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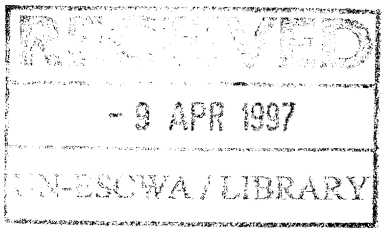


# FOOD SECURITY POLICY ISSUES IN THE YEMEN SUBREGION

## Table of Contents

### Part I

### FOOD POSITION OF THE YEMEN SUBREGION

Table of Contents (continued)

## List of Tables

List of Tables (continued)

List of Tables (continued)

## List of Figures

## List of Annex Tables

List of Annex Tables (continued)

# FOREWORD

The eradiction of hunger and malnutrition have been assigned top priority in the world at large and in the developing countries in particular. Despite the considerable progress achieved in the expansion of food production during the recent past, the number of hungry at present is higher than ever. This has been attributed to the existing income distribution pattern and to the lagging of food production behind the increases in population.

This study analyses the food production and consumption problems in the Yemen Arab Republic and People's Democratic Republic of Yemen. It appears that both countries are facing severe food shortages and that the self-sufficiency ratio for most of the food commodities has declined during the recent years. Consumers have not been able to obtain their requirements of energy, fat and protein. This demands urgent action by the Governments concerned in order to remedy the existing situation. It is recognized that the long-term solution to this problem lies in increased food production and that the expansion of inter-country trade in food commodities could also contribute to it.

Appropriate policy measures have been proposed here with a view to improving the nutritional standards and food security position of the two countries.

This work was undertaken by Mr. Ibrahim Ghandour, Agricultural Economist in the Agricultural Division, within the framework of the Divisional Workplan.

Mohammed M. A. Ahmed
Officer-in-Charge
Joint ECWA/FAO Agriculture Division

# FOOD SECURITY POLICY ISSUES IN THE YEMEN SUBREGION

## - PART I -

## FOOD POSITION OF THE YEMEN SUBREGION

# INTRODUCTION

Food, the basic necessity for human life, is in short supply in many countries of the world. The group of food deficit countries is continuously increasing. The problem has surfaced to a position of formal international recognition and concern, particularly after 1973 world food crisis. The crisis was a reminder that the problem, though more acute in some parts of the world, is of a global nature. It also served as a warning that in this interdependent world, the food shortage in some parts of the world could greatly threaten the stability and prosperity of others. As a result, the World Food Conference was held in Rome to discuss the extent and magnitude of the problem. Since then there has been an increasing consciousness and understanding of the causes and consequences of this problem. The problem of food security assumes greater importance to poor countries particularly those with limited agricultural resources and financial means to import their requirement.

## Purpose of the study

The main purpose of this paper is to study the extent and magnitude of food problems in the Yemen Arab Republic and Peoples Democratic Republic of Yemen and to suggest appropriate guidelines for formulating effective food security policies and measures for their implementations.

## Scope of the study

The study deals mainly with food position and food security policies in the Yemen Arab Republic (YAR) and Peoples Democratic Republic of Yemen (PDRY). These two countries are considered among the least developed countries (LDC) and the most top food priority countries in the world. They are the poorest even among ECWA countries because of their non-oil wealth and limited agricultural resources. They are distinct, as a group, compared to other ECWA countries in that they fall neither in oil producing countries nor in non-oil producing but they are endowed with relatively good agriculture potential.

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Methodology

Data on different aspects of food in the two Yemens were collected from national and international sources. (These data were adjusted in the light of personal knowledge of the subregion.) They were analyzed with a view to portraying the nutritional and economic aspects of the present food situation in the two countries.

No household comprehensive survey has ever been conducted in either one of the two Yemens. However, a cursory survey of a very limited magnitude was carried out by a consultant firm (Dar Al-Handasah) in 1972-73 in Aden, Lahej and Hadramout in PDRY. The data obtained from this survey differ significantly from those derived from FAO documents.

National data on food consumption are rough estimates of the existing situation. The data from different available sources are presented in Tables 1 and 2 of the Annex.

The approach used in this study is a normative one. The emphasis will be placed on food requirements and related policies.

Organization of the study

The study consists of two parts. The first part deals with a comparative analysis of food consumption, demand and supply in the two countries.

The second part deals with policies needed for improving each country's food security position. In view of differences in political systems, each country will be dealt with separately in this part.

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# I. FOOD CONSUMPTION

Household surveys are in general the most reliable sources of information on food consumption. In the absence of household surveys, this study relies on the domestic production and net import of food commodities for the estimation of the level and pattern of food consumption.

## A. Food Position

Examining the calory, protein and fat intake of the two Yemens for the period 1961-1974, one can notice two main significant aspects. The first one is the very low level of per capita nutrient intake compared to the world average. The second, which is the most serious, is the decline in the already low level of per capita nutrient intake. Table 3 of the Annex shows that the level of calories in 1974 was 77.0 per cent and 79.1 per cent of the world average for the Yemen AR and Yemen PDR respectively, that of the protein intake was 86.5 per cent and 75.5 per cent, and that of fats intake was 48.9 per cent and 69.0 per cent of the world average. The growth rate of the levels of intake of the main nutrients for the period 1961-1974 for the Yemen AR and Yemen PDR could be gauged from Table 1.

Table 1. Growth rate of the per capita main nutrient intake of the two Yemens for the period 1961-1974.

| | Growth rate | | |
|---|---|---|---|
| | World | Yemen AR | Yemen PDR |
| Calories | + 0.507 | - 0.409 | - 0.171 |
| Protein | + 0.387 | - 0.810 | + 0.043 |
| Fats | + 0.731 | - 1.068 | - 1.236 |

Source: Based on data from "Provisional Food Balance Sheets" FAO, Rome 1977.

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The low level of per capita nutrient intake of the two Yemens is caused by the low income levels. The per capita NI in Yemen PDR at market price in 1976 was $ 246 and that of Yemen AR was $ 344. The continuous increase in food prices and population resulted in further deterioration of the nutritional situation.

## B. Consumption Trend

A major characteristic of food consumption in the two Yemens is the down trend in the per capita nutrient intake accompanied by a change in food consumption patterns.

For PDRY, the analysis of the per capita consumption of the different food commodities for the period 1961-76 (Table 4 of the Annex) showed a downward trend for all food commodities except for cereals (0.88) vegetables (1.40) fish (2.69) and spices (5.86).

For YAR, the analysis revealed a different picture. The growth rates were positive for all food commodities except for meat (-2.05) and milk (-2.15).

## C. Food Consumption Pattern

Contrary to the expectation, the consumption pattern differs between the south (Yemen PDR) and the north (Yemen AR). Comparing the main groups of food consumed in the two Yemens in 1975-77 one notices that North Yemen consumption of cereals is much higher than that of South Yemen. Although both countries cosume a high proportion of coarse grain as food, the share of the coarse grain in the North Yemen diet is much higher than that of the south, while the consumption of rice is much higher in the south. The consumption of pulses is much higher in the north and that of sugar is higher in the south. The consumption of vegetable oil is higher in the south and the kinds of vegetable oils consumed are different. The main consumption in the north is from margarine while cotton seeds oil occupies the first position in the consumption of the south. The consumption of potatoes

in the south is almost negligible while it is about 11.2 kgs/head/year in the north. The consumption of fresh vegetable does not differ much while the per capita consumption of fruit in the south is much higher than that of the north. There are also differences in the kind of fruits consumed while banana and watermelon are the main fruits in the south, grape is the main item in the north.

The per capita consumption of milk in the north is higher than that of the south. The per capita consumption of red meat is higher in the north and the preference in the north is for goat meat while mutton and lamb are preferred in the south. Also, beef and veal occupy a more important share in the red meat consumption in the north than in the south. Fish consumption in the south is much higher than that of the north.

Table 2. Yemen PDR per caput supply - average 1975-77

| Commodity | Kgs/caput/year |
|---|---|
| Wheat (wheat eq.) | 60.2 |
| Rice (milled) | 19.7 |
| Coarse grains | 56.0 |
| Sugar | 13.4 |
| Roots and tubers | 0.5 |
| Pulses | 1.0 |
| Vegetables | 32.8 |
| Fruits | 71.7 |
| Meat and offals | 10.3 |
| Fish | 22.1 |
| Milk (milk eq.) | 49.5 |
| Egg | 0.8 |
| Vegetable oils | 3.0 |
| Animal fats | 4.5 |

Source: FAO ICS Printout, unpublished, Rome 1979.

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Table 3. Yemen AR per caput supply - average 1975-77

| Commodity | Kgs/caput/year |
|---|---|
| Wheat (wheat eq.) | 54.0 |
| Rice (milled) | 1.1 |
| Coarse grains | 137.9 |
| Sugar | 11.2 |
| Roots | 11.2 |
| Pulses | 12.1 |
| Vegetables | 30.1 |
| Fruits | 26.3 |
| Meat and offals | 14.8 |
| Fish | 3.0 |
| Milk (milk eq.) | 62.5 |
| Egg | 0.5 |
| Vegetable oils | 2.1 |
| Animal fats | 0.5 |

Source: FAO ICS printout, unpublished, Rome 1979.

The per capita food consumption in Yemen PDR and Yemen AR could be gauged from Tables 2 and 3 respectively. In Yemen PDR the per capita cereal consumption was 136 kgs/year. This amount was much less than the per capita cereal consumption of Yemen AR which amounted to 193 kgs/year. Also cereal composition is different, while sorghum and millet are the dominant staple food in Yemen AR, wheat is the most important cereal in Yemen PDR. It is also interesting to note that while the per capita consumption of cereals is much higher in Yemen AR, the per capita consumption of protective food (total meat, fruits, etc.) is higher in Yemen PDR.

The per capita consumption of the different food commodities in the two Yemens compared to the average consumption in the ECWA region (1972-74) is indicated in Figures 1 and 2. The figures show that the consumption of coarse grains in both Yemens is much higher than the ECWA average while it is lower for most of the other commodities except for fish, milk and animal fat in the Yemen PDR and for pulses in the Yemen AR.

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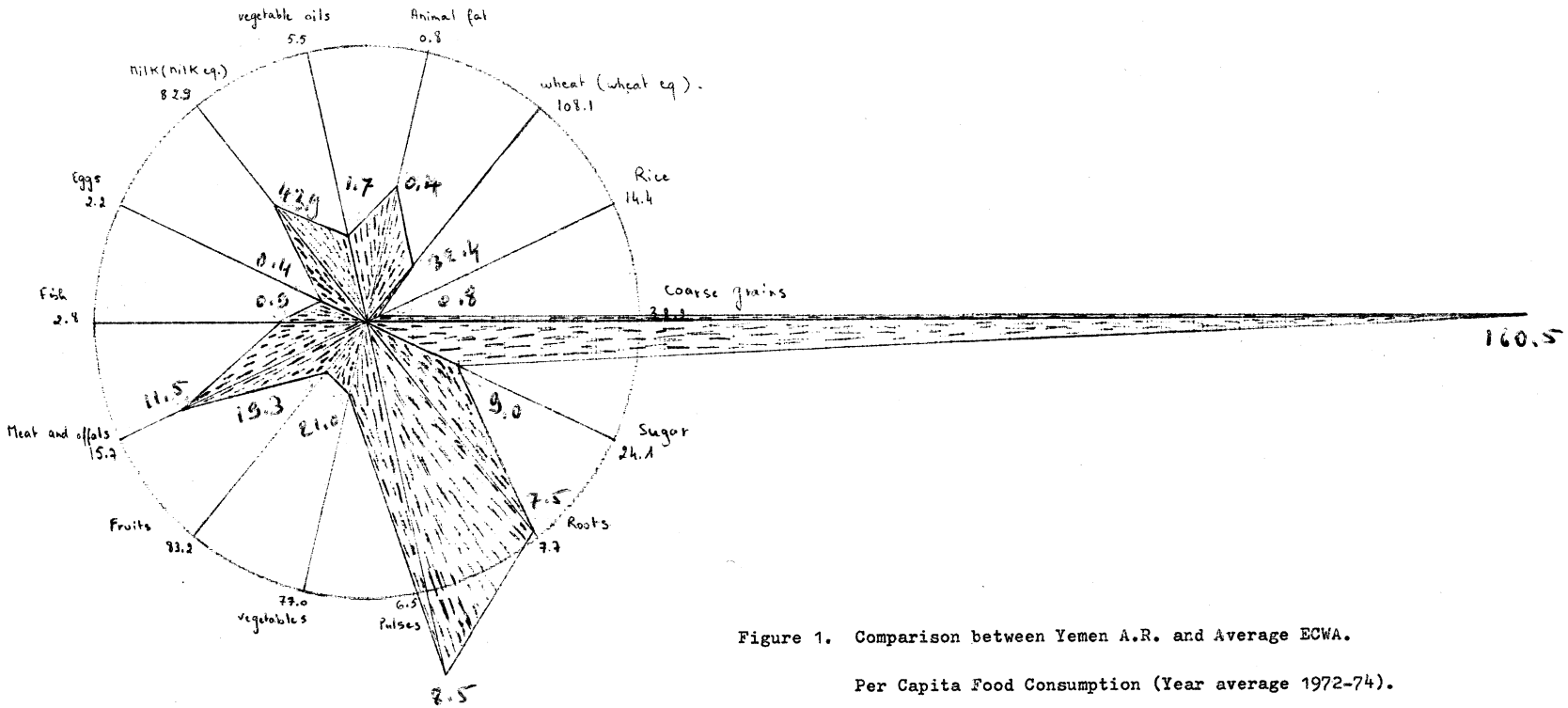


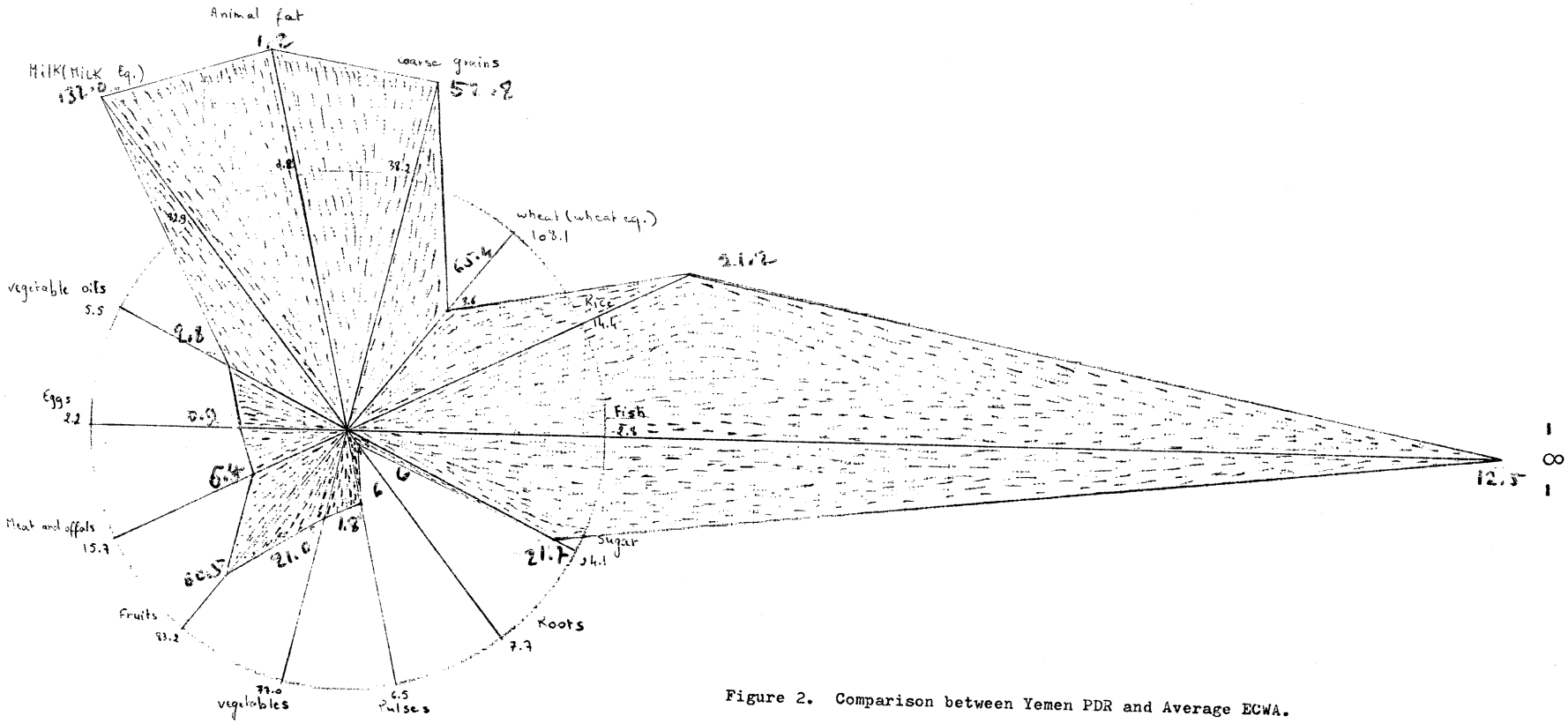

Source: Annex table 32

Figure 1. Comparison between Yemen A.R. and Average ECWA.

Per Capita Food Consumption (Year average 1972-74).

Radius = = ECWA Av.

Unit = Kgs/capita/year




Source: Annex table 32

Figure 2. Comparison between Yemen PDR and Average ECWA.

Per Capita Food Consumption (Year average 1972-74)

Radius = = ECWA Av.

Unit = Kgs/capita/year

## D. Food Composition

It is necessary to analyse the present supply of food from a nutritional angle in order to be able to determine the magnitude of the nutritional deficit and to find the most economic sources of supply to improve the nutritional position. The aim of this analysis is not to go deep into nutritional aspects and the function of each nutrient, but to measure roughly the energy, protein and fat intake and the sources of their supply from the different food commodity groups.

The analysis is based on the per capita daily intake of food from different commodities as shown in Tables 2 and 3. The nutrient content of the daily food supply in the two Yemens are presented in Tables 20 and 24 in the annex. The total daily intake of energy is 2,179 calories per capita in Yemen AR and 1,897 calories per capita in Yemen PDR. The protein intake is 67.7 g in Yemen AR and 54.0 g in Yemen PDR. The fat intake is 33.7 g in Yemen AR and 38.7 g in Yemen PDR.

In conjunction with daily per capita nutrient intake, it is important to know the contribution of different food groups in providing these nutrients. Table 4 shows the percentage contribution of the various food groups to the daily per capita calories and protein supply in the two Yemens.

The broad food composition is basically similar in the two Yemens. Vegetable products, particularly cereals, represent the main source of energy and protein. Animal products and fish have yet to play an important role in the diet as it is the case in developed countries where they contribute more than 30 per cent and 50 per cent to energy and protein requirements respectively. Nevertheless, differences exist. The per capita cereals consumption is higher in Yemen AR but the quality of food in terms of vegetable and animal ingredients is better in Yemen PDR.

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Table 4. Per cent contribution of various food groups to daily per capita calories, protein and fat intake in the two Yemens (average for 1975-77)

| Yemen AR per caput supply 1975-77 | | | | | Yemen PDR per caput supply 1975-77 | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Food groups | Kg/year | Calories (nrs) | Proteins (grs) | Fats (grs) | Food groups | Kg/year | Calories (nrs) | Proteins (grs) | Fats (grs) |
| Grand Total | | 2 179 | 67.7 | 33.7 | Grand Total | | 1 897 | 54.0 | 38.7 |
| Vegetable products | | 1 988 | 56.0 | 19.9 | Vegetable products | | 1 618 | 36.6 | 17.9 |
| % of total | | 91.0 | 83.0 | 59.0 | % of total | | 85.0 | 68.0 | 46.0 |
| Animal products | | 191 | 11.7 | 13.8 | Animal products | | 280 | 17.4 | 20.8 |
| % of total | | 9.0 | 17.0 | 41.0 | % of total | | 15.0 | 32.0 | 54.0 |
| Wheat/flour | 46.3 | 453 | 13.3 | 1.8 | Wheat/flour | 51.5 | 504 | 14.8 | 2.0 |
| Rice paddy milled | 1.1 | 11 | 0.2 | - | Wheat flour/bread | 0.2 | 1 | - | - |
| Barley pearled | 5.8 | 56 | 1.4 | 0.2 | Paddy rice milled | 19.7 | 197 | 3.4 | 0.4 |
| Maize/flour | 9.4 | 94 | 2.3 | 0.9 | Maize/flour | 7.8 | 78 | 1.9 | 0.7 |
| Sorghum/flour | 103.5 | 970 | 28.4 | 10.5 | Millet/flour | 38.3 | 358 | 10.7 | 4.1 |
| Sorghum/infant food | 0.1 | 1 | - | - | Cereals NES/cereals flour NES | 2.1 | 21 | 0.6 | 0.1 |
| Roots (potatoes) | 11.2 | 22 | 0.5 | - | Roots (potatoes) | 0.5 | 1 | - | - |
| Pulses | 12.1 | 112 | 7.3 | 0.7 | Pulses | 1.0 | 10 | 0.6 | 0.1 |
| Vegetables | 30.1 | 18 | 1.2 | 0.2 | Vegetables | 32.8 | 20 | 1.3 | 0.2 |
| Fruits | 26.3 | 90 | 0.8 | 0.3 | Fruits | 71.7 | 20 | 1.3 | 0.2 |
| Nuts and oilseeds | 0.4 | 6 | 0.2 | 0.6 | Nuts and oilseeds | 0.9 | 14 | 1.8 | 0.5 |
| Cattle | 3.2 | 18 | 1.3 | 1.3 | Cattle | 1.1 | 6 | 0.4 | 1.2 |
| Sheep | 2.8 | 17 | 1.0 | 1.5 | Sheep | 4.2 | 25 | 1.5 | 2.1 |
| Goats | 8.2 | 45 | 3.1 | 3.5 | Goats | 3.4 | 19 | 1.3 | 1.5 |
| Chicken | 0.4 | 1 | 0.1 | 0.1 | Chicken | 0.9 | 3 | 0.3 | 0.2 |
| Camels | 0.2 | 1 | 0.1 | 0.1 | Camels | 0.7 | 3 | 0.2 | 0.2 |
| Total | 14.8 | 82 | 5.6 | 6.4 | Total | 10.3 | 56 | 3.7 | 4.5 |

(to be continued)

Table 4. (continued)

| Yemen AR per caput supply 1975-77 | | | | | Yemen PDR caput supply 1975-77 | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Food groups | Kg/year | Calories (nrs) | Proteins (grs) | Fats (grs) | Food groups | Kg/year | Calories (nrs) | Proteins (grs) | Fats (grs) |
| Eggs | 0.5 | 2 | 0.1 | 0.1 | Eggs | 0.8 | 3 | 0.3 | 0.2 |
| Fish | 3.0 | 9 | 1.3 | 0.4 | Fish | 22.1 | 58 | 9.1 | 2.1 |
| Milk (milk eq.) | 62.5 | 86 | 4.7 | 5.6 | Milk (milk eq.) | 49.5 | 70 | 4.2 | 3.9 |
| Vegetable oils and fats | 2.1 | 43 | - | 4.8 | Vegetable oils and fats | 3.0 | 73 | - | 8.2 |
| Animal fats | 0.5 | 11 | - | 1.2 | Animal fats | 4.5 | 90 | 0.1 | 10.1 |
| Spices | 0.1 | 1 | - | 0.1 | Spices | 1.0 | 9 | 0.4 | 0.4 |
| Stimulants | 1.5 | 2 | 0.4 | - | Stimulants | 2.0 | 2 | 0.5 | - |
| | | | | | Alcoholic beverages | 6.8 | 8 | 0.1 | - |

Source: ICS printout, FAO Rome, 1979.

## E. Food Consumption Expenditures

The governments in the two Yemens are both keen to improve the nutritional standards of their population. However, due to the present circumstances in the two countries the immediate objective is to sustain the present standards of nutrition. Maximum attention is being paid to the present deterioration of the purchasing power of consumers by neutralizing the factors that affect consumer expenditure, particularly prices.

