

THE STATE OF FOOD AND AGRICULTURE 1969



FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

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WORLD REVIEW

REVIEW BY REGIONS

**AGRICULTURAL MARKETING IMPROVEMENT
PROGRAMMES: SOME LESSONS FROM
RECENT EXPERIENCE**

**MODERNIZATION OF INSTITUTIONS
TO PROMOTE DEVELOPMENT**

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Rome, 1969

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EXPLANATORY NOTE

The following symbols are used in statistical tables:

- none or negligible
- . . . not available

1967/68 signifies a crop, marketing or fiscal year running from one calendar year to the next. 1967-68 signifies the average for two calendar years. In the Annex tables an average of split years, for example 1948/49-1950/51, is indicated as follows: 1948/-50/.

Columns in statistical tables may not add up because of rounding. Percent changes from one year to another have been calculated from unrounded figures.

Unless otherwise indicated, the metric system is used throughout. For explanation of the coverage and methods of calculating the FAO index numbers of agricultural production and international trade in agricultural products, see notes facing Annex tables.

FOREWORD

Following the encouraging recovery of agricultural production in the developing regions in 1967, due partly to better weather, partly to technological improvements, interest this year centres particularly on the extent to which it has been possible for these countries to maintain the new promise of more rapid progress in food production.

In overall terms 1968 was about an average year, with food production keeping slightly ahead of population growth. Several elements in the current situation, however, continue to justify the hope that a growing number of developing countries can now increase their production a good deal faster than in the past, provided – and this is crucial – that appropriate policies are pursued.

To a very large extent this hope is based on the good progress made in 1968 in the developing countries of the Far East. Despite unfavourable weather in a number of areas of the region, food production is estimated to have increased by a further 5 percent, after a recovery of a similar magnitude the year before. Notable progress toward greater self-sufficiency in cereals was made by some of the main food importing countries of the region, and others were able to set aside something to replenish stocks. A further, though more moderate, increase in cereal crops appeared possible in 1969.

Progress in this region is encouraging not only because it is there that the food situation has recently given rise to the greatest concern, but also because the Far East is the region where the most widespread and systematic efforts have been and are still being made to achieve a technological breakthrough in food production. In fact, these two features are probably linked. The severity of the recent food situation in the region has been a major influence in bringing about the required commitment on the part of governments to give sufficient emphasis to agriculture in their development plans, and to make a major effort to take advantage of the recent technical advances in cereal production in tropical areas.

This last point needs emphasis. Until now, food consumption has tended to grow faster than production in many developing countries. To narrow the food gap will require a major commitment and intensified support by governments to agriculture. Unless governments continue to strengthen the emphasis on agriculture in all the relevant fields of policy – including investments, institutions, foreign exchange allocation and helpful price policies – the potential implicit in the new techniques simply will not be realized at the required speed.

Production results in the other developing regions were less favourable in 1968. In Africa, there may have been a small increase in food production per caput. In Latin America, however, output actually fell back slightly because of drought, although most of the impact was felt in the food exporting rather than the food deficit countries of the region, and in the Near East, increases in output were preliminarily estimated to have remained below the rates of population increase. Viewed in a somewhat longer perspective, however, the growth of output in the Near East has been relatively good. And although progress in the use of the new techniques of cereal production in these regions seems to be generally – though not everywhere – behind that in the Far East, a promising start has been made in a number of countries.

With the major exception of Oceania, where output in 1968 showed a steep recovery, the rate of growth of production in the developed regions was of the same order as in the developing regions combined. But modest as the increases in output generally were in these countries, they were sufficient to give a further boost to the renewed tendency toward accumulation of surpluses which had already emerged a year earlier. Remembering the precariousness of the world food situation only a few years ago, the increase in cereal stocks in 1967/68 had been a positive development. However, by 1969 excess supplies, not only of cereals but also of butter and dry skim milk, reached proportions that led to serious problems in the commodity markets, and although the general level of output in these countries was unlikely to show any increase in 1969, a further expansion of stocks seemed to be in the offing.

The reemergence of this problem is not only an immediate cause for concern. It also has some longer term implications. The difficulties experienced by the developed countries in coming to grips with the problem of surplus production is indicative of the strength and tenacity of the economic, technological, social and political factors which tend to make farm production in high-income countries grow faster than consumption. And at least for cereals the search for solutions will increasingly have to take into account the growing self-sufficiency in many developing countries, which already has contributed to the emergence of surplus stocks in the developed exporting countries.

Alternatives to the present costly policies in developed countries are not easy either to design or to implement. What is needed are policies which, while improving efficiency, make it possible to guide more effectively the level and pattern of output so as to match it with the growth and composition of demand. From past experience we know that this is a difficult combination to achieve.

But today even more seems to be required. An increasing number of developing countries are on the threshold of a real technological breakthrough in cereal production. Some of them will have exportable surpluses and will need markets for the commodities that they produce efficiently. In part they will have to find them by expanding trade among themselves. But the developed countries can also make a major contribution. This is a point I stressed in a speech early this year to the Consultative Assembly of the Council of Europe, and I should like to stress it again. In the long run, adjustments in the rich countries' agriculture are inevitable. Why should not their governments, in considering these policies, widen their range of vision to take in the needs of the world as a whole?

That there has been little movement recently toward more active trade in agricultural products is vividly demonstrated by this year's review. Overall, the value of this trade showed no increase at all in 1968, and for most regions it has remained virtually stagnant since 1964. This forms a strong contrast to the steady growth of the world trade as a whole at a rate of some 8 percent a year. Although some developed regions have also been affected by the stagnation in agricultural trade, the impact has been greatest on the developing regions, both because of these trends and because developing countries still rely overwhelmingly on agriculture for their foreign exchange earnings.

The flow of foreign aid to the developing countries has shown some increase during this period. But the official transfers for development purposes fell back in 1968. This, together with the mounting debt service burden in many of them and the failure of their agricultural earnings to grow, points up strongly the need for more vigorous national and international action to step up the flow of external resources to the poor countries. Preparatory work for a renewed search for broader solutions to problems of both trade and aid was under way through much of 1968 and has continued in 1969. The developing countries look to the results of this work as indicators of the international spirit that will prevail in the Second United Nations Development Decade. It is my earnest hope that they will not be disappointed.

In FAO's work an important factor for setting the broad lines of strategy for the Second Development Decade and beyond will be the Indicative World Plan for Agricultural Development. Our first estimate of the growth of demand for food in developing countries up to 1985 is 3.9 percent a year. A really major acceleration in food production beyond the current rate of 2.7 percent a year will be needed to obtain this target. A long, arduous and expensive struggle will be required if success is to be achieved. This is not the place to analyse in detail the elements involved. Generally speaking, however, it can be said that greatly increased emphasis will need to be placed on intensified production from the land already cultivated. Rapid growth in annual production per hectare will require an extended use of modern technology including high-yielding varieties, fertilizers, pesticides and irrigation. