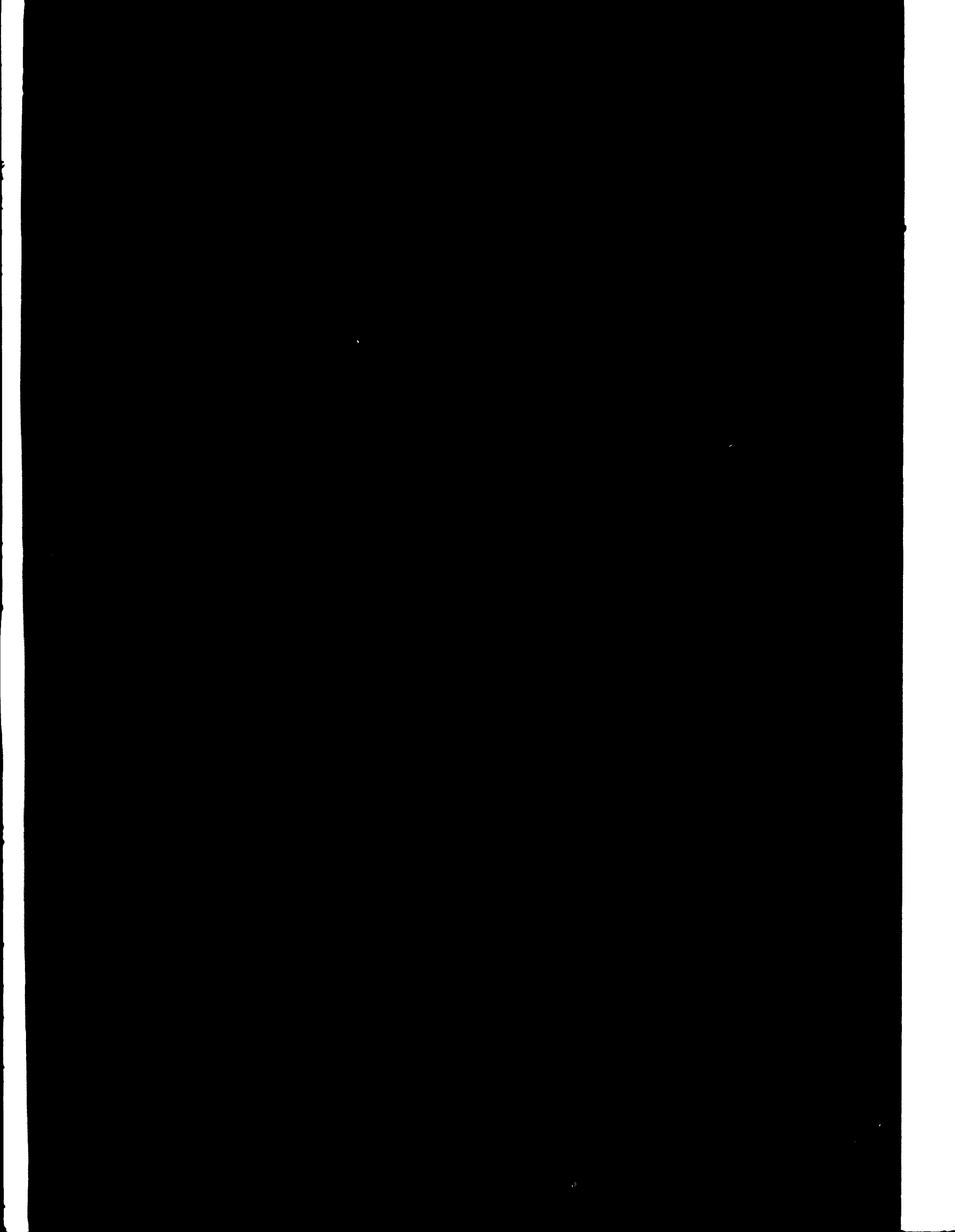




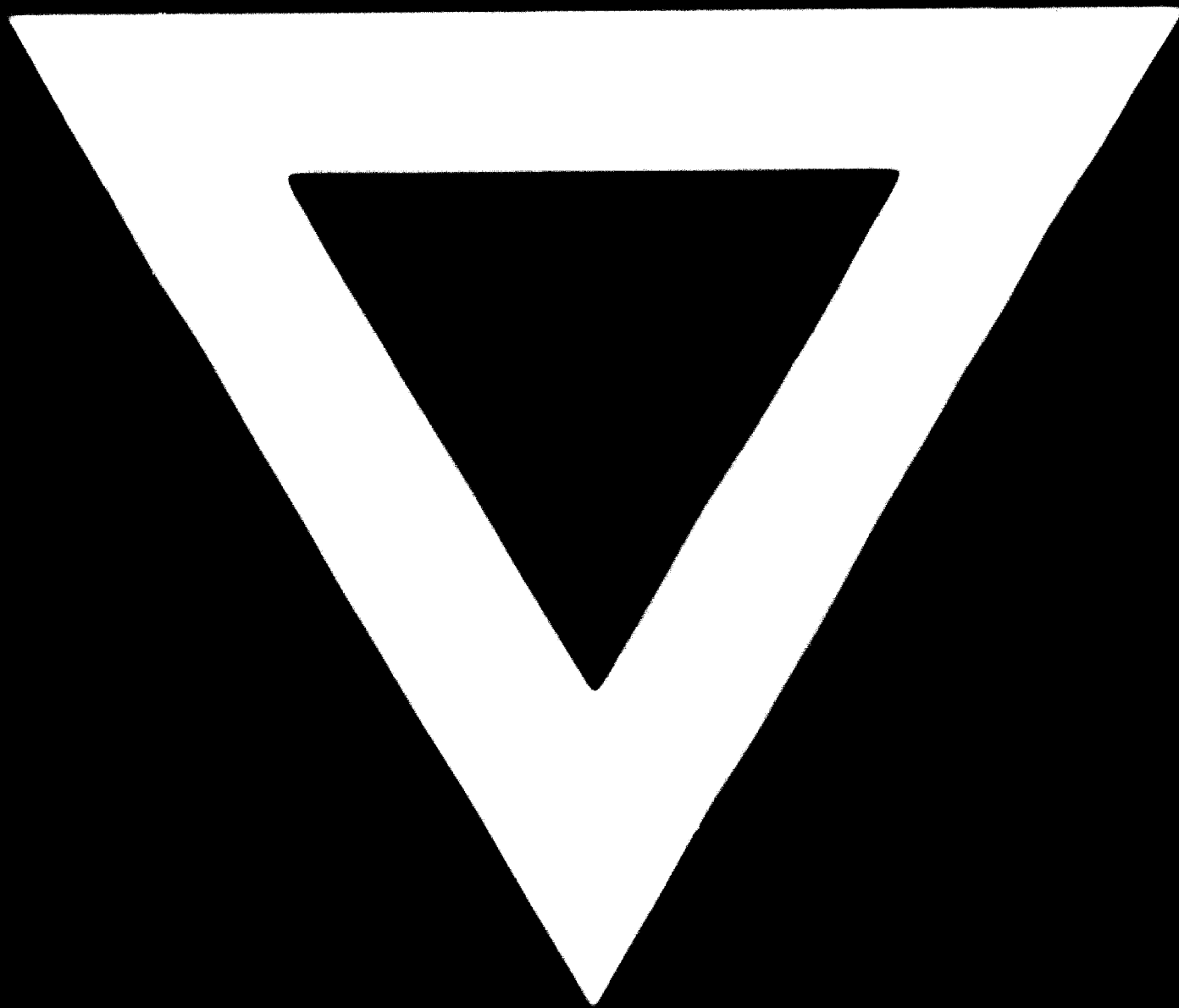








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**81 . 08 . 27**