Tables 5 and 6 in the annex show the value of *per capita* food consumption in the two Yemens in the year average 1975-77. According to 1977 retail prices, the value of *per capita* consumption was YD 49 (US $ 142) in Yemen PDR and YR 865 (US $ 190) in Yemen AR. As expected, the *per capita* income spent on food is relatively high in both countries. It constitutes 58 per cent and 55 per cent of 1976 *per capita* NI for Yemen PDR and Yemen AR respectively. This fact underscores the importance of food policies in such type of economies as those of the two Yemens. Increases in food prices under such circumstances would most likely lead to the reduction in purchasing power, to compensatory wage claims and to intensification of inflationary tendencies. These factors unless guarded against would greatly frustrate, indeed have already affected, the development plans of the two countries.

## II. FOOD DEMAND

### A. Food Demand[1/]

Food demand is mainly related to the income and taste of the consumers. There are two kinds of demand, free demand and planned demand. The planned demand is a target reflecting predetermined objectives. The desired nutritional level of the people, assuming equitable food distribution, should be first determined in order to project the planned food demand. The food habits of the people should be taken into consideration. Food policies, whether in relation to production, trade or distribution, should be guided by the objective of improving the nutritional standard of the people to the desired level.

For the poor developing countries where the nutritional level is still below the minimum required, the first target should be to raise the level to the minimum required. Luxury in food consumption should be postponed to a later stage and should not be the concern of the planners at present.

The projection of food demand is a function of the population, income and income elasticity of the different food commodities. The non-availability of a long series of commodity prices and quantities makes the task of calculating the elasticity of food commodities almost impossible. The change in the population structure, especially urbanization, is another factor affecting the demand projection. The use of elasticity coefficient of other countries cannot be justified

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1/ Attention should be drawn to the fact that the term food demand is different from food consumption and food requirement. Food consumption is the actual intake of food which is mainly determined by the availability of the food to the individuals. This availability is a function of income, prices, production, export, import and distribution policies. Food consumption might be less of equal or more than the body requirement.

because of the peculiarity of the Yemen conditions. This is why it was found impractical and maybe misleading to calculate the food demand projection and thus it is preferred to concentrate on normative food demand or in other terms on food requirement.

## B. Food Requirement

The minimum nutrient requirements per person depends on many factors. The main ones are body weight, age, sex, kind of daily activities, environmental conditions, etc... Therefore, in comparing the food requirements of a certain country at a certain time, one has to take into consideration all these factors and decide on the level of calories, protein and fats needed; then translate this into quantities of different food commodities that fit the food habits of the people. Other nutritional elements like vitamins and minerals should also be taken into consideration while determining the average food diet.

Studies on this subject for the two Yemens are not available. From the few available data on food consumption in the two Yemens, it was possible to determine approximately the present food consumption pattern. This will be used as a guide in determining the kind and the proportion of the different food commodities in the average desired diet. The quantity needed from each commodity to obtain the minimum required nutrient can be determined when the nutrient content of the food commodities consumed are known. The only difficulty is to determine the minimum required nutrient level, as this level differs from one country to another depending on climatic conditions and energy utilization. The levels differ also from one group to another within the same country depending on distribution and age structure of the population.

Taking most of these items mentioned above into consideration, the recommended average daily calories and protein intake were calculated for the two Yemens (Table 5), based on 1975 population structure. The detailed calculations are presented in Tables 7, 8, 9, 10 and 11 in the annex.

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Table 5. Normative average per capita daily nutrient intake

| | Energy K calories/day | Protein* g/day | Total protein g/day |
|---|---|---|---|
| Yemen PDR | 2 252 | 29 | 72.2 |
| Yemen AR | 2 233 | 28 | 72.2 |

Source: Summary of Tables 8, 9 and 11 of the annex.

* As egg and/or milk protein.

Comparing the nutrient intake from the 1975-77 actual food consumption and the normative one, we notice that both Yemens are getting less energy and protein than the recommended ones. Table 6 illustrates this comparison between the actual and recommended nutrients intake in the two Yemens and some other selected countries.

Table 6. Per capita daily food supply in terms of calories total and animal protein, absolute and as a percentage of requirements for the two Yemens and some selected countries in 1977.

| | Calories intake | Percentage of requirements | Protein intake | Percentage of requirements | Animal protein intake | Percentage from protein intake |
|---|---|---|---|---|---|---|
| Yemen AR | 2 179 | 98 | 67.7 | 93.8 | 11.7 | 17 |
| Yemen PDR | 1 897 | 84 | 54.0 | 74.8 | 17.4 | 32 |
| Syria | 2 600 | 111 | 77.9 | 108.0 | 10.3 | 14 |
| Lebanon | 2 800 | 120 | 80.8 | 112.0 | 28.5 | 39 |
| Iraq | 2 140 | 92 | 60.7 | 84.0 | 16.8 | 23 |
| Jordan | 2 190 | 94 | 54.9 | 76.0 | 13.6 | 18 |
| Algeria | 1 870 | 77 | 51.7 | 71.0 | 26.4 | 8 |
| Libya | 2 660 | 110 | 63.7 | 88.0 | 14.7 | 20 |
| Egypt | 2 810 | 116 | 80.0 | 111.0 | 11.8 | 16 |
| Sudan | 1 940 | 86 | 64.0 | 88.0 | 25.9 | 35 |
| Tanzania | 2 440 | 108 | 85.1 | 81.0 | 9.1 | 13 |
| Pakistan | 2 330 | 99 | 51.5 | 90.0 | 11.2 | 19 |
| France | 3 100 | 101 | 100.7 | 136.0 | 59.9 | 80 |
| Sweden | 2 850 | 88 | 79.8 | 107.0 | 54.1 | 73 |
| U.S.A. | 3 200 | 103 | 95.6 | 129.0 | 68.6 | 92 |

Source: Calculated from information given in "Food and Population in Syria" M. Jlailati, April 1978 and tables 8, 9 and 11 of the annex and the "World Food Survey", FAO, 1977.

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Taking the recommended nutrients intake as a base to determine the food requirements and taking into consideration the food habits of the people and the domestic production, an approximate recommended level of consumption of the different food groups could be suggested. Considering this suggested consumption as a constant per capita desired demand, the projection of the future demand will depend on the population growth only. Table 7 is a recommended per capita food supply for the two Yemens.

Table 7. Recommended average daily per capita food supply sheet for the two Yemens and its nutrient content.

| Food groups | Grams per day | | Kgs/ year | Energy content | Protein content grams/day |
|---|---|---|---|---|---|
| | Edible part | Total | | | |
| Cereals* | 400 | 471 | 172 | 1 440 | 44.0 |
| Red meat | 50 | 67 | 24 | 100 | 9.0 |
| Milk | 127 | 127 | 46 | 92 | 4.5 |
| Fish | 44 | 59 | 22 | 66 | 7.8 |
| Eggs | 10 | 11 | 4 | 16 | 1.3 |
| Vegetable | 150 | 158 | 58 | 75 | 2.0 |
| Fruits | 150 | 176 | 64 | 160 | 0.9 |
| Pulses | 10 | 10 | 4 | 35 | 2.3 |
| Vegetable oils and fats | 28 | 28 | 10 | 254 | 0.0 |
| Sugar | 40 | 40 | 15 | 70 | 0.0 |
| Roots and tubers | 10 | 10 | 4 | 8 | 0.2 |

Source: Calculated from "Food Composition", Ibid.

* The composition of cereals according to kinds is assumed to be similar to that of year average 1975-77.

Taking the food supply sheet suggested in Table 7, the food requirement projections are calculated in Tables 12 and 13 of the annex.

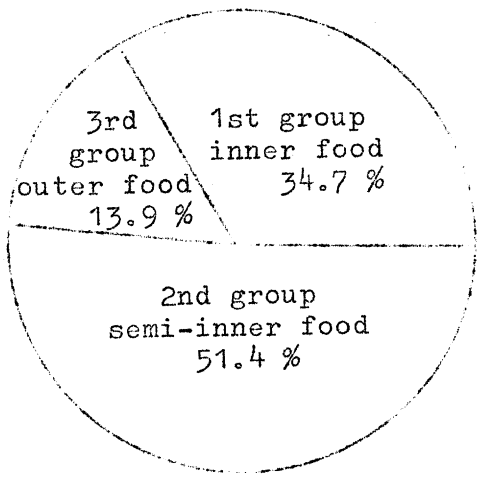
# III. FOOD SUPPLY

## A. Domestic Supply

Yemen PDR

In studying the food supply, it is advisable to sort out the food commodities constituting the food basket according to their sources of supply. In the case of Yemen PDR, it was possible to distinguish three groups. The first one represents the commodities that are totally produced in the country and thus can be called the inner food group. It includes sorghum, millet, pulses, fish, eggs, vegetable oils, fresh vegetables and fresh fruits. The second group represents those that are partially produced in the country and is called the semi-inner food group. It includes wheat, meat and milk. The third group comprised the commodities that are totally imported as they are not produced domestically and is called the outer food group. It includes rice and sugar. Figure 3 shows the share of each of these groups from the total food expenditure in Democratic Yemen.

Figure 3. Share of the food groups out of the total food expenditure in Democratic Yemen.




Source: Table 5 of annex.

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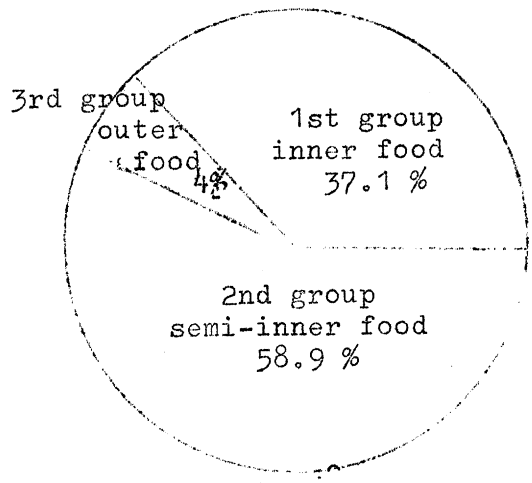
Yemen AR

In Yemen AR, the grouping of food commodities into inner, semi-inner and outer groups reveals the similarities between the two Yemens' food production. The same groups include the same commodities except for minor changes as for eggs and vegetable oils that shift a little bit towards the second group. The main difference is in the share of food expenditure from the three different groups. For instance, the share of food expenditure in Yemen AR from the inner group is higher than that of Yemen PDR. It reached 37.1 per cent in Yemen AR compared to 34.7 per cent in Yemen PDR. The share of consumption from the outer group is much less in Yemen AR (4.0 per cent) than that in Yemen PDR (13.9 per cent). Figure 4 shows the share of each of these groups out of the total expenditure in Yemen AR.

Figure 4. Share of the food groups out of the total food expenditure in Yemen AR.




Source: Table 6 of annex.

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The levels and trends of food crops production are good indicators of the position of domestic supply. An annual growth rate less than 3 i.e. less than the approximate population growth rate, for any commodity, should be considered as a warning sign.

Tables 14 and 15 of the annex show the production growth rate of the main commodities in the two Yemens. It is noticed that the annual growth rates of these commodities range from 26.8 per cent for maize to -4.4 per cent for barley. The commodities in Yemen PDR with annual rates less than 3 per cent are the following: wheat, sorghum, barley, dates, chicken meat and milk.

In Yemen AR, the annual growth rates of the main food commodities range from 0.04 per cent for wheat to 25.09 for maize. Commodities with annual growth rates less than 3 per cent are the following: wheat, sesame seeds, dates, chicken meat, red meat and milk.

Self-sufficiency ratios and their trends of the main food commodities are other important indicators of the position of the domestic supply inspite of the fact that they are greatly determined by consumption and import policies. Tables 18 and 19 of the Annex shows the ratios and trends of self-sufficiency of the different food commodities in the two Yemens for the period 1970-76. The trend of self-sufficiency is positive for wheat, red meat, milk, checken meat and fish. Fish is the only commodity with self-sufficiency ratio higher than one. In Yemen AR, the trend is negative for all commodities except fish and red meat. Fish, vegetable oils and eggs have self-sufficiency ratio higher than one in 1976.

## B. Import

### Yemen PDR

The domestic supply of the commodities with a self-sufficiency less than one is supplemented by import. In Yemen PDR, this import takes two major forms: the governmental or public import and the

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food aids. Private import of food commodities is becoming almost negligible as a result of government import policy. The share of the private sector in food trade was 13.9 per cent of the total in 1976. Table 16 of the Annex shows the net import of the different food commodities and its trend for the period 1970-76 in Yemen PDR. The annual rate of growth of net food import ranges from 16.8 per cent for hen eggs to - 29.0 per cent for milk The value of import of all the food commodities is increasing much more than the quantity due to the increase in prices. The total value of food import for the period 1970-75 was about 22 per cent of the total import and 86 per cent of the agricultural import and 5.3 times the agricultural export. This means that the value of the food import has to be covered from sources other than the agricultural export. Table 8 below shows that food and animal imports are increasing by 13.67 per cent annually and that the ratio of food imports to agricultural export is increasing by the rate of 38.98 per cent annually.

Table 8. Development of food and animal product imports compared to agricultural export for the period 1970-75 in Democratic Yemen.

| Year | Food and animal import $ 1,000 | Agricultural export $ 1,000 | Food import agricultural export |
|---|---|---|---|
| 1970 | 44 896 | 14 134 | 3.176 |
| 1971 | 31 284 | 9 540 | 3.279 |
| 1972 | 32 530 | 9 670 | 3.364 |
| 1973 | 46 318 | 10 767 | 4.302 |
| 1974 | 71 583 | 4 115 | 17.396 |
| 1975 | 62 425 | 5 820 | 10.726 |
| Growth rate | 13.67 | - 17.778 | 38.98 |

Source: Calculated from National Statistical Yearbook 1975.

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Imports of food commodities are mainly from the free economy developed countries. A study of the foreign trade statistics of 1976 shows that 37.31 per cent of the food and animal imports come from the Arab countries and 62.69 per cent from the free economy developed countries. There were no food and animal imports from the centrally planned or the non-Arab developing countries.

Import to Yemen AR is free and is carried by the private sector. The Government has played a very minor role in this field, but this role is increasing gradually since the establishment of the Governmental Employees' Co-operative. This Co-operative is importing some food commodities in order to sell them at cost in the fulfillment of the government policy to minimize the adverse effect of inflation. Moreover, the quasi-governmental Yemen Foreign Trade Company, established in 1976 with a capital of $ 20 millions, has also the objective of importing food commodities.

The size, the value, and the trend of net food import for the period 1970-1976 are shown in Table 17 of the Annex. The annual rate of growth of food import ranges from 231.1 per cent for chicken meat to 0.05 per cent for total fish. The value of food and animal import for the period 1970-75 was US $ 359,257 thousands. The annual growth of the value of import of food and animals was 57.25 for the same period. The value of food import in the period 1970-75 was 44 per cent of the total import and 95 per cent of the agricultural trade and ten times the agricultural export. The trend in the ratio of food import over agricultural export for the same period shows an upward tendency, which is not a good sign in the economy. The trends of food and animal imports, agricultural exports, and their ratios are shown in Table 9 below.

The main origin of food import to Yemen in 1975-76 was India and China for sugar and Australia for wheat.

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Table 9. Trends of food and animal import, agricultural export and their ratio for the period 1970-75 in Yemen AR.

| Year | Food and animal import $ 1,000 | Agricultural export $ 1,000 | Food and animal import / agricultural export |
|---|---|---|---|
| 1970 | 17 041 | 1 926 | 8.848 |
| 1971 | 19 363 | 2 774 | 6.980 |
| 1972 | 32 460 | 2 887 | 11.244 |
| 1973 | 55 794 | 7 233 | 7.714 |
| 1974 | 88 375 | 8 922 | 9.905 |
| 1975 | 146 224 | 11 710 | 12.487 |
| Growth rate | 57. 252 | 46. 848 | 7.16 |

Source: Calculated from FAO Trade Yearbooks.

## C. Food Aids

Food aid is another source of supply which is gaining increasing importance. Democratic Yemen is getting food aids from two sources, the first one is the United Nations World Food Program (WFP). These aids consist mainly of wheat flour, dried skin milk, pulses and vegetable oils. The approved earmarked by WFP for the development projects and emergency operation as at 31 December 1976 was $ 35,041,049. The second source of food aid is in the form of loans from socialist countries as a result of bilateral agreements. About 30 per cent of the costs of most of the projects executed by bilateral agreements with the socialist countries are covered in food. This food is used to finance the local cost component of these projects.

Aids received from bilateral and other international sources also consist another source of food for Yemen AR. The World Food Programme of the United Nations aids consists mainly of wheat flour, vegetable oil, dried skim milk and pulses. The budget earmarked and approved for development projects and emergency as from 31 December 1976 was $ 20,502,580.

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# FOOD SECURITY POLICY ISSUES IN THE YEMEN SUBREGION

## - PART II -

## THE PEOPLES' DEMOCRATIC REPUBLIC OF YEMEN

## FOOD POLICY ISSUES

For convenience, the food policy issues are dealt with under four separate items, namely: consumption policy, production policy, import policy and marketing and distribution policy. These policies are very much interrelated and should be regarded as an integrated whole where any weakness or negligence of anyone affects adversely the others. The harmony between the different policies is, therefore, necessary for the success of the food policy.

### I. FOOD CONSUMPTION POLICY

Any food consumption policy should stem from the present standard of consumption taking into consideration the present and the potential economic situation of the country. Per capita food expenditure is a function of the per capita total expenditure, which is a function of the per capita income. Any growth in the per capita income would be reflected on the food expenditure. The consumption policy should influence these relationships in order to orient expenditure towards a determined objective.

The formulation of food consumption policy should start by determining the objectives of the policy. Raising the nutritional standard should be the ultimate goal of any consumption policy.

A realistic policy should aim at providing the minimum requirement of nutrient intake. Directions and priorities for the improvement of nutritional standard should be determined.

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## A. Past and Present Consumption Policy

The consumption policy was not as clearly announced in the first triennial development plan (1971-73) as it is in the second quinquennial development plan (1974-79). The consumption policy according to the quinquennial plan has for tripod the following three objectives:

1. Improvement of the standard of nutrition

2. Equitable distribution of the national products

3. Increase the share of the locally produced commodities of the total commodities available in the retail market

The first objective, though it is most important, is very general and unspecified. The nutritional standard target is not determined. The instruments used for the implementation of the objectives are limited to price control of all food commodities. Some nutritional programmes for school children are undertaken through the help of the World Food Programme.

The equitability in food consumption is the real issue in the government activities. All efforts were made to minimize the income discrepancy among people in the urban and rural areas. Rationing the main food commodities has been one of the most effective measures in this direction. Moreover, the efforts spent by the government through consumers' co-operatives, to make available at reasonable prices the main food commodities, are also serving the same objective of equitability.

The backbone of the consumption policy is to encourage the consumption of the domestically produced food commodities and to discourage the consumption of luxurious expensive foods, whether imported or domestically produced, such as infant food, high quality fish and lobsters, etc.

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This policy has started since independence in 1967 and has been gradually applied. Looking at the import figures, it is noticeable that the import of some items has been completely stopped. The importation of infant food dropped from 2150 MT in 1970 to only 21 MT in 1976. Potatoes from 261 MT in 1970 to 75 MT in 1976. Sugar confectionary from 4,778 MT in 1970 to 210 MT in 1976. Nuts from 288 MT in 1970 to 55 MT in 1976. Olive oil, oranges, apples, honey from 45 MT, 771 MT, 99 MT, 71 MT respectively in 1970 to none in 1977.

Taxation is also being used as an instrument for the implementation of the consumption policy. Higher taxes are levied on all alcoholic imports, cigarettes and qats.

Alsc, a food subsidies policy is being used. The Balancing Price Fund (BPF) has been subsidizing some of the food items from time to time in order to minimize the impact of the international price fluctuation on the cosumers.

## B. Recommended Consumption Policy

### 1. The Objectives

A consumption policy with long-term objectives should be formulated. Such a policy will assist in determining the other food policies. The recommended policy should be inspired by the following guidelines:

a) Try to reach an already determined national nutritional level.
b) Encourage the consumption of domestically produced commodities (inner and semi-inner groups).
c) Discourage the consumption of non-nutritional commodities.
d) Introduce sound food sanitary control measures.

The aim of the consumption policy is to reach a certain nutritional level with the minimum cost and the maximum possible security. The nutritional level that should be aimed at should not be less than the recommended one needed for normal activities.

2. The nutritional level

Although some people in this world are getting much more than their requirement and are trying hard to get rid of fat accumulation from extra food consumption, the majority of the people are not able to get their minimum nutrient requirement.

In less endowed countries, such as the two Yemens, a sound food consumption policy is the one which allows most of the people to have just their requirements as human beings from the basic food. This objective is not easy to fulfill due to poor national resources. Development plans should be oriented towards this goal. Long-terms foreign aids are very much needed.

The recommended nutritional standard and the food intake needed to reach that standard were presented in table 7 of part I of this study.

That recommended nutritional standard meets the two main goals of nutritional improvement and more dependency on inner food groups.

The shift of consumption towards the inner and semi-inner group implies an important progress towards better food security. The diagram below represents the size of difference in the consumption of the inner and semi-inner food groups between the present actual food consumption and the recommended food consumption.

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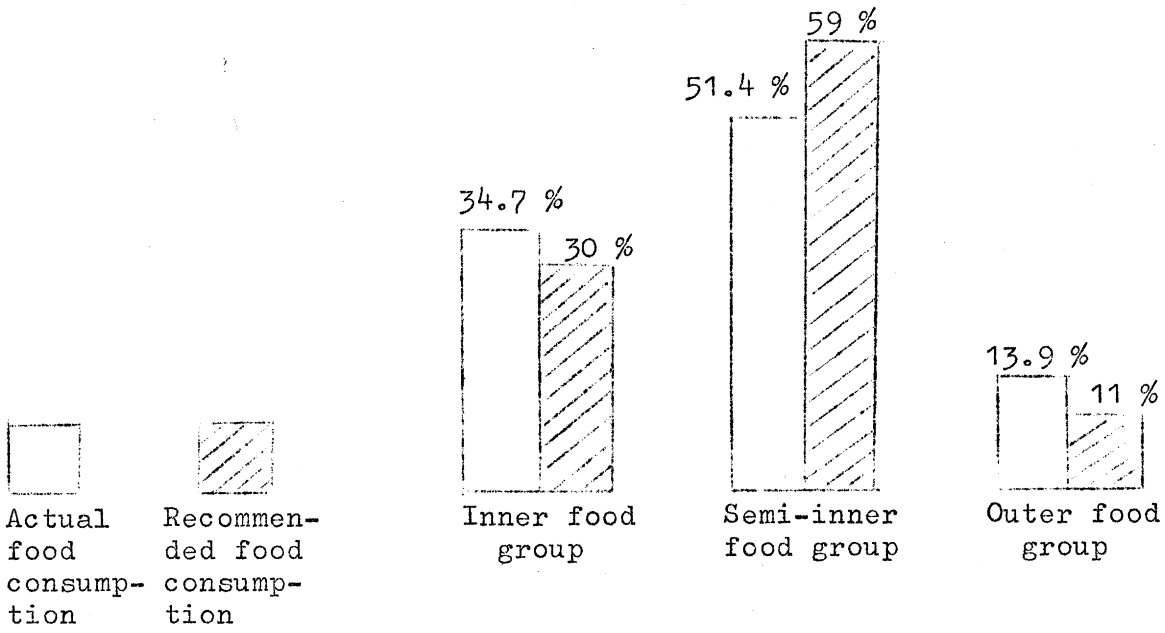
Figure 5. Share of Inner, Semi-Inner and Outer Food Groups in the Value of Actual (Average year 1975-77) and Recommended Food Consumption in Yemen PDR.




Source: Annex table 21.

The difference between the recommended nutritional level and the 1975-77 one was 355 Kcalories/day and 18.2 gms for proteins (Annex table 20).

In money terms, the value of the recommended per capita yearly food intake is YD 76.2 (≸ 222) according to 1977 retail price. This food expenditure is (≸ 79) more than the 1975-77 food expenditure (Annex table 21). In order to reach the recommended nutritional level in the year 2000, i.e. to increase the per capita food expenditure to ≸ 222 according to 1977 retail prices, one has to increase the food expenditure by ≸ 79 in 23 years. This is equivalent to a growth rate of food expenditure equal to 2.0 per cent starting from the year 1977. This can be possible if the per capita income increases by 4.0 per cent assuming that 50 per cent of the income increase goes to food expenditure.

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3. Increase of food expenditure

The attainment of the recommended nutritional level implies increase in food expenditure. Certain measures are needed to promote food expenditure so that increases in incomes result in increase in expenditure on food rather than non-food commodities. Advertisement of food commodities can be an indirect method in increasing food expenditure and is effective especially in a free market economy regime. The availability and easy access of food commodities is also another effective measure.

In a centrally planned economy, especially in the Democratic Yemen where the State is already selling food through government controlled consumers' co-operatives, the direct measure of increasing the share of food expenditure out of the income is by splitting the increase in salaries into cash and kind. The share in kind should be in the form of food commodities. The government thus can decide the share of food expenditure in the salary increases of their employees.

Group feeding schemes in schools, hospitals, industries, army camps, etc. are other means of raising the nutritional level of the people. In this respect, it is advised to get advantage of the most economical inner food groups and food aids.

4. Means of raising the nutritional level

Another means of raising the nutritional level is to encourage the use of food aids in assisting development projects like land reclamation, farm roads, water reservoirs, etc. This method, which is followed by the World Food Programme (WFP), in many countries, prooved to be helpful in the fulfilments of two aims, the encouragement of development projects and the raising of the nutritional levels. To stop the misuse of food aids by merchants who try to buy the food items from workers at low prices and sell them in the local market at higher prices or smuggle them outside the country, a strong

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control on the food receivers and merchants should be exercised. All means should be used so that food aids are indeed consumed by those for whom they are destined.

Food enrichment is an effective measure for raising the nutritional level. Nutrient enrichment of bread which is the main staple in Democratic Yemen can be a very effective measure. A study on this subject at the American University of Beirut showed that it is possible to enrich wheat flour up to 50 mg. of iron per pound with no adverse effect on the physical characteristics of the dough and on the color, texture, taste, off-flavour and general acceptability of the baked bread, irrespective of the salt used. This enrichment in iron is very important as nutritional surveys carried out by Inter Departmental Committee on Nutrition for National Defence (ICNND) showed that iron deficiency anaemia are common in the region. Iron enrichment of flour is the only practical possibility to increase the iron intake of the population in the Middle East. 2/

Research on the supplementation of bread with soybean and chickpea proved that this supplementation enhanced considerably the nutritive values as it corrects the lysine deficiency of Arabic bread and increases its quality of protein. As a result of this research, it was recommended to adopt 10 per cent soybean supplementation in the bread supplied to orphan and refugee camps throughout the Middle East in order to alleviate the protein - calorie malnutrition problem in these groups. 3/

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2/ N. Mohamad and A.H. Hallab, Effect of Iron Enrichment of Flour on the Dough Characteristics and Organoleptic Qualities of Arabic Bread, Beirut, American University of Beirut, 1973.

3/ A.H. Hallab and H.A. Khatchadourian, The Nutritive Value and Organoleptic Properties of White Arabic Bread Supplemented with Sybean and Chickpea, Beirut, American University of Beirut, 1974.

Nutritional education for the mass of people is a basic means for the improvement of the nutritional level and the acquirement of the maximum nutritional benefit from the available food. All information channels like radio, T.V., newspapers and schools should be used in raising the nutritional knowledge of the people.

5. Encouragement of the consumption of the inner and semi-inner food commodities.

The second consumption policy issue recommended is to encourage the consumption of the domestically produced food commodities (inner and semi-inner groups). The reason and objective of this recommendation is obvious for food security.

The first step in this field is to make the domestic food commodities available to the consumer at cheap prices and in attractive forms. This involves many production, pricing, and import policy issues.

Education on the different use of domestic food products will result in increasing its consumption. The eggplant for example, which is a high yielding vegetable in Democratic Yemen, is consumed there in only one form. The same product is consumed in many countries of the region in about ten different preparations. Home-made compote of fruits and vegetables especially in the rural area is an art that should be taught to the people in order to increase domestic consumption and decrease loss due to marketing difficulties, during the production peak. Tomato juice condensation at home is not practiced in the Yemens inspite the high consumption of tomato paste.

The damages to domestic fruits and vegetables due to wrong harvesting and handling make the quality of the domestic products lower than the imported one. Grading, standardization of measures, and good packing can play an important role in the encouragement of the consumption of the domestic products by facilitating their marketing and making them attractive to the consumer.

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The use of domestic food products in food industry helps in increasing its consumption.

6. Discouragement of the consumption of non-nutritional commodities

Discouragement of the consumption of non-nutritional commodities is a strongly recommended issue. Consumption of Elqat, the non-nutritional, non-healthy stimulant is wide spread in the two Yemens. The social and economic implications of its production and consumption are too deep to be solved by an official decree forbidding its production or consumption. The social implication of this commodity has to be studied deeply. Educational and sport clubs for the young generation are needed to keep the young busy in other activities than the qat chewing gatherings.

The other two non-healthy, non-nutritional commodities are tobacco and alcoholic beverage. Eventhough their consumption is universal, the discouragement of their consumption in poor countries like the Yemen gains a special importance. High taxation on these commodities is one way of discouragement. Advertisement against their consumption based on health implications and religious bases can be effective.

7. Sanitary control of food commodities

Sanitary control of food is also another important food consumption policy issue. It is very essential for the success of any consumption policy. The nutritional value of food depends to a large extent on its sanitary condition. A food sanitary bureau should be established for food analysis both of the domestic and imported food before their release for consumption. Poisoning accidents and many digestive troubles are well spread in Democratic Yemen due to the absence of sanitary control.

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## II. PRODUCTION POLICY

Under the current international food crisis, food security should be a major objective of any national production policy. The poor countries might soon face a situation where food will be very scarce and thus competition for it can't be escaped. The only hope for poor countries is to strengthen their food position through a sound production policy that can minimize their dependence on the outside world.

Democratic Yemen faces a very critical situation concerning food production. The agricultural sector, in spite of its limitation and weakness, is required to assist the other economic sectors. Hard currencies from cotton production seems to be indispensable in the actual absence of other sources of foreign currencies. This internal competition between cash crops and food items is the main feature of the existing production policy. The 100,000 hectares of productive land is very small and the possibility for horizontal development is very limited by the availability of water. Any recommended production policy should take into consideration the current one. Any revolutionary change in the production policy will affect the whole economy of the country.

### A. Current Production Policy

The current production policy as revealed in the quinquennial plan (1974/75 to 78/79) is aiming at two practically contradicting objectives: increasing food production and at the same time increasing cotton production. Cotton and food commodities can be increased at the same time only in the short run but they have to compete soon for the limited productive area. The food security aspects of the current food production policy is not clear. The planned cropping pattern does not show any tendency for strengthening food security.

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The allocation of the planned new reclaimed land shows bias towards cotton production. Eventhough the incentive for this bias is well understood, under the present economic conditions of the country, one has to warn that this does not serve the objective of food security.

1. Planned cropping pattern

The planned cropping pattern for the period 1975-79 which is practical translation of the production policy is shown in table 22 of the annex. The growth rate in the area allocated, in the quinquennial development plan, to different crops is shown in Table 10 below.

Table 10. Growth Rate of Area Allocated to Different Crops in the Quinquennial Development Plan 1975-79.

| Crop | Growth rate | Crop | Growth rate |
|---|---|---|---|
| Cereals, total | 4.67 | Potatoes | 8.9 |
| Wheat | 12.00 | Vegetables, total | 10.18 |
| Sorghum and millets | 2.58 | Gourds, total | 5.76 |
| Barley | 5.73 | Sorghum fodder | -3.33 |
| Cash crops, total | 12.15 | Alfalfa | 18.33 |
| Cotton | 11.87 | Sesame | 0.78 |
| Tobacco | 3.20 | Fruit trees | 0.93 |

Source: Derived from quinquennial plan 1974/75 - 1978/79, Aden 1975.

The above table shows that the rate of growth of planned increase of cash crops (cotton and tobacco) is higher than that of cereals and most other food crops. It is very difficult to trace any food security thinking from the planned cropping pattern. This is most probably due to the fact that the need is general for almost all commodities and thus an increase in any kind of production answers that need.

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2. Food security and the new reclaimed land

The planned allocation of the new land to be reclaimed and put into production also does not reflect any food security outlook. 40 per cent of the new area (50.0 acres) will be allocated to cotton and the remaining 60 per cent to different food and feed commodities.

According to the quinquennial development plan, the final allocation of the old and new productive land will be, in 1978/79, as shown in Table 11 below.

Table 11. Allocation of Old and New Area to Different Crops in 1978/79 in Democratic Yemen.

'000 acres

| Crops | Cropped old area | Cropped New area | Cropped total area | % of total |
|---|---|---|---|---|
| Cereals | 175.0 | 21.6 | 196.6 | 55.6 |
| Cotton | 50.0 | 20.0 | 70.0 | 19.8 |
| Feed | 23.0 | 2.3 | 25.3 | 6.8 |
| Potatoes, vegetables and gourds | 19.2 | 4.9 | 24.1 | 6.8 |
| Fruits (permanent trees) | 14.3 | - | 14.3 | 4.0 |
| Sesame | 10.5 | - | 10.5 | 3.0 |
| Others | 11.7 | 1.2 | 12.9 | 4.0 |
| Total | 303.7 | 50.0 | 353.7 | 100.0 |

Source: Calculated from the quinquennial plan, Aden 1975.

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## B. Recommended Production Policies

The main question that arises from Table 11 above is whether the planned allocation of the limited land area serves the food security objective. The production, even with higher yields, will not be enough to satisfy the desired consumption. Therefore, the thinking should be oriented towards the finding of the best production policy that strengthens the food security of the country.

### 1. The planned production and the desired consumption

Comparing the size of the planned production in 1979 with the size of the desired consumption in 1980, one can notice a large deficit in all the food commodities except milk, fish and eggs. The rate of growth of the planned production for the period 1975/79 seems to be very high. The same rate of growth cannot be assumed for the following period of 1980-85 as the rate of horizontal increase in land will drop tremendously as a result of a shortage in irrigation water.

Table 12 below shows the size of the planned production in 1979, its growth rate, and the size of the desired consumption.

Table 12. Size of Planned Production in 1979, its Growth Rate for the Period 1974/79 and the Size of the Desired Consumption in 1980.

| Food commodities | Planned production 1979 000 tons | Growth rate of planned production | Desired consumption 000 tons |
|---|---|---|---|
| Cereals | 175 | 8.2 | 332 |
| Red meat | 19 | 4.5 | 47 |
| Milk | 154 | 3.4 | 89 |
| Fish | 217 | 12.8 | 41 |
| Eggs | 50 | 20.3 | 7 |
| Vegetables | 14 | 22.8 | 111 |
| Fruits | 70 | 2.7 | 124 |
| Pulses | N.A. | N.A. | 7 |
| Vegetable oils | N.A. | N.A. | 21 |
| Sugar | 0 | 0 | 28 |
| Beets and tubers | N.A. | N.A. | 1 |

Source: Calculated from Tables 7 and 8 of the quinquennial plan and Table 13 of the annex.

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It is clear from the above figures that the orientation in production is not in harmony with the desired consumption.

## 2. Production policies and food security

A production policy, oriented by the need for food security, has to follow one of the following lines:

a) To balance the production so that the rate of growth of the different food commodities will be in the same proportion to the rate of the desired consumption. This sort of production policy only serves in maitaining a certain kind of proportional equitability in the production of the different food commodities.

b) To determine a certain level of self-sufficiency for the different inner and semi-inner food commodities. The production policy will then have a determined target to reach and the allocation of the productive area will be determined according to those levels.

c) To concentrate on the production of the few food commodities that are considered the most vulnerable from food security point of view.

More discussion in this line of production policy will be undertaken in the following section.

## 3. Production policy built on propotional equitability of food commodities

According to this policy, the planned growth rate of production for the period 1980-2000 should be proportional to the growth rate of desired consumption. Thus, according to this policy, the increase in the production of food commodities for the period 1980-2000 will be proportional to the increase in demand, but at

the same time the gap between the desired consumption and the production will increase and thus the self-sufficiency ratio will decrease. The food security aspect of this production policy is not sound enough as it gives almost the same weight from security point of view to the different food commodities. More weight should be given to vulnerable food commodities.

The advantage of this policy is that it ensures the domestic availability of a proportional amount of all the inner food commodities under all circumstances.

4. Production policy built on a determined level of self-sufficiency

This is a very difficult policy from the practical application side as it involves competition among the different food commodities. Keeping a certain self-sufficiency level of a certain commodity will have to result in decreasing the level of other commodities. With the limited production area, any increase in the share of one commodity means a decrease in the share of the others. To keep the level of the self-sufficiency ratio constant means that the growth rate of production has to increase at the same rate as the rate of consumption. Table 13 shows the growth rate of production needed for maintaining the 1975 self-sufficiency ratio for the main food commodities.

Table 13. Growth Rate of Production Needed to Keep the 1975 Self-sufficiency Ratio for the Main Food Commodities for the Period 1975-2000 in Democratic Yemen

| Food commodity | 1975-80 Growth rate | 1980-85 Growth rate | 1985-90 Growth rate | 1990-95 Growth rate | 1995-2000 Growth rate |
|---|---|---|---|---|---|
| Cereals | 3.6 | 3.2 | 3.2 | 3.1 | 3.1 |
| Red meat | 3.5 | 3.2 | 3.1 | 3.2 | 3.1 |
| Milk | 3.8 | 3.2 | 3.2 | 3.1 | 3.0 |
| Fish | 4.2 | 3.2 | 3.0 | 3.2 | 3.0 |
| Eggs | 3.1 | 2.7 | 2.4 | 3.8 | 1.6 |
| Vegetables | 3.5 | 3.2 | 3.1 | 3.2 | 3.0 |
| Fruits | 3.8 | 3.1 | 3.2 | 3.2 | 3.1 |
| Pulses | 3.1 | 2.7 | 4.6 | 3.8 | 1.6 |
| Vegetable oils and fats | 3.2 | 3.9 | 2.5 | 3.6 | 3.0 |

Source: Calculated from Table 23 of the annex.

The important question is whether it is practically possible to reach that rate of production growth in Democratic Yemen.

Any growth in production has to be the result of horizontal and vertical developments.

a) Horizontal development of production

The total productive area in Democratic Yemen is expected to reach about 287,000 acres (115,000 hectares) in 1980. At present, only about 16,000 hectares of the total area are irrigated from underground water. The remaining area is irrigated from spate water in the form of temporary floods. The area under spate irrigation is suitable only for crops that can survive by one heavy irrigation. This area, in case of enough water from floods, can have two productive seasons following the spring flood and the

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autumn one. Sorghum and millets are usually the main crops of the first flood, and cotton is the main crop of the second flood.

The flood area is owned by private farmers organized in co-operatives. Most of the area irrigated from underground water is owned by the government and managed in the form of state farms. A small portion of this area is managed in the form of small collective production units.

Any attempt to increase the productive area has to start by increasing the available water for irrigation. This extra water has to come from the underground reservoirs that are determined by the recharge and discharge balance. The potential of drilling new wells is not very high as the recharge of the aquifers in many Wadis is not much higher than the current discharge. So concentration on better use of the available irrigation water is very important practice which will result in saving water for increasing the irrigated area.

Horizontal development of the flood area is also possible through water saving practices. Water use research in Democratic Yemen showed that improvement in the water distribution canals and better land levelling will result in saving a considerable amount of water. The water saved would be enough to irrigate an area equal to about 25 per cent of the current irrigated area. This means that the potential productive area in Democratic Yemen can reach about 359 thousand acres (144,000 hectraes). This figure is assumed in this study to be the productive area in the year 2000 and that it should be reached gradually at equal rates of growth from the year 1980 to 2000.

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b) Vertical development of production

The vertical development i.e. increasing the production per unit of area, is the main hope the the country in the long run. This possibility has a continuous nature. With the new technology and research, there is always some hope to increase the crop yield. The average current yield of the different crops in Democratic Yemen leaves much room for increase. The difference between the country's average yields and the yields in some of the pilot farms and research stations in the country reflects the large possibility for vertical development. Table 17 shows the average yields of some crops and the yields of the same crops under better technology in Democratic Yemen. A comparison between the level of these yields and the average yields of the developed countries is also presented.

Assuming that the average yields of the different crops in Democratic Yemen will reach in the year 2000 the level of the average yields of the developed countries shown in Table 14 below and that the cropping pattern and land use intensity remain the same as in 1979, then the size of production for the year 2000 will be as shown in Table 25 in the annex.

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Table 14. Yields of Selected Crops in Democratic Yemen Under Traditional and Improved Technology Compared with Yields in the Developed Region.

| Crop | 1977 Average yields kg/ha | Yields under improved technology kg/ha | 1977 Average yields of developed countries kg/ha |
|---|---|---|---|
| Wheat | 1 908 | 5 000 | 2 145 |
| Barley | 1 534 | 786 | 2 803 |
| Sorghum | 885 | 2 400 | 3 294 |
| Potatoes | 5 030 | 12 350 | 22 614 |
| Cotton | 1 250 | 2 400 | 1 571 |
| Tomato | 7 500 | 47 000 | 35 354 |
| Banana | 14 000 | 66 000 | 66 000 |
| Watermelon | 13 000 | 55 000 | 17 822 |
| Maize | 2 333 | 6 100 | 5 015 |

Source: 1) Production Yearbook 1977, FAO, Rome 1977

2) General Economic, Agricultural and Social Study of Yemen Democratic, Volume One, Dar El Handasah

3) Final report of the agricultural economist of the FAO project PDRY/71/508

4) Agricultural Research and Training Project, Project Finding and Recommendations, FAO, Rome 1977.

According to the assumed size of production in the year 2000, the self-sufficiency will become as follows in Table 15.

Table 15. Self-sufficiency of the Main Food Commodities in the Year 2000 in Yemen PDR.

'000 tons

| Crop | Desired consumption | Assumed production | Self-sufficiency |
|---|---|---|---|
| Cereals | 616.0 | 296 | 0.48 |
| Vegetable | 206.0 | 279 | 1.35 |
| Fruits | 231.0 | 133 | 0.58 |

Source: Calculated from Table 25 (annex).

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Comparing the self-sufficiency ratio of cereals in the year 2000 with that of 1975 (Annex table 19), the deterioration of the food security situation is clear.

This obscure picture of the future situation should not lead to despair. It is impossible for the Democratic Yemen to keep its present state of food security by following the traditional method of food production policy. This fact should encourage new thinking and effort to create other production policies.

A possible production policy could be a policy oriented towards the concentration on the production of the food commodity that is considered to be the most vulnerable. In this case, non-agricultural resources should be developed in order to assist in covering the food imports needed. Regional agricultural integration might solve part of the food security problem in Democratic Yemen. Agricultural labourers from Democratic Yemen could play an important role to increase agricultural production of the region. The regional agricultural development might be the only solution to the Yemenis future food crisis.

5. Food production policy built on cereals food security

This policy can be called the selected production policy. Production is oriented towards food security of the main food commodity which is cereals. The main research, training, and extension on improving cereal production should be focused.

Cereals are the main staple food. They are also the most vulnerable commodities. The world demand for cereals is continuously increasing for food as well as feed purposes. The world grain imports during 1977/78 were estimated by FAO at a record high of 142.7 million tons - almost 6 million tons (4 per cent) above 1976/77. The export of wheat is concentrated in a very few countries, namely the United States of America, Canada, Australia, Argentine

and the EEC countries. The United States of America controls over 50 per cent of the world market. Any commodity whose world market is controlled by one or very few countries, is subject to be used as a political weapon and thus its vulnerability is high.

Another very important reason that favors the concentration on cereal production is the adaptability of cereals to the agricultural conditions of Democratic Yemen. Most of the agricultural land is irrigated by the flood water. This type of irrigation is not fit for the production of crops that need successive irrigation. The flood water which can be used for one heavy irrigation can give good crop of cereals, especially sorghum or millet. The competition for this flood water is almost limited between cereals and cotton. The preference in the long run and according to the suggested production policy should be for cereals. The conditions for wheat production are different from those of sorghum and millet. Wheat is produced in areas irrigated by underground wells as they need more than one irrigation. Therefore, the competition on the underground water is mainly between wheat, vegetables and some of the fruits.

Intensive research on drought resistant varieties of wheat, barley, sorghum, and millet is very much needed. The possibility of finding out a wheat variety that can survive successfully under the flood irrigation conditions should be thoroughly explored.

The concentration on cereals production will result also in the development of animal production. Concerning the animal production sector, all effort should be made to improve the ranges. The emphasis should be on natural grazing flocks, more than on concentrated dairy or fattening farms. The cereals by-products will be used to supplement the natural grazing especially for the finishing period.

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The suggested production policy should be guided by the following lines:

1. Replacement of cotton by cereals except for an area sufficient for the production of the quantity of lint needed for the domestic industrial sector, the quantity needed at present is about 5,000 tons.

The replacement of cotton should be gradual for the coming 20 years so that the impact on hard currency gained from the sale of cotton, will be absorbed gradually.

2. Wheatshould be produced on flood area supplemented by underground water.

3. The area irrigated by underground water should only be used for vegetables and fruits and other crops that need successive application of water.

4. Fish production should be pushed to a very high level in order to cover the maximum possible protein requirement from fish and to compensate for the loss of hard currency from the sale of cotton.

These recommendations will improve the food security of Democratic Yemen but they will not lead to full self-sufficiency. The total production area in Democratic Yemen will not be enough assuming the 1977 average yield of the developed countries, to produce the quantity of cereals needed for the desired consumption in the year 2000.

Priority should be given to self-sufficiency in vegetables and fruits as the import of these items, because of their perishable nature, is very costly. There is need for about 25,000 Ha of underground and flood irrigated land to produce the needed vegetables and fruits. This means that most the underground water used at present for irrigation will be needed for fruits and vegetables production.

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This does not leave any space for wheat production as the remaining areas will be flood irrigated areas that are not fit for wheat production.

This leads to the fact that unless the consumption pattern of cereals is changed towards the consumption of cereals that can survive on flood irrigation like sorghum and millet, the position of food security will remain very critical. The discovery of a new wheat variety that can survive the flood irrigation condition will surely change the picture of food security in the future.

The farm management system to be adopted has strong influence on food security as it affects production as well as the system of storage and distribution needed.

The co-operative system of production applied at present in Democratic Yemen seems to be well adaptable to food security as it involves the largest number of population in the production and thus increases the subsistence kind of agricultural production.

## 6. Production policies and implementation means

The implementation of a production policy needs certain means that work as incentive for the farmers to act in the direction of the planned policy. The voluntary adaptation of the policy by the producers is much more effective than the compulsory one. It is possible to oblige the farmers to plant a certain area with a certain crop, but it is almost impossible compulsarily to oblige them to increase the yield by hard work and improved technology. Agricultural production is different from industrial production. Unless the farmer is really interested in the kind of crop and willing to produce, the result surely will not be satisfactory. This is why incentives are needed to induce the farmers to participate in the success of the production policy. The two main well-known inventives are farmers' prices and agricultural requisites.

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a) Production policy and farmers' prices

The price fixation of all commodities by the government is part of the political regime. Discussion of this policy is beyond the scope of this study. The important point is that the fixed prices should be fair enough so that the level of income of the farmers will be in harmony with the cost of living and not much less than the urban workers' income. Another important fact that should be well considered is that the level of prices of the different crops should be in harmony with the size of production and the cost of production of the different crops so that a somewhat equitable per unit profit from the different crops will prevail. Ignorance of this point will result in a shift towards the production of some crops and the negligence of others. The price of cereals should be also guided by the world price. Acute deviation from this principle will result in the encouragement of the black market and smuggling practices. The normal price of cereals should be around the import price to Democratic Yemen. The prices of other crops should be somewhat ruled by the cereals level of prices.

Supported prices is not an advisable policy in Democratic Yemen as the weak economic condition of the Government does not allow for such a burden.

b) Production policy and crop requisites

The availability of crop requisites is a main condition for the success of any production policy. Production inputs as improved seeds, fertilizers, insecticides must be made available and accessible to the farmers at the right time and at logical prices.

These inputs can be used as incentives for the implementation of the production policy as well as the adaptation of the new improved package of technology.

c) Production policy and crop insurance

In a country like Democratic Yemen, where the irrigation water (flood water) is subject to heavy fluctuation, crop insurance scheme can be of vital importance. The farmer has to prepare his land to receive the flood water ahead of time. The effort of land clearing, levelling, plowing and soil edge building will be lost in case flood water fails to come. This flood water as it is known is a function of the rain precipitation in the north. This exposure to loss by the farmers in the case of flood failure discourages the complete preparation of the land accessible to flood. An insurance scheme that covers at least the cost of land preparation will make sure the preparation of all the land accessible to flood and will help in the implementation of the production policy. The details of such an insurance scheme need more thought and discussion.

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## III. IMPORT POLICY

The Government of Democratic Yemen is quite conscious of the need for food import planning. Being one of the least developed countries, the need for such planning is vital. The Higher Supply Council (H.S.C.) used to take up the food import planning and policies with all concerned agencies in the country at all levels. Now the Ministry of Commerce and Supply performs this function through meeting and consultations with the national agencies concerned at the various levels.

### A. Food Import Instruments and Institutions

The National Company for Foreign Trade, which is a public institution, handles the major imports from abroad and handles them over to another public institution, the National Company for Home Trade (NCHT) for distribution. The Public Company for Fruits and Vegetables marketing (PCMFV) imports all fresh vegetables and fruits (whenever needed) and other agricultural imports like seeds and insecticides. Fertilizers are imported by the Agricultural Development Fund.

Very few non-food items are imported by the private sector mainly to the tax free zone after obtaining import license from the Ministry of Commerce.

Table 16 shows the size of import of food commodities according to the sectors.

Table 16. Democratic Yemen imports (percentage) by different sector for the years 1975 and 1976.

| Commodities | 1975 | | 1976 | |
|---|---|---|---|---|
| | Private sector | Public sector | Private sector | Public sector |
| Food and live animals | 23.05 | 76.95 | 14.17 | 85.84 |
| Animals and vegetable oils and fats | 22.43 | 77.57 | 25.42 | 75.58 |

Source: Analytic Bulletin of Foreign Trade Statistics for the Period 1976, Aden, PDRY.

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It is clear from the above table that the tendency is towards more involvement of the public sector in food import.

## B. Import Efficiency

Does Democratic Yemen obtain the best terms in procuring their food imports? The answer to this question can be clarified by comparing the unit value of imports of some main food items in Democratic Yemen and other neighbouring countries.

Table 17. Unit value of imports of wheat, rice and sugar in the ECWA region, (Average 1974-75-76) in US Dollars per metric ton

| Country | Wheat | Rank | Rice | Rank | Sugar (raw equiv-alent) | Rank |
|---|---|---|---|---|---|---|
| Democratic Yemen | 200 | 6 | 385 | 1 | 435 | 2 |
| Yemen Arab Republic | 254 | 11 | 638 | 10 | 583 | 8 |
| Bahrain | 247 | 10 | 677 | 11 | 536 | 4 |
| Iraq | 242 | 9 | 511 | 5 | 600 | 10 |
| Jordan | 171 | 3 | 500 | 4 | 551 | 6 |
| Kuwait | 201 | 7 | 590 | 8 | 476 | 3 |
| Lebanon | 149 | 2 | 437 | 3 | 571 | 7 |
| Oman | 173 | 4 | 425 | 2 | 384 | 1 |
| Qatar | 137 | 1 | 597 | 9 | 750 | 11 |
| Saudi Arabia | 213 | 8 | 514 | 6 | 550 | 5 |
| Syrian Arab Republic | 186 | 5 | 514 | 6 | 598 | 9 |

Source: Calculated from FAO ICS Printouts, Ibid.

The rank of efficiency, built on the level of unit value, in Democratic Yemen is the first for rice, the second for sugar and the sixth for wheat among the eleven ECWA countries. This good efficiency is attributed mainly to absence of middlemen and non presence of port congestion. The efficiency of wheat import could be increased by

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improving the unloading facilities at the seaport. Pneumatic evacuators with modern silos at the seaport of Aden are very much recommended.

## C. Import Sources

The sources of import of food commodities depend on the individual commodities. The sources of import are shown in Table 18.

Table 18. Democratic Yemen import direction according to economic blocks in percentages for the years 1967-1975.

| Year | Arab countries | Socialist countries | Capitalist countries | Developing countries |
|---|---|---|---|---|
| 1967 | 27.26 | 3.24 | 38.84 | 30.66 |
| 1968 | 24.05 | 5.08 | 39.09 | 31.78 |
| 1969 | 27.52 | 4.71 | 32.93 | 34.84 |
| 1970 | 25.56 | 5.38 | 31.58 | 37.48 |
| 1971 | 30.01 | 6.39 | 30.66 | 32.94 |
| 1972 | 36.73 | 6.87 | 25.37 | 31.03 |
| 1973 | 31.58 | 11.73 | 24.83 | 31.86 |
| 1974 | 13.47 | 18.70 | 43.74 | 24.09 |
| 1975 | 10.71 | 16.56 | 51.66 | 21.07 |
| 1976 | 24.86 | 14.27 | 46.92 | 13.95 |
| Growth rate | - 5.439 | 20.610 | 2.554 | - 7.215 |

Source: Analytic Bulletin of Foreign Trade Statistics, Ministry of Planning, Central Statistical Organization, Yemen PDR.

The trend shown in the above table is more in favour of import from the socialist and capitalist countries and less from the Arab and other developing countries. In other words, the trend in import is in favour of more developed countries.

The increasing tendency of import from the socialist countries is well understood as it is the result of the socialistic prevailing

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regime of the country. But the decreasing tendency of import from the Arab countries cannot be easily explained. It might be caused by the nature of imported commodities which might not be available in the Arab countries or it might be caused by temporary political reasons.

From food security angle, this decreasing tendency of import from the Arab countries should be reversed as the intraregional trade is the most stable in the long run.

## D. Entry of Import

Democratic Yemen depends mainly on its sea route for its import and export. Aden and Mukalla seaports receive almost 99 per cent of the import of the country. Table 19 shows the percentage of import by value from the different entry points of the country.

Table 19. Democratic Yemen imports by custom ports and its percentage for the years 1973-76.

| Custom Ports | 1973 | 1974 | 1975 | 1976 |
|---|---|---|---|---|
| Aden Port | 82.19 | 85.99 | 82.19 | 85.96 |
| Aden Airport | 0.95 | 2.37 | 0.95 | 0.78 |
| Aden Post | 0.05 | 0.14 | 0.05 | 0.04 |
| Land | 0.90 | 0.26 | 0.90 | 0.64 |
| Mukalla Port | 15.87 | 11.22 | 15.87 | 12.54 |
| Mukalla Airport | 0.03 | 0.00 | 0.03 | 0.01 |
| Mukalla Post | 0.01 | 0.00 | 0.01 | 0.03 |

Source: Analytic Bulletin of Foreign Trade Statistics, Op.Cit.

Any import policy has to take into consideration the fact that seaports are almost the only import inlet to the country and thus the economy of the sources of supply is affected by this fact.

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Good connexion road between Democratic Yemen and its neighbours will promote intraregional trade and thus strengthen food security.

## E. Recommendation for the Strengthening of Food Security Aspects of the Present Food Import Policy

The weak points of the food import policy are mainly the result of the weakness of the infrastructure and personnel abilities.

The shortage of well trained personnel is hindering the creation of an effective marketing bureau that can provide the needed studies like demand projection and analysis of the world market.

Lack of information on the local and international market is resulting in non-regularity of food supply. Long-term import contracts are almost absent for the same reason.

The non-availability of enough mills and healthy grain stores is the main cause for importing wheat flour instead of wheat grain. The country's import of wheat flour in 1976 was 16,117 tons. Grain storage facilities are almost negligible. There is an urgent need to build two silos, one at Aden seaport and another in El Mukalla. A cereal stock reserve should be built. The size of this stock reserve should be equal to about 21 per cent of the annual consumption, as recommended by FAO. The lack of good roads within the country and from the country to the neighbouring countries is hindering the domestic and intraregional trade in general. Intraregional food trade implies more security aspects than extra-regional trade. The diversification of external food supply sources should be exercised in order to resist the use of the food need as a political pressure.

## F. The Import Policy Under the Recommended Consumption Policy

The adoption of the recommended consumption policy will result in a few new facts that should be taken into consideration in any food import policy.

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The change in the size and kinds of the required import will follow the change in the consumption requirement. The important fact is that the required size is known in anticipation. This allows for easier planning of import and facilitates the possibilities of long-term import contracts.

Easier arrangement of the shipment of the food import will be also realized. This results in a more efficient use of the food storage and more regular distribution. The food loss of the import process will also decrease as a result of improvement in storage and in distribution.

## G. Import Policy and the Recommended Cereal Oriented Production Policy

The main impact of the recommended production policy is the change on the size of import.

The main concern of food import will be concentrated on sugar as the other food commodities will be mainly produced locally. A specialized public agency for sugar import can be more efficient than a general agency dealing with many commodities. The import of raw sugar that can be refined in the country might be more economical than the import of refined sugar.

The import of minor food items that are consumed in small quantities can be left to the private sector with government supervision regarding prices and profit margins. The involvement of the government with all the food items creates many difficulties to the government and to the consumers.

## H. Food Import Policy and Food Aids

Democratic Yemen is having food aids from international agencies like the WFP and from bilateral arrangements. The average yearly aid in cereals for the period 1974-78 was 21 thousand tons (grain equivalent). In most of the bilateral agreements, food import is an important and sensitive issue. A major

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part of these bilateral relations is with socialist countries which provide loans and technical assistance. Many loans and credit agreements concluded with these countries involve about 30 per cent of the project cost for food import which finances the local cost component. It is very important to evaluate these food aids according to the market and to take care of the quality of these items at the same standard as the directly imported ones. Also these aids should be carefully included in the import planning. The effect of these aids on the price system should be taken into consideration. The temporary nature of these aids should be taken into account.

## IV. FOOD MARKETING AND DISTRIBUTION POLICY

### A. Present Food Marketing and Distribution Policy Issues

The food marketing policy issues in Democratic Yemen are in line with the general policy of the government for supporting the public sector in the first place, the co-operative sector in the second and the private sector in the last. The food marketing mechanism is represented in the following public agencies:

a) Ministry of Commerce and Supply, with its autonomous bodies the National Company for Foreign Trade (NCFT), and the National Company for Home Trade (NCHT).

The Ministry was initiated in 1976 but the companies were already in existence and were carrying out import and export policies of many but not all food items.

b) Public Co-operative for Marketing Vegetables and Fruits (PCMFV). It was initiated in 1973 to market all vegetables and fruits to the consumers. The PCMFV buys all production of vegetables and fruits from the state farms and co-operatives and sells them to the consumers at centrally fixed prices. The PCMFV covers its transport and administration cost and used to make a marginal profit but with the new producers' prices the Government is subsidizing the PCMFV for any losses incurred under the new fixed prices. Since 1973, the activities of the PCMFV have been of a horizontal nature i.e. opening new distribution centres in urban areas where there is a high density of population. It also opened many collection centres near the production sites. It built stores for certain imported items such as red chilies, ginger, oranges, and dates.

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The PCMFV is responsible for the importation of all fresh foods. It also imports all seeds and insecticides. It owns about 100 lorries and 60 carts for transportation. However, the activities of the PCMFV do not cover the whole republic. They prevail in the 1st, 2nd, 3rd Governorates and the coastal part of the 5th Governorate. It is intended in the forthcoming 5-year plan 1979-83 that the PCMFV covers the whole republic by establishing about 120 new centres in various districts. Importance will be given to building cold-stores and to proper storage systems to minimize food losses which is reaching at present about 25 per cent of the stored food owing to bad maintenance and preservation.

As any corporation, the PCMFV budget is subject to law No. 11 of the 1973 which states that 75 per cent of its net profits should go to the Development Fund and the current budget and that all its development activities are financed from the Development Fund according to priorities of projects in different sectors.

The PCMFV is also marketing the eggs produced by the Public Corporation for Poultry. The PCMFV is the largest corporation which comes under the supervision of the Ministry of Agriculture and Agrarian Reform.

c) Public Corporation for Meat Marketing. This is a new autonomous corporation (1976) supervised directly by the Minister of Agriculture. It markets all imported and locally produced meat. It owns its own slaughter houses and has two farms for imported live animals and fattening of local goats and sheep. It also buys calves, goats and sheep from the state dairy farms and co-operatives. The sale prices of meat for the corporation and the retailers are fixed. The corporation also markets imported and locally produced poultry meat.

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d) Consumer Co-operatives. The Government, in an attempt to provide food at reasonable prices in the rural areas, has established consumer co-operatives. The consumer co-operatives buy food and non-food commodities from the National Home Trade Company. These co-operatives are under the supervision of the Ministry of Commerce and Supply. They are expanding rapidly and they cover most of the country. There are at present 38 consumer co-operatives in the rural areas i.e. outside Aden. Each consumer co-operative has several retail shops depending on its size and activities.

e) Retail Centres. These centres function only in the first Governorate. There are 26 retail centres in Aden.

f) Wholesale Centres. There are five wholesale centres which provide commodities to consumer co-operatives, to retail centres and to private shops. The wholesale centres make only one per cent profit plus transport and administration cost. It does not sell directly to the consumers.

g) Private shops. They are about 10,000 in number and perform a major part of food marketing. They get 6 per cent profit on original cost price and are obliged to sell on a fixed price basis. The NCHT, through the Wholesale Centres, provide them with the food and non-food commodities.

h) Fisheries. The Ministry of Fish Wealth has a marketing section. This is responsible for fish marketing in the first, second and third Governorates. The horizontal expansion of fisheries marketing has not yet been completed and many cold-stores in the hinterland are still under construction. This is the reason why other Governorates are not under the fisheries central marketing control yet. All fisheries co-operatives in the first, second

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and third Governorate are obliged to sell their production to the marketing section whose distribution centres sell it at a fixed price of 150 fils per kilogramme. In the fifth Governorate, the central pricing system has not yet been applied.

Generally speaking, the marketing mechanism is carried out basically at the central level and through various kinds of intermediaries. It is directed towards urban and rural areas with a high density of population and plans to spread into other remote areas. This expansion will largely depend on many financial and manpower resources.

## B. Food Rationing

The recent world food price fluctuation affected the least developed countries considerably and led to food rationing policies in many of them. Democratic Yemen faced food rationing situation only two years ago. Cards were distributed to each family for sugar and other main items which have been subsidised by the Government through the Balancing Price Fund (BPF), in order to prevent black market. This has been carried out successfully up to now and has also served many other purposes.

## C. Notes on the Current Marketing and Distribution Policy Issues

The current marketing and distribution system in Democratic Yemen is serving the objective of the Government food consumption policy. It is imposing a somewhat equal distribution of the main food commodities at reasonable fixed prices.

The system applied has proved to be successful and in line with the general government policy of involving the public sector with all activities in the country.

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The main positive consequences of the system are the following:

1. It imposes a somewhat equitable accessibility to the available food in the country.

2. It minimizes the effect of world price inflation on the consumers.

3. It eliminates the vicious effect of the market middle man.

4. It helps in the unification of the units of measurement in the country by imposing the application of the metric system.

However, there are some weak points in the system that need to be corrected. Most of these points are not of policy nature but of practical application. These weak points are hindering the smoothness of the mechanism of the system. They can be summarized in the following lines:

1. The absence of grading and good packing, especially for vegetables and fruits. This is causing mishandling of the products and deterioration of their quality and a tremendous loss of many of the perishable products.

2. The lack of compatibility between the size of farm products and the demand in the market. Tons of vegetables are sometimes refused by the wholesale market for the only reason that the quantity is more than the market quota for that commodity.

3. The centralization of sale in few non-sufficient retail centres is causing a lot of discomfort and loss of time to the consumers. Many consumers feel obliged to buy more than their need and store them at home in order not to go frequently to the centres. The size of consumption is effected by the sole difficulty of buying.

4. The absence of collection centres in the production sites leads to a high increase in marketing costs as each individual farm is obliged to transport its product to the wholesale market.

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5. The time schedule of the consumers' co-operatives should be different than that of the public sector. The Government employees are loosing at least three days a month of their official time for buying their food items.

## D. Recommendation for the Improvement of the Marketing and Distribution System

Other than the correction of the weak points mentioned above, some important policy issues should be reconsidered.

### 1. Fish Marketing

The first one concerns fish marketing. Fish production in Democratic Yemen is higher than the local consumption and it is the main source of animal protein. Also fish is a very perishable commodity that needs a very efficient marketing system in order to keep its good quality. Most of the high populated urban and rural centres are not far from the coast. There is a clear preference among the consumers for fresh fish and for specific kinds of fish. For all these reasons, fish marketing should be left free in order to encourage more consumption of this very nutritive food item. The present policy of obliging the fishermen to sell their fish to the fishermen co-operative, freezing the fish and reselling them to the consumers is a costly operation and requires a market well equipped with cooling units. It is advised to establish three fish market outlets.

a) A fish export company whose responsibility is to establish fish collection centres where the fishermen or co-operatives can sell the fish varieties that are preferred for export like the sole fish, lobsters, etc.

b) A fish meal factory with collection centres for the low quality undesirable fish and for the non-marketable products.

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c) A classical free fish market where the fish can be sold fresh to the consumers according to the law of supply and demand. The prices for the first two suggested fish outlet can be fixed and left free for the third one.

In the remote rural area, the classical current consumption of the sundried fish should be encouraged and not disturbed by the introduction of the costly frozen fish delivered by cooled trucks. The present road system makes this operation impractical and very costly.

2. Milling Capacity

The milling capacity should be improved. Complete self-sufficiency in milling the needed cereals for local consumption should be reached. Wheat should be imported only in the grain form. The import of wheat flour or flour of other cereals is a costly operation. Its transport and storage are more expensive than the grain. Also the milling output of grains like wheat bran is much needed in the country for poultry and animal feed.

Other than central large scale mills in Aden, Mukalla and Sium it is recommended to support the small local mills that are widespread in the rural areas.

3. Grain Storage

Adequate grain silos at Aden and Mukalla ports are urgently needed. Thus unloading at the ports can be carried out entirely by pneumatic evacuabors. The inefficient current practice of bag transport from the ships should be phased out entirely.

4. Needed Organizations

A national milling and grain supply organization should be established. It should be formed of small body of specialists whose

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task is to monitor world market trends and to keep in touch with all grain exporting countries.

5. Agricultural Roads

Agricultural roads that connect the productive farms to the main roads are very much needed. The marketing and distribution system of any policy will suffer from the absence of such communication mean. Such roads can be built by the farmers with the support of the Government. Foreign food aids can be successfully used to support such projects.

# FOOD SECURITY POLICY ISSUES IN THE YEMEN SUBREGION

## - PART III -

## THE ARAB YEMEN REPUBLIC

# I. FOOD CONSUMPTION POLICY

The need for a well defined food consumption policy in the Yemen AR is very crucial. This need stems from the following important facts:

1. The nutritional standard of the Yemenese is deteriorating.
2. The food security position is very weak. The value of food and animal imports of the country in 1975 was about 57 times the value of the food and animal exports and about 12 times the value of exports of total merchandise trade[4/].
3. The disparity in food consumption among the people is quite high.
4. The nutritional composition of the food consumed is not well balanced. The share of protein from animal origin is very low.

A sound food consumption policy has to take these facts into consideration.

## A. Past, Present and Planned Food Consumption Policy

Planning is quite new in Yemen AR. The three years development programme of 1973/74 - 1975/76 was the first attempt at development planning. Few general comments were made about food consumption in that programme, but there were no mention of food policy as such. Raising the nutritional level of the people was one of the objectives of that programme, but there were no details concerning the means of raising the nutritional standard, to which level and in which directions.

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4/ Calculated from FAO ICS Computer Printout, 1977.

The first quinquennial development plan for 1976/77 - 1980/81 deals with the subject of food consumption in more details, especially while determining the terms of references of the different organizations dealing with the food problems.

One general objective of the plan is to reach the highest possible level of self-sufficiency in food.

A summary of the terms of reference of the following major organizations dealing with food should be enough to clarify the present and the planned consumption policy.

1. The Ministry of Food Supply. This Ministry was established in 1974 and has the following objectives:

- To secure sufficient quantities of food commodities, to organize their imports, to fix their prices and to supervise its implementation.
- To make sanitary bread available to the consumers at a reasonable price.
- To standardize all the measurements and containers and to put the specification of the main food commodities.
- To deepen the specialization in the local market.
- To encourage the enlargement of the number of those dealing with the main food commodities and to organize the market at different levels.

2. The Public Organization for Foreign Trade, established in 1976 to replace the Foreign Trade Company. Its objectives are:

- To make sure of the continuous availability of the main food commodities at fair prices.

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- To establish sufficient food reserve to face the world fluctuation in prices and production.

3. The Yemenese Public Organization for Grain, newly established to deal with the grain problems, especially to:

- Build a permanent grain reserve stock kept in modern stores.
- Decrease the cost of grain import.
- Decrease the loss caused by bad storage systems.
- Improve the sanitary conditions and nutritiomal value of bread and make it available at a reasonable price.
- Build siloes, mills and bakeries at adequate capacities and at reasonable costs.
- Enrich the bread with vitamines.
- Co-operate with all Governmental and private agencies that are dealing with the production and marketing of grain.

4. The National Agency for Food and Nutrition, established in 1976 to replace the national office for food. Its objective are to:

- Secure the maximum benefit from the food aids and to orient its use in the right way.
- Make sure that food aids are covering as many development programmes as possible.
- Make sure that food aids are distributed on an equitable base in all the Republic and that the aids are reaching the right beneficiaries.

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The food security aspect, inspite of its crucial importance in Yemen AR, is not given the appropriate consideration. The Grain Storage and Processing Project of the IBRD would surely tackle the problem of food security in details while developing a national nutritional plan. A total of US$ 180,000 would be provided for a nation-wide nutritional status survey and on its basis, the national plan will be formulated. Although attention will be given to the major causes of malnutrition from a medical point of view e.g. insufficient nutrient intake, poor utilization of nutrients, and the hightened nutritional needs caused by nutrition-related illness, primary attention will be directed to those socio-economic factors directly influencing diet and food utilization that can be changed to improve nutritional status. Analysis will be made of the distribution problems, price relationships, food waste, and consumer behavior.

## B. The Recommended Food Consumption Policy

### 1. The necessity for a consumption policy.

In a poor country like the Yemen AR, efforts are needed to formulate a food consumption policy. The absence of such policy results in a loose obscure objectives of all other policies.

What and how much is needed from food commodities are the main questions that need to be answered prior to the determination of the targets of production, import and distribution policies.

The nutritional standard of Yemen AR is deteriorating and the food security position is becoming worse.

Table 3 of the Annex shows that the energy, protein and fat intake in 1974 is less than that of 1961/63 and the growth rate of energy intake for the period 1961-1974 is -0.409 and that of protein and fat are -0.810 and -1.068 successively. This deterioration of nutritional standard will result in many bad effects on the health conditions and the efficiency of the people.

Table 27 of the Annex reflects the weakness of the food security position. A genative growth rate of self-sufficiency in grain (-1.936), the main staple food is an unhealthy sign of food security.

This deterioration of the food security position is also demonstrated by the tremendous decrease in the size of the ratio of agricultural products export to agricultural products import, the ratio of food and animal export to the food and animal import and the ratio of agricultural product export to food and animal import. Their relationships are shown in table 20 below.

Table 20. Growth rate of the ratio of the value of agriculture products export to its import, and to the import of food and animals and the ratio of food and animals export to its import in Yemen Arab Republic for the period 1970-75.

| Ratio | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | Growth rate |
|---|---|---|---|---|---|---|---|
| Agriculture Export / Agriculture Import | 0.112 | 0.139 | 0.086 | 0.120 | 0.095 | 0.075 | -7.72 |
| Food & Animal Export / Food & Animal Import | 0.098 | 0.052 | 0.038 | 0.029 | 0.019 | 0.017 | -29.12 |
| Agriculture Export / Food & Animal Import | 0.113 | 0.143 | 0.088 | 0.129 | 0.100 | 0.114 | -1.83 |

Source: FAO Trade ICS computer printout.

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2. The change in food habits.

The food security position is also threatened by the rapid change of food habits caused mainly by the high migration from the rural to the urban areas. The new city dwellers are obliged to leave their traditional food habits linked to the existing subsistence agricultural production. The city dwellers are exposed more to imported food products and thus the tendency will be towards more consumption of the outer group of food.

This aspects of the problem has to be dealt with by introducing a consumption policy that encourages the consumption of the inner groups of food.

Table 21 below shows the development in the consumption of rice and wheat which represent the urban food consumption habit.

Table 21. Consumption of rice and wheat in Yemen AR for the period 61/65 - 76

kgs/cap/year

| | 1961/65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | Growth rate |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rice consumption | 0.8 | 0.8 | 0.9 | 0.9 | 1.0 | 1.1 | 1.0 | 1.8 | 0.4 | 0.8 | 1.2 | 1.1 | 2.3 |
| Wheat consumption | 4.2 | 9.2 | 9.9 | 9.2 | 16.0 | 20.1 | 21.3 | 26.7 | 30.2 | 29.4 | 34.7 | 52.6 | 19.8 |

Source: FAO ICS Computer printout, Food supply analysis, Rome, 1979.

The seriousness of the effect of urbanization on food security is intensified by the rapid reduction in the number of non-food producers in a country where subsistence type of agricultural production prevails. It has been estimated that in 1970, farmers constituted 80 per cent of the population and non-farmers 20 per cent. For 1980, these figures are projected to 60 per cent and 40 per cent respectively. This will surely place added strain on the rural population.

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3. The inequality in food consumption.

This is another reason which emphasizes the need for a consumption policy. The acute discrepancies in food consumption between different consumer groups which is caused by many factors, will result in a state of political and economical insecurity as well as nutritional problems.

These deep inequalities appear more clearly in the consumption of meat which is consumed regularly by some minority, once a week by others, once a month or only in the feasts by the majority.

Table 22 represents the result of a survey run in 1973 concerning meat consumption in different areas in the Yemen AR.

Table 22. Frequency of consumption of meat among immigrant households in Sana'a, and among rural families in a highland village (Town Survey conducted in October 1971 - Village Survey in September 1971).

| Frequency of Consumption | Sana'a | Arb |
|---|---|---|
| Every day | 45 | 5 |
| 4/6 times/week | 20 | 7 |
| 1/3 times/week | 28 | 47 |
| Less than once a week | 5 | 26 |
| Less than once a month | 2 | 13 |
| Never | 0 | 2 |
| Total number of families | 40 | 65 |

Source: Borinstein A., "Food and Society in the Yemen Arab Republic", FAO, Rome, 1974.

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4. The undesirable consumption habits

A sound consumption policy should promote the healthy consumption habits and at the same time, discourage the unhealthy ones. The Yemenese can't afford to loose considerable part of their income, in the consumption of non-nutritional items. Unfortunately, this is not the case. A survey run in 1973 shoes that tobacco and qat are the next highest items of consumption after cereals. It occupies about 13 per cent of the total budget. Qat alone may in fact take as much as the daily food expenditure or even more. Also one of the known physiological effect of qat is the loss of appetite.

Other undesirable habits of consumption are spreading by the increase of urbanization and exposure to the outside world. The replacement of the traditional unrefined cereals with "modern" highly-milled ones is resulting in nutritional loss, especially of vitamines and minerals.

The replacement of the sorghum porridge with rice and the shifting from breast to bottle feeding are unhealthy signs of food habit development that should be discouraged.

5. The recommended consumption level.

The recommended consumption policy is the one leading to a determined level of consumption for the majority, if not all, of the people in the Yemen AR. This consumption target should not, in the long run, be less than the nutritional standard required for normal human activities.

The normative per capita nutrient requirement for Yemen AR was calculated in part I of this study and was presented in Table 5.

6. The recommended consumption pattern and the food security.

Other than the improvement in the nutritional standard, the recommended consumption level enhances the food security aspect by increasing the share of the inner food in the total food consumption.

Table 23 below compares the shares of the inner, semi-inner and outer groups in the value of the year average 1975-77 and recommended food intake.

Table 23. Values of the annual per capita food intake of the inner, semi-inner and outer food groups in Yemen AR.

(Year average 1975-77)

| Food Group | Actual YR | Percentage |
|---|---|---|
| Inner | 37 | 63 |
| Semi-inner | 59 | 32 |
| Outer | 4 | 5 |

Source: Derived from Annex table 31.

7. The recommended consumption pattern and the nutritional level.

The weakness in the actual food consumption in Yemen AR is qualitative and quantitative in nature. The energy and the total protein are less than individual requirement. The protein from vegetable origin constitutes 83 per cent of the total protein. The bulk of the protein is from cereals. Animal contributes a small percentage of the total protein intake (17 per cent). The recommended consumption pattern raises the share of animal protein from 17 to 31 per cent of the total.

In money terms, according to 1976 retail prices, the value of the annual per capita recommended food consumption is YR 872 (US$ 191) which is only YR 7 (US$ 1.5) more than the average year 1975-77. This means that the problem can be solved by changing the consunption pattern.

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8. Means of attainment the recommended consumption level.

The recommended consumption level is a difficult target to attain as it involves more than increasing the quantity of food consumed. The increase in food expenditure unless oriented in the right direction will not lead to the desired results.

A major shift in the consumption pattern towards more animal protein is the core of the problem of food consumption. The measures needed to orient consumption to the right direction involves many policy issues related to production, import, marketing and distribution. These measures are discussed in the following chapters.

Group feeding programmes for special vulnerable groups like the school children, pregnant women etc. are direct measures that can be implemented by the government or private agencies.

Enrichment of bread and biscuits with vitamines and minerals is another measure that should be considered.

The discouragement of qat consumption through a sound plan dealing with the roots of the problem is a must. About 40,000 ha of good irrigated land[5/], about 45 per cent of the total area irrigated by perennial sources and wells, is put under qat. This area is enough to support about 150,000 dairy cattle.

Sanitary control of food commodities is an important measure maximizing the nutritional value of food commodities consumed. A Food Sanitary Agency is needed for the analysis of all food commodities whether imported or domestically produced in order to make sure of their nutritional value as well as their suitability for consumption. This agency should also be responsible for the extension of food sanitary education.

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5/ Current Economic Position and Prospects of the Yemen Arab Republic, Document of the World Bank, January 9, 1976, Report No. 840 a - YAR.

## II. FOOD PRODUCTION POLICY

Food security is one of the major objectives of any production policy. It is effected directly by the cropping pattern fluctuations in production and farming systems.

What is demanded in the field of production to strengthen the food security position? A clear answer to this question may help in the formulation of a sound production policy based on food security requirements.

The main aspects of a production policy that affect directly the food security position are the following:

1. Cropping pattern:

Emphasis should be on the production of the main staple food for the population. The non-food cash crops should be reduced to the minimum needed by domestic industries.

2. Crop fluctuation:

Fluctuations in production caused by natural factors should be minimized. The possibility of developing an early forecast system that helps in minimizing the adverse effect of production fluctuation should be investigated. Crop insurance schemes should be also considered.

3. The farming system:

The farmers and land owners relationships should be organized in a way which would create a healthy environment for production.

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## A. The Current and Planned Production Policy and Food Security

There were no declared governmental production policy in YAR in the past. The first effort in this direction appeared in the 3 years development programme (1973/74 - 1975/76). Some general production objectives appeared in that programme, but there were no attempt to link these objectives to food security.

The general objective was to increase production. This objective was realized as can be seen from table 24 below.

Table 24. Growth rates of population, food, agricultural, and cereal production, 1961-65/70 and 1970/76 for the Yemen AR.

| Period | Population | Production | | | Per caput production | | |
|---|---|---|---|---|---|---|---|
| | | Food | Agricultural | Cereals | Food | Agricultural | Cereals |
| 1961-65/70 | 2.8 | -2.5 | -2.5 | -1.1 | -5.3 | -5.3 | -4.7 |
| 1970/76 | 2.9 | 9.2 | 9.5 | 13.0 | 6.3 | 6.6 | 10.1 |

Source: "The Fourth World Food Survey", FAO, Rome 1977.

The growth rate of agricultural production has shown a radical change since the seventies. The growth rate jumped from -2.5 for the 1961-65/70 period to 9.2 for the 1970-76 period.

The specific objectives mentioned in the 3-year development programme such as doubling the production of all cereals and pulses, domestic use of all cotton seeds for oil extraction, increase of vegetable production to face the increasing demand of the local market, rehabiliate the coffee production to its previous high level (12,000 tons), increase the animal production to meet local consumption at reasonable prices, have not materialized yet.

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The production policy objectives of the quinquennial development plan are very specific. The cropped area and the yield for each crop is specified for each of the five-years. The planned production for the last year of the plan 1980-81 and the planned growth rate of production are shown in table 25 below.

Table 25. Growth rate of production in the quinquennial development plan (1975/76 - 1980/81) in the Yemen AR.

| Crops | Production '000 tons 1975/76 | 1980/81 | Growth rate |
|---|---|---|---|
| Sorghum and millet | 859.0 | 1 042.0 | 3.9 |
| Maize | 72.0 | 110.2 | 8.9 |
| Barley | 75.0 | 83.2 | 2.1 |
| Wheat | 52.0 | 128.0 | 19.8 |
| Cotton | 13.0 | 32.0 | 19.8 |
| Oil crops | 5.5 | 10.8 | 13.8 |
| Dry pulses | 76.0 | 105.0 | 2.6 |
| Vegetables | 183.0 | 705.0 | 31.0 |
| Fruits | 112.4 | 142.0 | 4.8 |
| Milk | 331.0 | 367.0 | 2.1 |
| Eggs (millions) | 210.0 | 235.0 | 2.3 |
| Meat | 39.7 | 46.8 | 3.3 |
| Fish | 11.5 | 17.3 | 8.3 |

Source: Calculated from "Quinquennial Development Plan 1975/76 - 1980/81".

The increase in production, if realized, will strengthen the food position of the country. However, in the absence of a well determined consumption policy which is in harmony with the production policy, it would be difficult to appraise the impact of the food increase on food security. The required food should be determined in order to be able to plan food production.

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B. Planned Production and the Normative Food Consumption

The comparison of the 1980-81 planned production with that of the normative food consumption as suggested in table 12 of the annex, will assist in the appraisal of the food position at the end of the quinquennial plan. Table 26 shows this comparison and the self-sufficiency ratio based on the planned production and the desired normative consumption levels.

Table 26. Planned production in 1980/81, desired normative consumption in 1980 and self-sufficiency ratio in Yemen AR.

| Crops | 1980/81 Planned production '000 tons | 1980 Normative consumption '000 tons | Self-sufficiency ratio |
|---|---|---|---|
| Cereals | 1 363.0 | 965.0 | 1.41 |
| Meat | 46.8 | 137.0 | 0.34 |
| Milk | 367.0 | 258.0 | 1 42 |
| Fish | 17.3 | 124.0 | 0.14 |
| Eggs | 8.2 | 23.0 | 0.36 |
| Vegetables | 705.0 | 324.0 | 2.18 |
| Fruits | 142.0 | 361.0 | 0.39 |
| Pulses | 105.0 | 20.0 | 5.25 |
| Vegetable oil and fats | 8.8* | 56.0 | 0.16 |
| Sugar | - | 82.0 | 0 |

* Assuming that all cotton and sesame seeds are processed locally (oil extraction rate of sesame 48 per cent and that of cotton 18 per cent)

Source: - "The Quinquennial Development Plan" YAR.
- Table 12 of the annex.

It is clear from the above table that the weaknesses of the agricultural sector lie in meat, fish, eggs, vegetable oils and fruits production.

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The planned total cereals production for 1980/81 is higher than the required for consumption. At the individual crop level, wheat production will be less than the required, while the production of other domestic cereals will be much more than the required. Table 27 below represents the position of the different cereal crops.

Table 27. Cereals production in 1980-81 as planned in the quinquennial development plan and the normative consumption in 1980

| Crops | 1980/81 Planned production '000 tons | 1980 Normative consumption* '000 tons | Self-sufficiency ratio |
|---|---|---|---|
| Wheat | 128 | 146 | 0.88 |
| Coarse grain | 1 235 | 814 | 1.52 |
| Rice | 0 | 5 | 0 |

* The consumption pattern of cereals of 1975-76 was assumed for 1980.

Source: - Quinquennial Development Plan, YAR, Ibid
- Table 12 of the annex.

The self-sufficiency ratio is higher than one for all cereals except for wheat and rice. The consumption of these two deficit crops would increase unless efforts are made to slow down the rapid change in the consumption pattern.

The surplus in coarse grains provides a good possibility for improving the animal production position. As discussed earlier, the deficiency in animal protein is the main nutritional problem in Yemen AR.

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Assuming an annual rate of growth of agricultural production equals to the planned one for the quinquennial development plan, the food position in the year 2000 is expected to be bright (table 28 of the Annex).

The planned annual growth rate seems to be high. A more realistic production growth rate will be concluded at the end of the quinquennial development plan.

The meat position as reflected from table 28 (annex) seems to be the weakest. This emphasizes the need for giving more efforts to develop the livestock sector.

The optimistic picture for the year 2000 should not overshadow the danger on food security situation resulting from the following three factors:

1. The rapid change in the consumption pattern wheat and rice.
2. The fluctuation in the production of cereals caused by natural disasters such as rain failure, locust infestation, etc.
3. The lack of good communication which hinders rapid food distribution throughout the country.

## C. Production Fluctuation and Food Security

About 1,405 of the 1,515 thousand ha of the cultivated area are rainfed. This means that the Yemen AR agricultural production, especially cereals which are almost 100 per cent rainfed, is subject to a high degree of fluctuation. Figure 6 illustrates this fluctuation. The effect of this fluctuation may lead to a very acute food shortage in the absence of a well studied stock reserve system. The adverse effect of this fluctuation on the availability of food can be minimzed in the presence of an early warning system that can assist in predicting the size of production at an early stage, thus giving an

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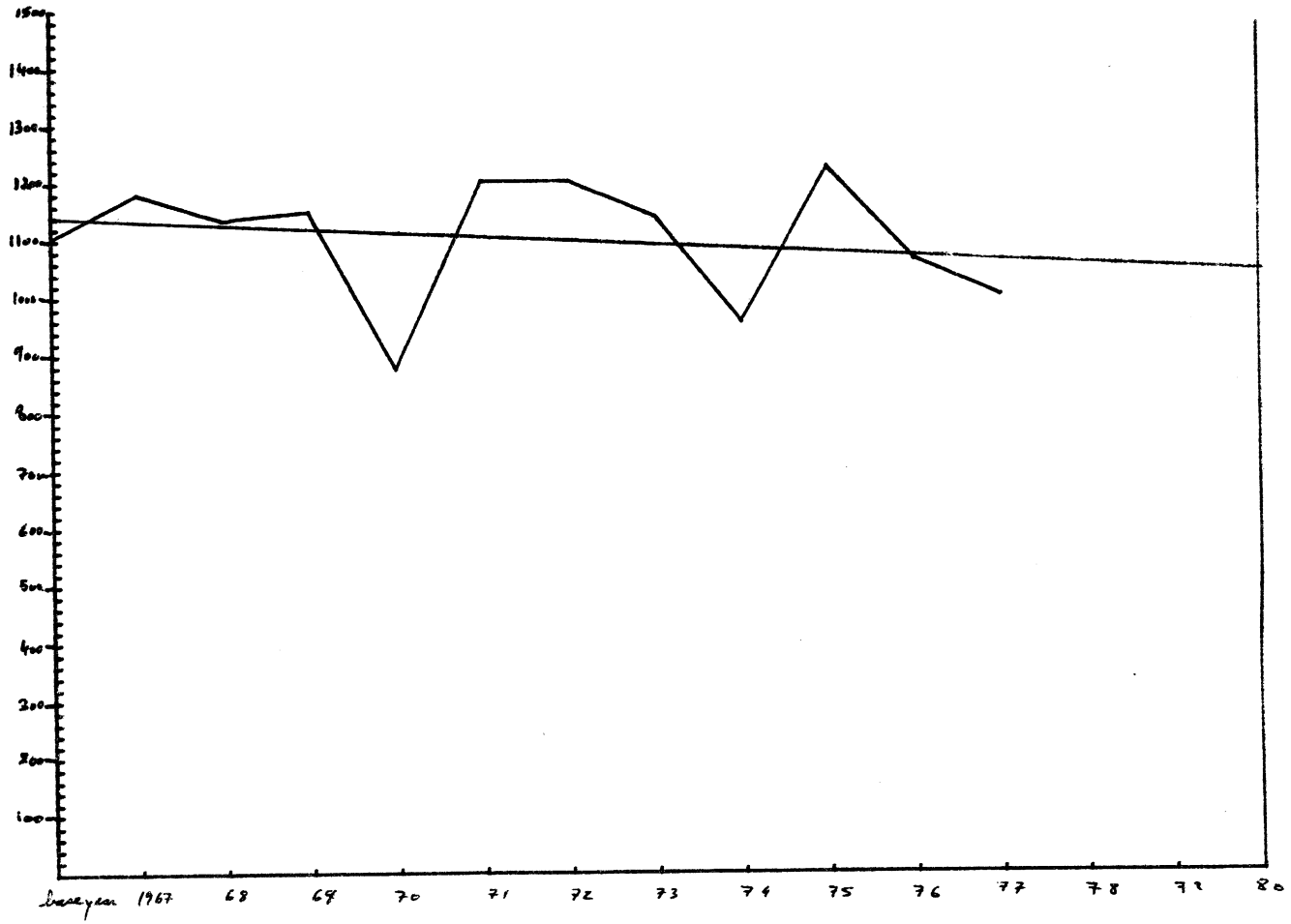
Figure 6.

Cereals Total, Yemen Arab Republic Production

(in 1000 Tons)




Source: FAO, ICS printouts 1977.

ample time for making import arrangements. Detailed studies on this subject in Jordan and Syria were produced by ECWA[6/]. A similar study on the Yemen AR will be very useful in this respect.

## D. Production Performance and Food Security

### 1. Horizontal expansion

The potential for horizontal development in Yemen AR needs more investigation. The cultivated area in 1974/75 was 1.515 million ha[7/]. About 84 per cent of this area is rainfed, 8 per cent irrigated by spate water, 5 per cent by perennial water sources and 3 per cent by wells. There are also about two million ha. of marginal land that need water in order to become productive. The availability of water is a major factor constraining horizontal expansion of production. Studies are still going on to determine the potential water capacity of the country.

The efficient use of the available water and the potential for increasing the quantity of water are the key factors for increasing production.

### 2. Vertical expansion

The major factor constraining the future of food position of any country is the production performance of the different crops grown and animals raised. This performance is best judged by the growth rate of yield and its level compared to other regions or to the world average. Table 28 compares the yield of the main crops grown in the Yemen AR with those of other countries.

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6/ - "A Pilot Study on Food Security Planning" ECWA, March 1977.
- "A Study of National and Sub-Regional Food Security Planning", ECWA April 1978.

7/ "Statistical Yearbook", Yemen AR 1975.

Table 28. Average yields of crops in Yemen AR compared with that of the world, the developing countries and the developed countries average, for the period 1971-75.

| Crops | Yields (average 1971-75), Kgs/ha. Yemen AR | World | Developing countries | Developed countries |
|---|---|---|---|---|
| Sorghum | 830 | 1 204 | 800 | 3 147 |
| Maize | 1 680 | 2 757 | 1 321 | 4 671 |
| Barley | 1 202 | 1 851 | 1 079 | 2 683 |
| Wheat | 1 075 | 1 624 | 1 218 | 2 209 |
| Pulses | 1 059 | 669 | 509 | 951 |
| Potatoes | 11 038 | 13 396 | 9 027 | 21 847 |
| Grape | 5 625 | 5 787 | 5 180 | 6 571 |
| Coffee | 696 | 494 | 494 | 995 |
| Seed cotton | 959 | 1 146 | 820 | 1 438 |
| Sesame seed | 518 | 314 | 346 | 630 |

Source: - "Statistical Yearbooks", Yemen AR, 1974-1975
- "Production Yearbooks", Volumes 27, 29, 30 and 31, FAO, Rome

The figures of the above table show that there is much room for vertical development in most of the crops, particularly in cereals. Analysis of the ways of achieving yield improvement is beyond the scope of this study.

## E. Cropping Pattern and Food Security

The cropping pattern should be oriented in a manner that self-sufficiency of the deficit food items will be raised. Among the cereals, wheat production should be given more care.

Production incentives, research and extension are some of the effective needed measures. The detailed decision on an incentive policy and measures for application should be based on field investigation.

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Because of ecological conditions and water scarcity, rice production would not be economically feasible in the country. The only practical thing to do is to discourage its consumption. Taxation can be an effective measure of discouragement. An intelligent import policy is to limit the import of this commodity to the minimum.

Sugar is another important commodity that is not produced locally and is very difficult to discourage its consumption. The possibility of introducing sugarbeet on an economic basis is questionable.

The other food commodities that need promotion are fruits and vegetable oils.

Fruit production can be increased by a well studied integrated programme of gradually replacing qat by orchards. The realization of this objective requires a revolutionary attitude towards deep social and consumption habits. Economic and agricultural research are needed for the discovery of the right replacement for qat with minimum impact on the economic conditions of qat growers and with a minimum cost to the government. The policy of subsidizing the substituted crop should not be of a continuing nature. The replacement of "Hashish" by sunflower in Lebanon provides a good example in this respect[8/].

The vegetable oils which show deficit at present can be produced locally in sufficient quantities. Sesame is the main oil seed produced at present. Research on other oil seeds that yield better than sesame should be carried out. Sesame oil is very expensive. Cotton seed oil from local production and import possibly from the south could provide much cheaper oil.

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8/ "Shashish" Production and its Replacement in Lebanon, T. Stickly and I. Ghandour, AUB, 1972.

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## F. Animal Production and Food Security

The deficit in meat production is the main problem that has to be faced. As shown earlier, the main nutritional weakness is the low consumption of animal protein. In spite of this fact, the animal wealth of the country is declining and there has not been a compensating increase in imports of animal products. The number of animals is decreasing as shown in table 29 of the annex. The annual growth rate for the period 1961-77 is calculated to be -2.447 per cent for cattle, -0.870 per cent for sheep and goats and 5.689 per cent for camels. Efforts should be made to improve and expand livestock production. Details are beyond the scope of this study, but it could be pointed out here that positive signs of potentiality of livestock development are indicated by the surplus of coarse grain production and in the large area of marginal land (2 million ha) that can provide a valuable quantity of natural vegetation. It is most likely that natural grazing would be the main source of feed supplemented by more nutritive feed especially at the finishing stage. Detailed study of the livestock sector is very much needed.

Poultry production has also high potential. The main feed requisite of this industry which is coarse grain and fish meal can be provided from local sources. The healthy climate of low humidity and mild temperature is also present in many parts of the country. Investment in this field, especially on technological and management training, should be encouraged by the government.

Fish production is another high possibility of facing the problem of the low availability of animal protein. This sector of food production is still backward. The potentiality of production is very promising. The needs and the ways of improvement have to be investigated.

The possibility of improving the food position of animal protein from domestic production is high. The potential availability of the needed resources is promising.

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## G. Farm Organization and Food Security

The subsistence type of production is prevailing in the Yemen AR. This type of production provides some kind of food security to the agricultural population. However, its main weakness stems from its inability to provide enough marketable surplus to the ever increasing number of urban population. Urbanization has increased the number of non-food producers who are becoming dependent on domestic agriculture or imports for their consumption. The agricultural sector is not yet prepared for such a rapid change in the population structure and its response to the new situation has been lagging.

The agricultural sector has always been able to feed its population even during the hard times of crop failure. Under the old traditional system, the farmers keep a kind of stock reserve of cereals for their annual consumption taking into consideration the possibility of crop failure in the next season. The cereals are kept in a well-sealed underground store called "Madfan". Grains in the "Madfan" can be kept in good condition for more than one year. The grains are dried from time to time to get rid of any extra humidity.

Many of the agricultural workers get their wages in seeds. The sharing system of tenancy on production base is still prominent. Cash renting of land is very rare. Almost, under all kinds of tenancy relationships, producers secure most of their food from what they actually produce.

The "Zakat" which is a religious tax, is paid in grain by the producers to the government. The government sells or redistributes the collected grains. The storing system of the government is very weak. The grains are subjected to high loss from insects and rodents infestation. This "Zakat" can provide the input for a country stock reserve that can be used as a buffer stock whenever needed. The stocking should be decentralized in order to save in the cost of collection and distribution especially with the present poor transport facilities. Modern healthy stores are needed.

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The land tenure system and other related issue are now the subject of a special study by ECWA. The impact on food security of any suggested change should be taken into consideration.

H. Food Security and Specialization in Production

Food consumers are composed of two major groups. The first one is the food producers that are living mainly on their production and thus they can somewhat satisfy their food need. The second group is the consumers the majority of whom live in urban areas and depend on the market to satisfy their food need. This group is the most vulnerable to food security problems and is directly and immediately affected by any food shortage. Also, the food habits of this group are gradually changing from those of the first one.

The need of the second group has to be satisfied either by import or by encouraging the first group to shift from subsistence production to market type of production. Also, change in their crop pattern towards the demanded crops is required. This change, other than its many sociological and economic effect, is very difficult to guide and to translate into organized actions for the whole group of producers.

The possibility of establishing small effective modern sectors of production near the urban centers should be studied. This type of production has to be specialized in feeding the urban centers, so as to minimize disturbances and pressure on food supplies originating from subsistence sector which is the main source of food for the majority of rural population.

Modern farms run on commercial base should be encouraged near the urban centers. A special extension agency to organize this sector and promote production on modern technology will be needed.

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The main idea is to save as many of the traditional farmers as possible from disturbing their food security position by asking them to send to the market what they were used to produce for their own food. This does not mean that the traditional farmers should not be approached and be introduced to the new farming technology that increases their level of production.

The climatic condition of the Yemen AR varies from warm and humid zones with low rainfall at the sea coast, to temperature or cool dry climate in the hills and the mountains. The sources of irrigation water vary from low and moderate rainfall to flood and perennial sources and wells. All these variations make the ecological conditions of some areas more suitable from the agricultural point of view, to certain crops than to the others. The production policy should be oriented toward the encouragement of area-crop specialization. This crop-zonal classification should be made only after careful field research.

Two crops should be given special attention because of their direct influence on food security. These are wheat and the oil crops. Farmers in areas more suitable for wheat cultivation should be encouraged by all means to concentrate on wheat production. Research on oil crops, in addition to sesame, should be carried in the flood and rainfed area with the aim of discovering a suitable crop that can survive in the coarse grain areas.

The areas with perennial water (wells, perennial sources) should be better left for vegetables and fruits production and some high quality animal feed like alfalfa.

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## I. Production Policy and Implementation Means

A production policy can not be implemented unless the producers are convinced by the outcome of the policy. The farmers even in the remote areas of the country are in a way rational and respond positively to any change aiming at improving their economic conditions. What they need is the right approach to convince them. Their confidence is not easy to obtain, but once obtained the response can be very high.

Incentives to the farmers like price support of output, price subsidy of inputs, taxation policy, etc. are well known. Which one to follow is not easy to decide. This depends on the economic position of the government and its administrative level. The size of the incentives is also a very critical issue. Too much help, other than its high burden on the government, might also cause a feeling of negligence and laziness among the producers.

The most effective incentives in the long run are those connected directly to the farming practices, like assistance in providing the improved seeds, some of the fertilizers i.e. assistance that affects the yield. Other measures that assist in organizing the marketing of the production can be effective in the success of the production policy.

The decision on the kind and size of incentives should be the result of agro-economic research on the spot. The adoption of methods used in other countries without being sure of its suitability to the Yemeni condition might result in negative results.

Crop insurance is a very effective measure that should be considered especially for the crops that are subject to high fluctuation in production like wheat, or for the introduction of new crops or new varieties.

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# III. IMPORT POLICY

The main ain of food import policy is to make food commodities available to the consumers on a continuous basis and at a reasonable price. The import policy has to find its roots in the consumption and production policies. Its effect on the success or failure of the implementation of other policies does not need to be emphasized. Production promotion and orientation and consumption level and pattern are almost directly connected with the import policy.

## A. Present Trends of Import and Export

### 1. Size of import

Knowing the current import and export trends and directions is a prerequisite for the formulation of a sound import-export policy.

The size of food import is growing very rapidly. This is caused mainly by the rapid urbanization and change in food consumption habits.

The growth rate of the value of food import (44.15) is much higher than that of food export (-4.03). The value of food export is much less than that of the food import. Table 29 below clarifies these relationships.

Table 29. Value and growth rate of food import and export for the period 1971/72 - 1976/77.

'000 Rials

| Year | Import value | | Export value | |
|---|---|---|---|---|
| | Food & live animals | Total import | Food & live animals | Total export |
| 1972/73 | 176 337 | 410 666 | 8 119 | 25 269 |
| 1973/74 | 364 377 | 744 980 | 9 402 | 55 382 |
| 1974/75 | 418 631 | 981 004 | 7 512 | 52 966 |
| 1975/76 | 741 559 | 1 706 894 | 10 706 | 50 063 |
| 1976/77 | 768 352 | 3 035 329 | 6 195 | 50 534 |
| Grwoth rate | 44.151 | 62.087 | -4.027 | 13.714 |

Source: Calculated from "Financial Statistical Bulletin", Central Bank of Yemen, April-June, 1977.

## 2. Origin of import

The intraregional trade is weak. The developed countries are the main source of Yemen AR import. Table 30 below shows this fact.

Table 30. Value of import to the Yemen AR by origins

'000 Rials

| Origin Year | Arab countries | % | Economic Europ. Community | % | COMECON | % | Other countries | % | Total |
|---|---|---|---|---|---|---|---|---|---|
| 74/75 | 149 986 | 15.3 | 222 191 | 22.7 | 63 142 | 6.4 | 545 685 | 55.6 | 981 004 |
| 75/76 | 238 548 | 14.0 | 406 438 | 24.0 | 47 917 | 2.8 | 1 014 291 | 59.4 | 1 706 894 |
| 76/77 | 576 209 | 19.0 | 737 593 | 24.3 | 88 356 | 2.9 | 1 633 171 | 53.8 | 3 035 329 |

Source: "Financial Statistical Bulletin", Ibid.

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The picture does not change much when looking at the food and live animals import. The share of the Yemen AR from the region is also small. Table 31 shows this relationship.

Table 31. Value and origins of import of food and animals to the Yemen AR by regions.

| | 1971 | | 1972 | | 1975 | | 1976 | |
|---|---|---|---|---|---|---|---|---|
| | '000 Rials | % | '000 Rials | % | '000 Rials | % | '000 Rials | % |
| Arab countries | 19.8 | 21.8 | 33.0 | 18.7 | 44.8 | 7.8 | 72.5 | 10.3 |
| EEC | 18.0 | 19.8 | 47.5 | 26.8 | 102.1 | 17.7 | 143.1 | 20.3 |
| COMECON | 7.1 | 7.8 | 11.6 | 6.5 | 17.0 | 2.9 | 12.3 | 1.7 |
| Other countries | 46.0 | 50.6 | 85.0 | 48.0 | 412.8 | 71.6 | 477.2 | 67.7 |
| Total | 90.9 | 100.0 | 177.1 | 100.0 | 576.7 | 100.0 | 705.1 | 100.0 |

Source: Calculated from "Financial Statistical Bulletin", 1972, 1975, 1976.

## B. Import Mechanism

### 1. Import organizations

The private sector is the dominant importer of food commodities. The government has entered this domain recently through the Public Trading Corporation. This step was taken by the government as a measure to reduce inflationary pressure and to correct the market imperfection. Sugar, rice and edible oils were the main commodities imported by the Public Corporation.

The food import sector, especially that of grain, is suffering from the very low number of importers. Thus competition is weak and a monopolistic environment is prevailing.

## 2. Import customs

Import duties provide a high percentage of government revenues. The import levies include a defense tax of 5 per cent of the c.i.f. value and a statistical tax of 2 per cent.

Several measures were taken in order to reduce the high inflationary pressure. Duties were lowered on essential commodities and the tariff exemption on grain and flour was extended.

The share of customs revenue in the total government revenue is the largest. This share is increasing as time passes. Table 32 shows the development of the customs revenue and the other revenues of the government.

Table 32. Summary of the Yemen AR governmental revenues for the period 1973/74 - 1976/77.

'000 Rials

| Origin Year | Customs Department | % | Taxation Department | % | Finance office | % | Zaket | % | Others | % | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1973/74 | 151 373 | 52.0 | 43 102 | 14.8 | 29 791 | 10.2 | - | - | 66 594 | 22.9 | 290 860 |
| 1974/75 | 220 551 | 46.4 | 52 035 | 10.9 | 35 520 | 7.5 | - | - | 167 653 | 35.2 | 475 759 |
| 1975/76 | 386 013 | 46.6 | 65 632 | 7.9 | 45 946 | 5.5 | 6052 | 0.7 | 324 803 | 39.2 | 828 446 |
| 1976/77 | 912 942 | 63.7 | 133 212 | 9.3 | 59 689 | 4.2 | 20432 | 1.4 | 307 847 | 21.5 | 1 434 122 |

Source: "Financial Statistical Bulletin, Ibid.

## 3. Import inlets

The principal import inlet is the Hodeida seaport which is connected to Sanaa, Taiz, and the other main cities by an asphalted road. The capacity of this seaport is below the need. Port congestion is resulting in higher cost of import. The present unloading operations are inefficient and time consuming.

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The other two seaports, Mokha and Salif are of minor importance in their present condition.

The size of import by roads or air is very small. This is mainly due to the bad condition of the roads connecting the Yemen AR with the neighboring countries. The Yemen air fleet is till too weak and is not prepared to play an important role in the import sector.

## C. Weaknesses of the Present Food Import Policy

The main weaknesses of the Yemen AR food import policy from the food security angle can be summarized as follows:

1. Inefficiency of import
2. Almost complete dependence on the private sector
3. Absence of long-term contracts
4. Weak intraregional trade
5. Non-presence of collective actions at the regional and subregional levels
6. Import of commodities from countries that are not the original producers

### 1. Inefficiency of import

The performance of the Yemen AR in the food import needs to be improved. An indicator of the inefficiency in food import is the food import efficiency rank of the Yemen AR compared to the eleven countries of the ECWA region. Table 17 of this study shows that the rank of Yemen AR, taking the unit value of import as indicators, is 11 for wheat, 10 for rice and 8 for sugar.

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2. Dependence on the private sector

It is very dangerous from the food security point of view to depend almost completely on the private sector in food import. The objectives of the private importers are not related to food security. Their primary motive is to profit. They will stick to food import as long as this field of activities is giving them more profit than other activities. Their choice of commodities is also subjected to the profit motive unless corrected by the government.

3. Long-term import contract

The private importers prefer in general the short-term food import contracts because of capital and storage limitation. These short-term contracts take into consideration the immediate need of the market. Security of food import is much stronger in the presence of more than one year contract. Such contracts serve as safety measures in case of any international disturbance in the market. It gives the food import security a factor of stability which is not found in the short-term contracts.

4. Weak intraregional trade

The weak intraregional trade was shown in tables 30 and 31. This weakness reflects a weakness in food security. Intraregional trade is in general more stable and more efficient. Intraregional trade can be quickly promoted in the presence of good physical communication as well as other communications.

The intraregional trade gains special importance in the case of perishable commodities like fruits and vegetables, fish and meat. The intraregional trade has also the advantage of answering the food need in emergency cases in a faster and more efficient way.

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5. Collective regional actions

Collective regional import helps the food security position as it gives higher bargaining power to the importer and binds the exporter more closely.

The importance of such collective import is intensified in the case of vulnerable commodities, particularly wheat, which has an oligopolistic world market.

6. Import of food commodities from the original producing countries

Looking at the origin of import of the food commodities to the Yemen AR one is surprised to find that in 1976 the Yemen AR imported more bovine meat from the USSR than from any other country and the import of sheep and goats meat from the United Kingdom was almost equal to that of Sudan. The United Kingdom was the major exporter of tomatoes. Wheat flour was imported from the Federal Republic of Germany. The range of prices of food import from the different countries is very wide. Although the price is supposed to be cheaper when commodities are imported from the original country, the 1976 value of import figures shown in table 30 of the annex do not reflect that supposition. Many reasons might be behind this fact. An important one is the difference in quality. The question that arises here is whether the usual practice, followed by poor individuals in buying cheaper qualities of food in order to economize, should be applied to the poor countries or not, i.e. whether the import of the poor countries that are in their initial development stage, should be the cheaper food, provided equality in nutrient content. Should the Yemen AR at this present stage consume ordinary rice or the expensive one, the ordinary red meat or the expensive cut meat, the ordinary fruit or first grade ones. Many believe that the governmental policy in countries like Yemen AR should be to discourage the import of the expensive food that can be replaced by cheaper ones having equal nutritional value.

## D. Recommended Import Policy

The problem is not in the lack of recommendations but mainly in the difficulty of applying the recommendations. Action programmes and projects with detailed implementation measures are much more needed than general studies.

The following recommendations need to be translated into laws and projects. Capital and good will are needed.

### 1. The importers

It is very important to break the somewhat monopolistic circle which is surrounding the import sector. The food of the people should not to be encourage competition by promoting an increase in the number of food importers and a decrease in the number of middlemen.

Developing and supporting the co-operative movement in the country is one of the best remedies to the problem. The co-operatives can individually or jointly import the food items and sell them directly to the consumers at reasonable prices. A capable marketing bureau should be established by the co-operative union to monitor the development in the international market and to advise on the best conditions and terms of food import.

In the transitory period in which the co-operative sector is in its infancy, the Ministry of Supply should assist the baby co-operatives by direct import of food on behalf of the co-operatives so that they can compete with the private merchants. This role of the Ministry of Supply should be handed to the co-operatives upon their full maturity.

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Import of wheat should be concentrated in the hands of the Ministry of Supply. A governmental Grain Bureau should be established within the frame of the Ministry of Supply. The sole function of this Bureau would be to import and market the grains to the mills and to be responsible for the establishment and protection of the grain stock reserve. The price of grains and their flour and bread should be fixed by the Grain Bureau.

2. The commodities

The import policy should be in line with the consumption and production policies. External food commodities that can be replaced by domestically produced ones should be discouraged. The advertisement for those food commodities that are causing changes in the food habits towards external commodities should be stopped.

High customs can be the most effective measures for decreasing the consumption of these imported food commodities.

New production sectors like poultry should be protected from the import of cheaper frozen chicken and eggs.

Customs on rice import should be high in order to stop its continuous high growth of consumption. Wheat and maize import in the form of flour should be completely replaced by import in the form of seeds. Construction of enough mills should be given priority.

3. Origin of import

All food items should be imported, if possible, directly from its original production point. This will develop the direct contact between the importers and the producing countries without the need of intermediate agents. This direct contact will help the importers to understand better the conditions of the market from its original source. This mutual understanding will make long-term contracts easier and the trade relationship will be built on a stronger base.

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Diversification of the origin of food import should be encouraged in order to minimize the possibility of using the food import as a political or economical pressure against the interest of the country and in order to avoid supply problems in case of crop failure or foreign trade restrictions in the countries of supply.

Intraregional import should be encouraged as the intraregional trade relations are the most stable in the long run.

4. Communications and transport

The congestion at the Hodaida seaport is causing increase in the cost of import as well as high loss in the quantity and quality of imported food.

Enough siloes at the seaport equipped with pneumatic evacuators will save in the time and the cost of unloading. Bulk transport by trucks to the mills and distribution points should gradually replace the bagging and unbagging method of imported grains.

Good asphalted roads or railways that connect the Yemen AR, with the neighboring countries are very much needed.

## E. Food Aids and Food Security

The Yemen AR is receiving food aid from many origins. It should be kept in mind that this aid is of temporary nature. Other than the exemption from customs, they should be treated as any other imported food commodities. Their prices, if sold, should not be less than its imported equivalent and their sanitary control should be the same The average yearly food aid in cereals for the period 1975-1978 was 21.6 thousand tons (grain equivalent).

Food aid from international agencies should be given preference as they do not involve any direct or indirect objectives that might not be in line with the country's interest. Care should be paid to the fact that food aid is sometimes used by certain importers as a mean for the introduction of new products that affect the consumers' food habits and thus increase the future import bill and dependency on external food products.

The most constructive way of using the food aid is in covering part of the local cost of food production projects by paying part of the workers' wages in food.

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## IV. FOOD MARKETING AND DISTRIBUTION POLICIES

The availability of enough food in the country is the first step towards good food position. The second important step is the ability to distribute this food so that it reaches the majority of the people. The main and most difficult task of any food emergency scheme is usually not the availability of food but how to forward it to the people who need it.

### A. Past and Current Food Marketing and Distribution Policies

Subsistence producers' market is usually very limited. This was the case in the rural area in the Yemen AR. Very few food commodities were dealt with. Even most of the people in the urban centers were getting a large part of their food from their initial home in the rural areas.

It is estimated that 85 per cent of the domestic crop remains on the farms for subsistence, for animal feed, and as seed, and therefore fails to enter the commercial market. Approximately 11 per cent of the average crop moves interregionally. Merchants acquire the grain at the lowest prices they can negotiate at harvest time and subsequently store and distribute stocks at constantly increasing prices during the post-harvest season.

Marketing and distribution governmental policies were almost completely absent before the revolution. The market was a free one with a lot of imperfections as a result of weak communication. The governmental role was concentrated in the juridical side of the market i.e. to solve and settle any legal personnel troubles among the dealers.

The price inflation of 1974 and its high impact on the fixed income group, especially the governmental employees, expedited the government interference in the market. The objective of this new development was to minimize the bad effect of the rise in price on the governmental employees.

This interference in the marketing system has taken the form of direct involvement in the market by forming the Consumers' Co-operative for Governmental Employees. The Co-operative has been involved in direct import of food commodities, especially sugar, rice and vegetable oils. The sale price of these commodities is almost equal to the cost price.

The current governmental food marketing and distribution can be traced in the objectives of the recent Governmental food agencies and institutes. These policies can be summarized in the following points:

1. Ensure the availability of the food commodities.
2. Make sure that the commodities reach the consumers at reasonable prices and good quality.
3. Establish an adequate grain stock reserve kept in modern stores.
4. Make sure of the equal distribution of food aid and that this aid reaches the designated beneficiaries.

The food security aspects in the above governmental policies are very clear. The implementation means of the policies are really the most difficult.

The quinquennial development plan includes some of the implementation means like:

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1. Standardizations of the measures
2. The priority treatment of food commodities at the sea port
3. Encouragement of specialization in the local market
4. Increasing the number of food dealers and putting into action the necessary legislative framework for the food trade at its different levels
5. Establishment of silos, mills and bakeries that answer the present need and respond to the future development
6. Enrichment of the bread with vitamins
7. Strengthening the governmental technical and professional staff that are needed for building and managing the different food institutes and organizations.

## B. Weaknesses in the Current Marketing and Distribution System

The main weak points in the marketing and distribution system that constitute a threat to the food security position of the Yemen AR are the following:

1. Imperfection in the market caused by lack of market information and small number of food dealers. This imperfection is one of the main reasons behind the high price of food commodities. The high price limits the purchasing power of the consumers and might lead to food crisis especially in the rural areas in the case of crop failure. The subsistence producers with a limited low purchasing power will suffer from the high price as well as the urban employees with fixed wages.

It is also important to notice that the increase in the price of food stuffs is more intense in the case of the food commodities most needed to raise the quality of nutritional standard i.e. the commodities providing the animal protein like meat, fish and eggs.

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Table 33 below shows that the increase in food stuffs price was 11.3 per cent between 1975 and 1976 while that of cereals and related products was -7.0 per cent and that of meat, fish and eggs was 32.2 per cent.

Table 33. Index number of retail prices in Sana'a city, 1972 = 100

| | 1975 | 1976 | Per cent increase in price |
|---|---|---|---|
| Food stuffs | 203 | 226 | 11.3 |
| Cereals and related products | 172 | 160 | -7.0 |
| Meat, fish and eggs | 245 | 324 | 32.2 |

Source: "Financial Statistical Bulletin", Central Bank of Yemen, 1977.

This type of price development results in deepening the discrepancies in food standards among the citizens. The share of the poor people from expensive animal protein food will decrease in favour of the share of the rich who can afford to pay its increasing price.

2. The non-presence of grain stock reserve is a very serious weakness. Building such a grain reserve stock is a must in a country like Yemen AR with high crop fluctuation caused by natural uncontrolled phenomena like rain. The impact of a crop failure will be high on the subsistence producers with limited purchasing power.

The size of the stock reserve should not be less than the FAO recommended level of 21 per cent of the annual consumption.

3. A weak unorganized distribution system, depending on private middlemen and small private retail shops, is not a healthy aspect for food security. Organized, well-linked retail shops are more capable of providing food commodities at lower cost and higher availability.

4. The non-presence of good road communication between the coastal villages with high fish production and the other parts of the country is limiting fish consumption.

5. The free marketing of the "Qat" is encouraging its consumption. The "Qat" market is the most prosperous one. Some measures should be considered by the government in order to slow down this growing market.

## C. Recommendations to Strengthen the Food Security Aspects of the Marketing and Distribution Policies

Correction of the weakness mentioned above will help in strengthening the food security aspects. A radical change in marketing and distribution should be in harmony with the consumption and production policies.

### 1. Co-operatives

A policy of equitable distribution of the main commodities can not be applied or accepted under the present economic system. A policy of encouraging the co-operative movement seems to be the most practical and accepted one.

Intensive training in co-operative theory and management should be given to the potential managers. A well-prepared information campaign is needed to explain the objectives of the co-operative movement and its advantages to the mass of the people.

Starting with consumers co-operatives in the main cities should be the first step in spreading the co-operative movement.

Credit facilities should be offered to the new established co-operatives in order to facilitate their businesses.

These co-operatives can also serve as executive means for emergency food assistance schemes whenever needed.

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The establishment of co-operatives should not stop the role of other forms of marketing channels like the retail or wholesale shops. The main role of the co-operatives is to promote competition and create a kind of perfection in the market.

2. Grain stock reserve

Establishing a national grain stock reserve with a capacity equal to 325 thousand tons in the year 2000, i.e. about 21 per cent of the desired required cereals consumption in that year, is a must.

The "Zakat", collected in the form of grain should form the main supply for the suggested stock reserve.

The stock reserve should be kept in modern silos in the different districts. This will save in the cost of transport and distribution.

These stocks can also be used as buffer stock to counteract abnormal increase in the cereals prices caused by monopolistic attitudes of the merchants.

3. Price fixation

The chance of success of a price fixation policy of food commodities is very questionable. Also its contribution to food security might not be positive.

Such a policy puts heavy pressure on the available administrative cadre. Its impact on the production of the inner food products in the short and long run should be the subject of very tidy and careful research.

The quinquennial development plan contains many other good recommendations to improve the market. Those concerned with the transport facilities like port and road improvements should be given priorities. Food security position is built first on sound food production policy and second on good efficient marketing and distribution systems.

ANNEX

Table 1. Food consumption in Yemen PDR in 1972/1973

Kgs/capita/year

| Commodities | Aden | Rural areas |
|---|---|---|
| Wheat (wheat equiv.) | 105.27 | 80.84 |
| Meat (red) | 7.54 | 3.60 |
| Milk (fresh milk equiv.) | 56.64 | 24.33 |
| Fish | 10.83 | 8.38 |
| Eggs (number) | 17.00 | 7.00 |
| Rice | 24.90 | 36.00 |
| Sorghum and millets | 2.70 | 10.33 |
| Sugar | - | - |
| Vegetable oils | - | - |
| Potatoes | 8.76 | 3.42 |
| Tomatoes | 17.40 | 9.00 |
| Onions | 6.13 | 7.85 |
| Cabbage & cauliflower | 1.14 | .58 |
| Pepper | 3.56 | 1.81 |
| Eggplants | 3.97 | 3.83 |
| Bananas | 19.3 | 6.41 |
| Melons | 4.70 | 0 |
| Sesame | 6.21 | 9.85 |
| Papayas | 2.78 | 0 |
| Dates | 2.90 | 9.70 |
| Lime | 1.90 | .83 |
| Tobacco | 1.56 | .95 |

Source: Country-wide Agro- and Socio-economic Study, volume 8 Annex 14 Household survey, Dar Al-Handasah Engineers and Architects - Beirut, Lebanon, July 1974.

Table 2. Per capita food consumption in Yemen AR in 1972/73

Kgs/year

| Commodities | Average 1972/73 |
|---|---|
| Coarse grain | 147.00 |
| Wheat | 24.00 |
| Rice | 1.10 |
| Potatoes | 8.33 |
| Fruits and vegetables | 8.33 |
| Vegetable oils | 8.33 |
| Sugar | 3.00 |
| Dry pulses | 0.75 |
| Milk | 55.00 |
| Fish | 6.66 |
| Meat | 1.00 |
| Eggs (number) | 18.33 |

Source: Estimation of the Central Development Agency, the triennial development programme, 1972/73 - 1975/76, Sana'a.

Table 3. Calories, protein and fat supply in the world, the Yemen AR and the Yemen PDR for the period 1961-63 to 1974.

| | 1961-63 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 | Growth rate |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Calories per capita per day - Number | | | | | | | |
| World | 2 412 | 2 450 | 2 483 | 2 438 | 2 442 | 2 487 | 2 495 | 2 545 | 2 559 | 2 533 | 2 537 | 2 563 | 0.507 |
| Yemen AR | 2 062 | 2 016 | 2 033 | 1 985 | 1 970 | 1 908 | 1 842 | 1 720 | 1 948 | 1 992 | 2 015 | 1 974 | -0.409 |
| Yemen PDR | 1 968 | 2 152 | 2 124 | 2 236 | 2 207 | 2 283 | 2 227 | 2 245 | 2 118 | 2 028 | 2 045 | 2 028 | -0.171 |
| | | | | | | Protein per caput per day - Grams | | | | | | | |
| World | 65.3 | 66.1 | 66.8 | 65.9 | 66.1 | 67.4 | 67.2 | 68.6 | 68.7 | 68.2 | 67.0 | 68.7 | 0.387 |
| Yemen AR | 64.9 | 64.0 | 63.1 | 61.1 | 60.7 | 58.0 | 55.4 | 52.0 | 59.7 | 60.4 | 60.7 | 59.4 | -0.810 |
| Yemen PDR | 49.1 | 53.0 | 53.7 | 56.5 | 54.3 | 56.0 | 55.4 | 54.3 | 54.5 | 50.7 | 52.7 | 51.9 | 0.043 |
| | | | | | | Fat per caput per day - Grams | | | | | | | |
| World | 56.5 | 57.3 | 57.9 | 57.9 | 58.5 | 59.4 | 59.5 | 60.6 | 61.1 | 60.9 | 60.8 | 61.3 | 0.731 |
| Yemen AR | 33.1 | 32.4 | 31.9 | 30.1 | 30.4 | 29.0 | 26.5 | 25.5 | 28.6 | 29.1 | 30.6 | 30.0 | -1.068 |
| Yemen PDR | 47.9 | 47.0 | 47.1 | 47.7 | 46.6 | 47.5 | 46.2 | 45.9 | 43.9 | 42.7 | 41.1 | 42.3 | -1.236 |

Source: "Provisional Food Balance Sheets", FAO, Rome, 1977.

Table 4. Rate of growth of the per capita consumption of the main food commodities for the period 1961/65 - 1976 in Yemen AR and Yemen PDR

| Commodities | Growth rate | |
|---|---|---|
| | Yemen AR | Yemen PDR |
| Vegetable products | 1.239 | - 0.84 |
| Animal products | - 1.781 | - 1.70 |
| Cereals | - 0.439 | 0.88 |
| Roots and tubers | 4.51 | - 19.62 |
| Pulses | 3.24 | - 11.99 |
| Vegetables and melons | 7.03 | 1.40 |
| Fruits (including melons) | 5.51 | - 0.67 |
| Stimulants | 12.639 | 2.93 |
| Spices | | 5.86 |
| Meat and offals | - 2.052 | - 2.71 |
| Eggs | 0.0 | - 4.79 |
| Oils and fats | 7.025 | - 1.169 |
| Sugar syrups honey | 2.133 | - 7.719 |
| Milk and milk products (including butter) | - 2.152 | - 3.941 |
| Fish food | 8.716 | 2.69 |

Source: Calculated from ICS printout data, Food supply analysis, 07/06/79.

Table 5. Approximate value of per capita food consumption* in Yemen PDR (average year 1975-77) according to 1977** retail price

| Commodity | Quantity kgs/year | Retail price Fils/kg | Value YD |
|---|---|---|---|
| Wheat | 60.2 | 104 | 6.3 |
| Rice | 19.7 | 198 | 3.9 |
| Coarse grains | 56.0 | 80 | 4.5 |
| Sugar | 13.9 | 220 | 2.9 |
| Roots and tubers | 0.5 | 150 | 0.1 |
| Pulses | 1.0 | 100 | 0.1 |
| Vegetables | 32.8 | 86 | 2.8 |
| Fruits | 71.7 | 39 | 2.8 |
| Meats | 10.3 | 1 325 | 13.6 |
| Fish | 22.1 | 150 | 3.3 |
| Milk (Milk equivalent) | 49.5 | 100 | 5.0 |
| Eggs | 0.8 | 578 | 0.5 |
| Vegetable oils | 3.0 | 374 | 1.1 |
| Animal fats | 4.5 | 450 | 2.0 |
| Total | | | 48.9 (US$ 142) |

* Except for stimulants, spices and beverages.

** 1976 retail prices for sorghum, fish and fresh vegetables.

*** 1 US$ = 344 Fils.

Source: - FAO ICS printout, unpublished, Rome 1979.
- National sources, unpublished.

Table 6. Approximate value of per capita food consumption* in Yemen AR (average year 1975-77) according to 1976 retail price

| Commodity | Quantity kgs/year | Retail price Fils/kg | Value Rials | |
|---|---|---|---|---|
| Wheat | 54.0 | 165 | 89.1 | |
| Rice | 1.1 | 342 | 3.8 | |
| Coarse grains | 137.9 | 113 | 155.8 | |
| Sugar | 11.2 | 275 | 30.8 | |
| Roots and tubers | 11.2 | 196 | 22.0 | |
| Pulses | 12.1 | 401 | 48.5 | |
| Vegetables | 30.1 | 304 | 91.5 | |
| Fruits | 26.3 | 250 | 65.8 | |
| Meat and offals | 14.8 | 1 644 | 243.3 | |
| Fish | 3.0 | 200 | 6.0 | |
| Milk (Milk equivalent) | 62.5 | 141 | 88.1 | |
| Eggs | 0.5 | 1 620 | 8.1 | |
| Vegetable oils | 2.1 | 467 | 9.8 | |
| Animal fats | 0.5 | 400 | 2.0 | |
| Total | | | 865 | (US$ 190) |

* Except for stimulants, spices and beverages.

** Retail prices for rice, pulses, fresh fruits and vegetable oils and animal fat are assumed to be equal to import price plus 50 per cent.

*** 1 US$ = 4.563 Rials.

Source: - FAO ICS printout, unpublished, Rome 1979.
- Statistical Yearbook 1975/76, Yemen AR.
- Trade Yearbook, FAO, 1976.

Table 7. Structure of Yemen AR population* (February 1975 cencus)

| Age groups | Percentage Male | Percentage Female |
|---|---|---|
| 0 - 4 | 17.96 | 16.24 |
| 5 - 9 | 19.38 | 16.40 |
| 10 - 14 | 13.27 | 10.61 |
| 15 - 19 | 7.34 | 8.41 |
| 20 - 80$^{+}$ | 42.05 | 48.34 |

* Total population: - Male 2,566
- Female 2,471

Source: Population Growth, Annex I, Joint ECWA/FAO Agriculture Division, Beirut, 1978.

Table 8. Recommended intake of nutrients

| Age | Body weight Kilograms | Energy [1] Kilocalories | Energy [1] Megajoules | Protein [1] [2] Grams |
|---|---|---|---|---|
| Children | | | | |
| 1 | 7.3 | 820 | 3.4 | 14 |
| 1 - 3 | 13.4 | 1 360 | 5.7 | 16 |
| 4 - 6 | 20.2 | 1 830 | 7.6 | 20 |
| 7 - 9 | 28.1 | 2 190 | 9.2 | 25 |
| Male adolescents | | | | |
| 10 - 12 | 36.9 | 2 600 | 10.9 | 30 |
| 13 - 15 | 51.3 | 2 900 | 12.1 | 37 |
| 16 - 19 | 62.9 | 3 070 | 12.8 | 38 |
| Female adolescents | | | | |
| 10 - 12 | 38.0 | 2 350 | 9.8 | 29 |
| 13 - 15 | 49.9 | 2 490 | 10.4 | 31 |
| 16 - 19 | 54.4 | 2 310 | 9.7 | 30 |
| Adult man (moderately active) | 65.0 | 3 000 | 12.6 | 37 |
| Adult woman (moderately active) | 55.0 | 2 200 | 9.2 | 29 |
| Pregnancy (later half) | | + 350 | +1.5 | 38 |
| Lactation (first 6 months) | | + 550 | +2.3 | 46 |

Source: Nutrient Newsletter, Vol. 12, No. 3-4, July-December 1974.

1/ Energy and Protein Requirements. Report of a Joint FAO/WHO Expert Group, FAO, Rome, 1972.

2/ As egg or milk protein.

Table 9. Recommended average per capita intake of energy and protein 1/ in Yemen AR

| Energy Calories/day | Protein * Grams/day |
|---|---|
| 2 233 | 28 |

* The recommended total protein is 72.2 grs according to Mr. M. Jlailati, "Food and Population in the Syrian Arab Republic", publication of the Conference on Food Problems in the Arab World, Kuwait, 1978.

Source: Calculated using the "Recommended Intakes of Nutrients", Ibid.

1/ As egg or milk protein.

Note: The procedure followed in calculating the average per capita intakes was to calculate separately the energy and protein intakes recommended for each group of age and sex, to add them and then to divide the sum by the total population.

Table 10. Structure of Yemen PDR population in 1975

| Age and sex groups | Number '000 | Percentage of total |
|---|---|---|
| Total population | 1 660 | 100.0 |
| Male | 840 | 50.6 |
| Female | 821 | 49.4 |
| 0 - 4 years | | 18.4 |
| 5 - 14 | | 26.2 |
| 15 - 19 | | 10.2 |
| 20 - 65+ | | 45.1 |

Source: "Agriculture Sector Study", Yemen PDR, Annex 1, ECWA, 1978.

Table 11. Recommended average per capita intake of energy and protein 1/ in Yemen PDR

| Energy Calories/day | Protein* Grams/day |
|---|---|
| 2 253 | 29 |

* The recommended total protein is 72.2 grs according to Mr. M. Jlailati, Ibid.

Source: Calculated using the "Recommended Intakes of Nutrients", Ibid.

Note: The procedure followed is the same of that of Table 9.

Table 12. Food requirement projection in Yemen AR

(Thousands of tons per year)

| | 1975 | 1980 | 1985 | 1990 | 1995 | 2000 |
|---|---|---|---|---|---|---|
| Population | 5 037 | 5 614 | 6 258 | 7 032 | 7 955 | 9 100 |
| Cereals | 866 | 965 | 1 076 | 1 209 | 1 468 | 1 564 |
| Red meat | 123 | 137 | 153 | 172 | 195 | 223 |
| Milk | 232 | 258 | 288 | 323 | 366 | 419 |
| Fish | 111 | 124 | 138 | 155 | 175 | 200 |
| Eggs | 20 | 23 | 25 | 28 | 32 | 37 |
| Vegetables | 290 | 324 | 361 | 406 | 459 | 525 |
| Fruits | 324 | 361 | 402 | 452 | 511 | 585 |
| Pulses | 18 | 20 | 23 | 26 | 29 | 33 |
| Vegetable oils | 50 | 56 | 63 | 70 | 80 | 91 |
| Sugar | 74 | 82 | 91 | 103 | 116 | 133 |
| Roots and tubers | 18 | 20 | 23 | 26 | 29 | 33 |

Source: Calculated from table 7 of the text.

Table 13. Food requirement projection in Yemen PDR

(Thousands of tons per year)

| | 1975 | 1980 | 1985 | 1990 | 1995 | 2000 |
|---|---|---|---|---|---|---|
| Population | 1 600 | 1 933 | 2 258 | 2 642 | 3 087 | 3 585 |
| Cereals | 275 | 332 | 388 | 454 | 530 | 616 |
| Red meat | 39 | 47 | 55 | 64 | 75 | 87 |
| Milk (fresh milk equivalent) | 74 | 89 | 104 | 122 | 142 | 165 |
| Fish | 35 | 43 | 59 | 58 | 68 | 79 |
| Eggs | 6 | 7 | 8 | 10 | 12 | 13 |
| Vegetables | 92 | 111 | 130 | 152 | 178 | 206 |
| Fruits | 103 | 124 | 145 | 170 | 199 | 231 |
| Pulses | 6 | 7 | 8 | 10 | 12 | 13 |
| Vegetable oils | 16 | 19 | 23 | 26 | 31 | 36 |
| Sugar | 23 | 28 | 32 | 38 | 44 | 52 |
| Roots and tubers | 6 | 7 | 8 | 10 | 12 | 13 |

Source: Calculated from Table 7 of the text.

Table 14. Level and annual growth rate of production of the main food commodities in Yemen PDR for the period 1961-76

('000 MT)

| Commodities | 1961-65 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | Annual growth rate |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Maize | 4 | 4 | 3 | 3 | 3 | 5 | 8 | 10 | 11 | 12 | 13 | 14 | 16.947 |
| Wheat | 15 | 20 | 21 | 15 | 10 | 13 | 13 | 15 | 17 | 21 | 12 | 12 | - 1.805 |
| Sorghum | 48 | 55 | 55 | 60 | 81 | 58 | 70 | 59 | 56 | 60 | 61 | 65 | 1.326 |
| Barley | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 2 | 3 | 2 | 2 | - 4.418 |
| Sesame seed | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 5.014 |
| Cotton seed | 11 | 7 | 9 | 4 | 9 | 9 | 11 | 8 | 11 | 11 | 11 | 11 | 3.695 |
| Coffee green | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 0.172 |
| Vegetables | 28 | 33 | 35 | 36 | 38 | 38 | 40 | 31 | 46 | 49 | 51 | 52 | 4.924 |
| Dates | 37 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 42 | 42 | - 4.162 |
| Chicken meat | 1.0 | 1.1 | 1.2 | 1.1 | 1.2 | 1.2 | 1.2 | 1.3 | 1.3 | 1.3 | 1.3 | 1.4 | 2.429 |
| Milk | 41 | 42 | 42 | 43 | 43 | 43 | 43 | 43 | 43 | 43 | 44 | 44 | 0.476 |
| Red meat | 8 | 7 | 8 | 8 | 8 | 8 | 9 | 9 | 10 | 12 | 12 | 12 | 4.920 |
| Fish | 53 | 50 | 40 | 46 | 53 | 115 | 118 | 123 | 136 | 138 | 133 | 135 | 13.306 |

Source: Calculated from FAO ICS Printout, 1977.

Table 15. Level and annual growth rate of production of the main food commodities in Yemen AR for the period 1961-76

('000 MT)

| Commodities | 1961-65 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | Annual growth rate |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Maize | 9 | 10 | 10 | 11 | 10 | 9 | 32 | 80 | 80 | 84 | 107 | 104 | 25.087 |
| Wheat | 21 | 23 | 25 | 27 | 30 | 35 | 30 | 50 | 50 | 71 | 78 | 90 | 0.044 |
| Sorghum & millet | 933 | 935 | 1 000 | 950 | 970 | 680 | 984 | 1 020 | 900 | 720 | 1 570 | 1 608 | 3.195 |
| Barley | 141 | 142 | 145 | 147 | 145 | 160 | 154 | 178 | 164 | 230 | 220 | 235 | 4.984 |
| Pulses | 38 | 42 | 42 | 40 | 40 | 50 | 60 | 60 | 56 | 64 | 84 | 91 | 7.948 |
| Sesame seed | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 6 | 2.287 |
| Cotton seed | 4 | 1 | 0 | 3 | 2 | 1 | 7 | 10 | 12 | 13 | 17 | 17 | 26.784 |
| Coffee green | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 7 | 7 | 7 | 6 | 5.173 |
| Vegetable fresh | 73 | 80 | 70 | 65 | 60 | 50 | 100 | 137 | 150 | 150 | 168 | 193 | 11.082 |
| Dates | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 65 | 60 | 65 | 70 | 0.989 |
| Chicken meat | 1.2 | 1.3 | 1.3 | 1.3 | 1.3 | 1.4 | 1.4 | 1.4 | 1.5 | 1.5 | 1.5 | 1.5 | 2.096 |
| Red meat | 62 | 58 | 60 | 58 | 49 | 51 | 58 | 56 | 60 | 63 | 64 | 64 | 0.798 |
| Milk | 238 | 225 | 241 | 220 | 184 | 185 | 216 | 227 | 179 | 235 | 239 | 241 | 0.090 |
| Fish | 7 | 7 | 7 | 7 | 7 | 7.6 | 8.4 | 9.3 | 10.0 | 11.5 | 11.5 | 11.5 | 5.805 |

Source: FAO ICS Printout, 1977, Ibid.

Table 16. Growth rate of the quantity of net import of the main food commodities in Yemen PDR for the period 1970-76

| | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | Growth rate |
|---|---|---|---|---|---|---|---|---|
| Cereals (total) | 202680 | 87820 | 95490 | 126020 | 148460 | 85570 | 116360 | - 4.452 |
| Wheat and flour, wheat equivalent | 134866 | 59683 | 65690 | 90762 | 99871 | 52581 | 76771 | - 5.300 |
| Rice | 37163 | 19426 | 17714 | 26934 | 33772 | 32995 | 33986 | 5.264 |
| Sugar (total), raw equivalent | 37544 | 28545 | 29373 | 28857 | 28165 | 25734 | 19494 | - 7.607 |
| Pulses | 3099 | 2883 | 2856 | 2822 | 2525 | 2700 | 1265 | - 9.975 |
| Red meat (000 tons) | 6 | 6 | 5 | 4 | 3 | 3 | 4 | -10.523 |
| Milk (fresh milk equivalent) (000 MT) | 234 | 124 | 120 | 127 | 26 | 26 | 45 | -29.025 |
| Chicken meat | 212 | 189 | 156 | 119 | 118 | 69 | 100 | -14.994 |
| Hen eggs | 29 | 73 | 171 | 170 | 151 | 58 | 150 | 16.789 |
| Vegetable oils | 465 | 200 | 612 | 736 | 2902 | 758 | 870 | 24.343 |
| Fish | -4200 | -6600 | 15500 | -12700 | -16000 | -6100 | -7800 | -13.276 |

Source: Calculated from FAO ICS printout, unpublished, Rome 1977.

Table 17. Growth rate of the quantity of net import of the main food commodities in Yemen Arab Republic for the period 1970-1976

(In metric tons)

| | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | Growth rate |
|---|---|---|---|---|---|---|---|---|
| Cereals (total) | 108870 | 110260 | 165720 | 198350 | 157760 | 209700 | 344340 | 18.238 |
| | 103868 | 105259 | 155426 | 176584 | 124123 | 197164 | 338340 | 17.742 |
| Rice | 5000 | 5000 | 8828 | 2145 | 4424 | 6278 | 6000 | 1.118 |
| Sugar | 54567 | 52972 | 41458 | 65673 | 57946 | 55387 | 114135 | 12.021 |
| Red meat (000 MT) | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 0 |
| Milk (fresh equivalent) (000 MT) | 28 | 10 | 12 | 19 | 19 | 44 | 54 | 29.240 |
| Chicken meat | - | - | - 4 | 42 | 27 | 74 | 1200 | 231.148 |
| Hen eggs | - | - | - | 13 | 132 | 85 | - | 155.704 |
| Vegetable oils | 132 | 335 | - | - | - | - | - | - |
| Fish | - | - 400 | - 100 | - 300 | - 300 | - 300 | - 300 | 0.048 |

Source: Calculated from FAO ICS printout, unpublished, Rome 1977.

Table 18. Growth rate of self-sufficiency ratio of the main food commodities in Yemen Arab Republic for the period 1970-76

| Commodities | Self-sufficiency ratio | | | | | | | Growth rate 1970-76 |
|---|---|---|---|---|---|---|---|---|
| | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | |
| Cereals (total) | 0.89 | 0.92 | 0.88 | 0.85 | 0.86 | 0.85 | 0.76 | - 2.319 |
| Wheat equivalent | 0.20 | 0.24 | 0.14 | 0.22 | 0.36 | 0.22 | 0.13 | - 1.846 |
| Rice | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 |
| Sugar | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 |
| Pulses | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 0.99 | 1.00 | - 0.107 |
| Red meat | 0.96 | 0.98 | 0.96 | 0.98 | 0.97 | 0.98 | 0.97 | 0 148 |
| Milk (fresh equivalent) | 0.91 | 0.97 | 0.97 | 0.95 | 0.95 | 0.85 | 0.82 | - 2.110 |
| Chicken meat | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.67 | - 4.200 |
| Hen eggs | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0 |
| Vegetable oils | 0.90 | 0.85 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0 |
| Fish | 1.00 | 1.05 | 1.01 | 1.03 | 1.03 | 1.03 | 1.03 | 0.249 |

Source: Calculated from FAO ICS printout, unpublished, Rome 1977.

Table 19. Growth rate of self-sufficiency ratio of the main food commodities in Yemen PDR for the period 1970-76

| Commodities | Self-sufficiency ratio | | | | | | | Growth rate 1970-76 |
|---|---|---|---|---|---|---|---|---|
| | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | |
| Cereals (total) 1/ | 0. | 0.52 | 0.52 | 0.45 | 0.42 | 0.57 | 0.47 | - 0.850 |
| Wheat equivalent 1/ | 0.0 | 0.18 | 0.10 | 0.16 | 0.15 | 0.28 | 0.24 | 13.599 |
| Rice | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 |
| Sugar | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 |
| Pulses | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 |
| Red meat | 0.54 | 0.54 | 0.62 | 0.75 | 0.77 | 0.77 | 0.71 | 6.439 |
| Milk (fresh equivalent) 1/ | 0. | 0.31 | 0.31 | 0.30 | 0.68 | 0.63 | 0.49 | 16.133 |
| Chicken meat | 0.85 | 0.87 | 0.89 | 0.92 | 0.92 | 0.95 | 0.93 | 1.723 |
| Hen eggs | 0.98 | 0.99 | 0.93 | 0.89 | 0.90 | 0.96 | 0.91 | - 0.452 |
| Vegetable oils | 0.63 | 0.81 | 0.81 | 0.69 | 0.26 | 0.58 | 0.55 | - 7.595 |
| Fish | 1.04 | 1.06 | 1.15 | 1.11 | 1.13 | 1.05 | 1.06 | - 0.073 |

Source: Calculated from FAO ICS printout, unpublished, Rome 1977.

1/ Growth rate for the period 1971-1976.

Table 20. Daily per capita supply in Yemen PDR in terms of calories protein and fat (Year average 1975-77)

| Commodity | Calories (Number) | Proteins (grs.) | Fats (grs) |
|---|---|---|---|
| Wheat (wheat equivalent) | 505 | 14.8 | 2.0 |
| Rice (milled) | 197 | 3.4 | 0.4 |
| Coarse grains | 457 | 13.2 | 4.9 |
| Sugar | 143 | - | - |
| Roots | 1 | - | - |
| Pulses | 10 | 0.6 | 0.1 |
| Vegetables | 20 | 1.3 | 0.2 |
| Fruits | 178 | 1.8 | 0.5 |
| Meat and offals | 56 | 3.7 | 4.5 |
| Fish | 58 | 9.1 | 2.1 |
| Eggs | 3 | 0.3 | 0.2 |
| Milk (milk equivalent) | 70 | 4.2 | 3.9 |
| Vegetable oils | 73 | - | 8.2 |
| Animal fats | 90 | 0.1 | 10.1 |
| Others | 36 | 1.5 | 1.6 |
| Total | 1 897 | 54.0 | 38.7 |

Source: ICS Printout, unpublished, FAO, Rome, 1979.

Table 21. Amount and value of recommended per capita food intake for Yemen PDR

| Commodity | Per capita consumption kgs/year | Price[1/] Fils/kg | Value YD |
|---|---|---|---|
| Cereals | | | |
| Wheat | 81 | 104 | 8.4 |
| Sorghum and millet | 65 | 80 | 5.2 |
| Rice | 26 | 198 | 5.1 |
| Meat | 24 | 1 325 | 31.8 |
| Milk | 46 | 100 | 4.6 |
| Fish | 22 | 150 | 3.3 |
| Eggs | 4 | 578 | 2.3 |
| Vegetables | 58 | 86 | 5.0 |
| Fruits | 64 | 39 | 2.5 |
| Pulses | 4 | 100 | 0.4 |
| Vegetable oils | 10 | 374 | 3.7 |
| Sugar | 15 | 220 | 3.3 |
| Roots and tubers | 4 | 150 | 0.6 |
| Total | | | 76.2 (US$ 222)* |

Source: Calculated from Tables 2 and 9 of Part I of this study and Food Commodities Price List, 1977 (unpublished).

1/ According to 1977 retail prices.

* 1 US$ = 344 Fils

Table 22. Planned cropped area in Yemen PDR, according to the Quinquennial Plan (1975-79)

000 acres

| Crops | 1 74/75 | 2 75/76 | 3 76/77 | 4 77/78 | 5 78/79 | Growth rate |
|---|---|---|---|---|---|---|
| Cereals, total | 146 | 152 | 159 | 167 | 175 | G= 4.670 |
| Wheat | 28.8 | 31.6 | 35.4 | 40.2 | 45.0 | G=11.999 |
| Sorghum & Millet | 112.0 | 115.0 | 118.0 | 121.0 | 124.0 | G= 2.576 |
| Barley | 3.2 | 3.4 | 3.6 | 3.8 | 1.0 | G= 5.733 |
| Other cereals | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Cash crops Total | 33.5 | 34.5 | 40.5 | 45.6 | 51.7 | G= 12.151 |
| Cotton | 32.0 | 35.0 | 39.0 | 44.0 | 50.0 | G= 11.867 |
| Tobacco | 1.5 | 1.5 | 1.5 | 1.6 | 1.7 | G= 3.198 |
| Potatoes | .5 | .5 | .5 | .6 | .7 | G= 8.929 |
| Vegetables, total | 9.5 | 10.3 | 11.3 | 12.5 | 14.0 | G= 10.176 |
| Gourds, total | 2.2 | 2.5 | 3.0 | 3.7 | 4.5 | G= 20.000 |
| Feed, total | 18.3 | 19.4 | 20.1 | 21.5 | 23.0 | G= 5.759 |
| Sorghum | 14.2 | 13.7 | 13.1 | 12.6 | 12.5 | G= 3.330 |
| Alfalfa | 4.0 | 5.5 | 6.5 | 7.4 | 8.0 | G= 18.329 |
| Other feed | 0.1 | 0.2 | 0.5 | 1.5 | 2.5 | G=132.859 |
| Sesames | 10.2 | 10.2 | 10.3 | 10.4 | 10.5 | G= 0.776 |
| Fruit trees Total | 13.8 | 13.8 | 13.9 | 14.1 | 14.3 | G= 0.931 |
| Coffee | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | |
| Bananas | 1.6 | 1.6 | 1.6 | 1.7 | 1.8 | G= 3.006 |
| Papaya | 0.7 | 0.7 | 0.8 | 0.9 | 1.6 | G= 10.127 |
| Dates | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | |
| Other crops | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | |
| Total | 294.0 | 253.2 | 268.6 | 285.1 | 303.7 | G= 5.732 |

Source: quinquennial plan, table 5, Aden 1975

Table 23. Growth rate of production needed to keep the 1975 self-sufficiency ratio for the main food commodities for the period 1975-2000 in Yemen PDR

| Food commodity | 1975 Production | 1975 Desired food consumption 000 tons | 1975 Self-sufficiency ratio | Estimated production at 1975 self-sufficiency 1980 | 1985 | 1990 | 1995 | 2000 | Required rate of growth 1975-80 | 1980-85 | 1985-90 | 1990-95 | 1995-2000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cereals | 100 | 275 | 0.36 | 119.52 | 139.68 | 163.44 | 190.8 | 221.76 | 3.6 | 3.2 | 3.2 | 3.1 | 3.1 |
| Red meat | 17 | 39 | 0.43 | 20.21 | 23.65 | 27.52 | 32.25 | 37.41 | 3.5 | 3.2 | 3.1 | 3.2 | 3.1 |
| Milk | 139 | 74 | 1.88 | 167.3 | 195.52 | 229.36 | 266.96 | 310.70 | 3.8 | 3.2 | 3.2 | 3.1 | 3.0 |
| Fish | 146 | 35 | 3.17 | 179.31 | 208.70 | 241.86 | 283.56 | 325.43 | 4.2 | 3.1 | 3.0 | 3.2 | 3.0 |
| Eggs | 1.4 | 6 | 0.23 | 1.61 | 1.84 | 2.3 | 2.75 | 2.99 | 2.9 | 2.7 | 4.6 | 3.6 | 1.7 |
| Vegetables | 57 | 92 | 0.61 | 67.7 | 79.30 | 92.72 | 108.58 | 125.66 | 3.5 | 3.2 | 3.1 | 3.2 | 3.0 |
| Fruits | 63 | 103 | 0.61 | 75.64 | 88.45 | 103.70 | 121.39 | 140.92 | 3.8 | 3.1 | 3.2 | 3.2 | 3.1 |
| Pulses | 3 | 6 | 0.6 | 3.5 | 4.00 | 5.0 | 6.0 | 6.5 | 3.1 | 2.7 | 4.6 | 3.8 | 1.6 |
| Vegetable oils | 6 | 16 | 0.37 | 7.03 | 8.51 | 9.62 | 11.47 | 13.3 | 3.2 | 2.9 | 3.5 | 3.6 | 3.0 |

Source: Calculated from Table 5 of the "Quinquennial Development Plan" and Table 13 of the annex.

Table 24. Daily per capita supply in Yemen AR in terms of calories, protein and fat (Year average 1975-77)

| Commodity | Calories (Number) | Proteins (grs) | Fats (grs) |
|---|---|---|---|
| Wheat (wheat equivalent) | 453 | 13.3 | 1.8 |
| Rice (milled) | 11 | 0.2 | - |
| Coarse grains | 1 121 | 32.1 | 11.6 |
| Sugar | 110 | - | - |
| Roots | 22 | 0.5 | - |
| Pulses | 112 | 7.3 | 0.7 |
| Vegetables | 18 | 1.2 | 0.2 |
| Fruits | 90 | 0.8 | 0.3 |
| Meat and offals | 82 | 5.6 | 6.4 |
| Fish | 9 | 1.3 | 0.4 |
| Eggs | 2 | 0.1 | 0.1 |
| Milk (milk equivalent) | 86 | 4.7 | 5.6 |
| Vegetable oils | 43 | - | 4.8 |
| Animal fats | 11 | - | 1.2 |
| Others | 9 | 0.6 | 0.6 |
| Total | 2 179 | 67.7 | 33.7 |

Source: ICS Printout, unpublished, FAO, Rome, 1979.

Table 25. Production of some crops in Democratic Yemen in the year 2000*

(125000 ha, yield of developed countries of 1977)

| Crops | Crop pattern % | 1978/79 Cropped area 000 ha | 1978/79 Yield kg/ha | 1978/79 Production 000 tons | Year 2000 Cropped area 000 ha | Year 2000 Yield kg/ha | Year 2000 Production 000 tons | Recommended consumption 000 tons | Self-sufficiency | Production growth rate |
|---|---|---|---|---|---|---|---|---|---|---|
| Cereals | 57.6 | 70.0 | 1857 | 130.0 | 99.4 | - | 296.3 | 616.0 | 0.48 | 4.2 |
| Wheat | 14.8 | 18.0 | 2000 | 36.0 | 25.6 | 2145 | 54.9 | 375.1 | 0.15 | 2.1 |
| Sorghum and millet | 40.8 | 49.6 | 1804 | 89.5 | 70.4 | 3294 | 231.9 | 104.7 | 2.22 | 4.8 |
| Barley | 1.3 | 1.6 | 1750 | 2.8 | 2.2 | 2803 | 6.2 | | | 4.0 |
| Other cereals | 0.7 | 0.8 | 1200 | 1.5 | 1.2 | 2747 | 3.3 | | | 4.0 |
| Cotton | 16.5 | 20.0 | 1250 | 25.0 | 28.5 | 1571 | 44.8 | | | 2.9 |
| Potatoes | 0.2 | 0.3 | 5000 | 1.4 | 0.3 | 22614 | 6.8 | | | 8.2 |
| Vegetables | 4.6 | 5.6 | 17857 | 100.0 | 7.9 | 35354 | 279.3 | | | 5.2 |
| Gourds | 1.5 | 1.8 | 50000 | 90.0 | 2.6 | 17822 | 46.3 | | | |
| Sorghum fodder | 4.1 | 5.0) | | | 7.1 | | | | | |
| Alfalfa | 2.6 | 3.2) | 50000 | 460.0 | 4.5 | 28658 | 372.6 | - | - | - 1.1 |
| Other feed | 0.8 | 1.0) | | | 1.4 | | | | | |
| Sesame | 3.5 | 4.2 | 952 | 4.0 | 6.0 | 952 | 5.7 | | | 1.8 |
| Coffee | 0.5 | 0.6 | 1333 | 0.8 | 0.9 | 1333 | 1.2 | | | 2.1 |
| Banana | 0.6 | 0.7 | 30000 | 21.6 | 1.0 | 66000 | 66.0) | | | |
| Papaya | 0.3 | 0.4 | 20000 | 8.0 | 0.5 | 20000 | 10.0) | | | |
| Dates | 3.3 | 4.0 | 10000 | 4.0 | 5.7 | 10000 | 57.0) | | | |
| Other crops | 3.9 | 4.7 | - | - | 6.7 | - | - | | | |
| Total cropped area | | 121.5 | | | 172.5 | | | | | |

Source: Calculated from Tables 4 and 5, Quinquennial Development Plan, Aden 1975; Table 13 of the annex; Table 16, cost of production of the major crops in Wadi Tuban, Technical Report No. 1, Project PDY 71/508.

*Assuming: 1979 crop pattern and cropping intensity. Total productive area in year 2000 = 172.5 per 000'ha.

Table 26. Energy, protein and fat intake in Yemen AR for the period 1961/65 - 1976

| Year | Energy (calories) Number per day | Protein (grs per day) | Fats (grs per day) |
|---|---|---|---|
| 1961-65 | 2 119 | 69.0 | 36.3 |
| 1966 | 2 104 | 65.2 | 33.1 |
| 1967 | 2 110 | 65.4 | 33.7 |
| 1968 | 2 063 | 63.3 | 32.3 |
| 1969 | 1 979 | 59.6 | 29.2 |
| 1978 | 1 887 | 56.9 | 28.5 |
| 1971 | 2 032 | 62.9 | 31.1 |
| 1972 | 2 034 | 62.7 | 31.4 |
| 1973 | 2 131 | 64.6 | 34.2 |
| 1974 | 2 139 | 64.8 | 34.6 |
| 1975 | 2 143 | 66.1 | 33.9 |
| 1976 | 2 202 | 68.4 | 33.6 |
| Growth rate | 0.350 | 0.110 | 0.049 |

Source: FAO ICS Computer printout, unpublished, 1979.

Table 27 - Self-Sufficiency of cereals in Yemen AR from 1961/65 to 1975

000 M.T.

| Year | Production | | | | | Import | | | | | Export | | | | | Self-Suff. of Cereals % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Wheat | Sorghum | Barley | Maize | Total | Wheat | Sorghum | Barley | Maize | Total | Wheat | Sorghum | Barley | Maize | Total | |
| 1961/65 | 21 | 933 | 141 | 9 | 1104 | 2 | - | - | - | 2 | - | - | - | - | - | 100 |
| 66 | 23 | 935 | 142 | 10 | 1110 | 31 | - | - | - | 31 | - | - | - | - | - | 97 |
| 67 | 25 | 1000 | 145 | 10 | 1180 | 34 | - | - | - | 34 | - | - | - | - | - | 97 |
| 68 | 27 | 950 | 147 | 11 | 1135 | 30 | - | - | - | 30 | | | | | | 97 |
| 69 | 25 | 970 | 145 | 10 | 1150 | 75 | 2 | - | - | 77 | | | | | | 94 |
| 70 | 26 | 680 | 160 | 9 | 875 | 104 | - | - | - | 104 | | | | | | 89 |
| 71 | 33 | 984 | 154 | 30 | 1201 | 105 | - | - | - | 105 | | | | | | 92 |
| 72 | 54 | 1020 | 140 | 16 | 1230 | 155 | 1 | - | - | 156 | | | - | | | 89 |
| 73 | 50 | 900 | 120 | 70 | 1140 | 177 | 2 | - | 18 | 197 | | | | | | 85 |
| 74 | 71 | 720 | 85 | 80 | 956 | 124 | - | - | 29 | 153 | | | | | | 86 |
| 75 | 78 | 1008 | 80 | 79 | 1245 | 197 | - | - | 6 | 203 | | | | | | 86 |

Source: Import and export : FAO trade ICS computer printout

Production : FAO production ICS

Table 28 – Projected production, normative consumption, and self-sufficiency in the year 2000 in Yemen A. R.

| Crop | Production Growth rate 1975-81 | Projected production 1980/81 | Projected production 2000 | Normative consumption Year 2000 | Self-sufficiency ratio Year 2000 |
|---|---|---|---|---|---|
| Wheat | 19.8 | 128 | 640 | 291 | 2.71 |
| Maize | 8.9 | 110.2 | 551 | 1 319 | 4.68 |
| Sorghum and millet | 3.9 | 1042 | 5210 | | |
| Barley | 2.1 | 83.2 | 416 | | |
| Rice | 0 | - | - | 9 | 0 |
| Meat | 3.3 | 47 | 234 | 223 | 1.04 |
| Milk | 2.1 | 367 | 1835 | 419 | 4.38 |
| Fish | 8.5 | 17 | 86.5 | 200 | 0.44 |
| Eggs | 2.3 | 8 | 1175 | 37 | 31.75 |
| Vegetables | 31 | 705 | 3525 | 525 | 6.71 |
| Fruits | 4.8 | 142 | 710 | 585 | 1.21 |
| Pulses | 2.6 | 105 | 525 | 33 | 15.90 |
| Vegetables oils & fats | 13.8 | 9 | 119 | 100 | 1.19 |
| Sugar | 0 | - | 0 | 133 | 0 |

Source: Calculated from the "Quinquennial Development Plan" YAR.

Table 29--Growth rate of number of livestock 1961-1977*

(000 heads)

| Year | Cattle | Sheep and Goats | Camel |
|---|---|---|---|
| 1961 | 1280 | 11160 | 53 |
| 62 | 1270 | 11270 | 53 |
| 63 | 1240 | 11380 | 54 |
| 64 | 1250 | 11500 | 55 |
| 65 | 1260 | 11600 | 75 |
| 66 | 1200 | 10572 | 61 |
| 67 | 1179 | 11023 | 53 |
| 68 | 962 | 10510 | 51 |
| 69 | 856 | 8592 | 52 |
| 70 | 813 | 8769 | 69 |
| 71 | 857 | 10627 | 117 |
| 72 | 900 | 9561 | 100 |
| 73 | 810 | 9500 | 83 |
| 74 | 900 | 10000 | 120 |
| 75 | 923 | 9800 | 83 |
| 76 | 1000 | 10600 | 120 |
| 77 | 1050 | 10900 | 121 |
| Growth rate | -2.447 | -0.870 | 5.689 |

*Source:

Figures for 1961-75, Statistical Yearbook, Yemen A R 1975

Figures for 1975-77, Production Yearbook 1977, FAO

Table 30 -Values of Imports by Commodities and Countries of Origin, 1976

| Unit | Commodity | Average import value | Range of import values | | Origin of lowest value |
|---|---|---|---|---|---|
| R/Kg | Bovine Animals Meat, fresh or frozen | 7.2 | H | 9.6 | |
| | | | L | 5.5 | Somalia |
| R/Kg | Sheep and Goats Meat,fresh or frozen | 9.5 | H | 11.1 | |
| | | | L | 7.7 | United Kingdom |
| R/Kg | Poultry Meat, fresh or frozen | 8.9 | H | 27.2 | |
| | | | L | 7.7 | France |
| R/Kg | Preserved Meat | 2.2 | H | 4.5 | |
| | | | L | 1.5 | UK |
| R/Kg | Fresh Milk and Cream | 6.4 | H | 9.9 | |
| | | | L | 1.6 | Japan |
| R/Kg | Milk and Cream, preserved, Concernt | 24. 2 | H | 16.0 | |
| | | | L | 0.4 | China |
| R/Kg | Butter | 9.9 | H | 14.9 | |
| | | | L | 8.1 | F. Germany |
| R/Kg | Cheese and Curd | 9.5 | H | 19.2 | |
| | | | L | 7.9 | S.A |
| R/Dozen | Birds, eggs | 5.6 | H | 5.9 | |
| | | | L | 2.9 | Djibouti |
| R/Kg | Fish prepared or preserved NES | 5.6 | H | 7.0 | |
| | | | L | 3.7 | S.A |
| R/Ton | Wheat and Meslin | 1079.1 | H | 1400.0 | |
| | | | L | 790.4 | Sudan |
| R/Ton | Rice | 2231.5 | H | 3036.0 | |
| | | | L | 2.2 | UAE |
| R/Ton | Meal, flow of Wheat and Meslin | 1069.0 | H | 2167.7 | |
| | | | L | 436.8 | Djibouti |
| R/Kg | Preserved vegetables NES | 6.0 | H | 7.5 | |
| | | | L | 1.5 | Japan |
| R/Kg | Lemon and limes | 2.8 | H | 3.0 | |
| | | | L | 1.1 | Somalia |

Table 30 - (continued)

| Unit | Commodity | Average import value | Range of import values | | Origin of lowest value |
|---|---|---|---|---|---|
| R/Kg | Bananas | 1.2 | H | 1.9 | |
| | | | L | 1.0 | YDR |
| R/Kg | Fresh apples | 6.1 | H | 1.0 | France and Greece |
| | | | L | | |
| R/Kg | Dates | 0.3 | H | 3.2 | |
| | | | L | 0.2 | S.A. |
| R/KG | Fruits and nuts prep. or pres. NES | 4.5 | H | 5.6 | |
| | | | L | 2.4 | Italy |
| R/Ton | Refined sugar | 2269.8 | H | 3750.0 | |
| | | | L | 2065.3 | Ethiopia |
| R/Kg | Tea | 190.3 | H | 14.0 | |
| | | | L | 5.1 | Singapore |
| R/Ton | Margarine | 11870.7 | H | 4047.6 | |
| | | | L | 1086.1 | Hong Kong |
| R/Kg | Sesame seeds | 2.1 | H | 10.1 | |
| | | | L | 0.5 | Somalia |

Source: Foreign Trade Statistical Yearbook, Yemen AR 1976.

Table 31. Values of recommended per capita food intakes for Yemen AR

| Commodity | Per capita consumption Kg/yr | Price Fils/kg | Value Y. Rials* |
|---|---|---|---|
| Wheat | 26 | 165 | 42.9 |
| Rice | 1 | 342 | 3.4 |
| Coarse grains | 145 | 113 | 163.90 |
| Red meat | 24 | 1 644 | 39.51 |
| Milk | 46 | 141 | 64.9 |
| Fish | 22 | 200 | 44.00 |
| Eggs | 4 | 1 620 | 64.8 |
| Vegetables | 58 | 304 | 176.3 |
| Fruits | 64 | 250 | 160.00 |
| Pulses | 4 | 401 | 16.01 |
| Vegetable oils | 10 | 467 | 46.71 |
| Sugar | 15 | 275 | 41.3 |
| Roots and tubers | 4 | 196 | 7.8 |
| Total | | | 872 (US$ 191) |

* 1976 retail prices.

Source: Calculated from Annex tables 3, 6 and 7 of this study and Statistical Year Book, 1975-76, Yemen AR

Table 32. Average ECWA, Yemen PDR and Yemen AR, per capita supply (1972-74)

(Kgs/year)

| Commodity | Yemen AR | Yemen PDR | ECWA* (weighted average) |
|---|---|---|---|
| Wheat (wheat equivalent) | 28.8 | 65.4 | 108.1 |
| Rice (milled) | 0.8 | 21.2 | 14.4 |
| Coarse grains | 160.5 | 52.8 | 38.2 |
| Sugar | 9.0 | 21.7 | 24.1 |
| Roots | 7.5 | 0.6 | 7.7 |
| Pulses | 8.5 | 1.8 | 6.5 |
| Vegetables | 21.0 | 26.8 | 77.0 |
| Fruits | 19.3 | 60.5 | 83.2 |
| Meat and offals | 11.5 | 6.4 | 15.7 |
| Fish | 0.9 | 12.5 | 2.8 |
| Eggs | 0.4 | 0.9 | 2.2 |
| Milk (liquid milk equivqlent) | 43.9 | 132.0 | 82.9 |
| Vegetable oils | 1.7 | 2.8 | 5.5 |
| Animal fat | 0.4 | 1.2 | 0.8 |

* Average of Iraq, Jordan, Lebanon, Saudi Arabia, Syria, Yemen AR and Yemen PDR.

Source: Provisional Food Balance Sheets, 1972-74, FAO, Rome, 1977.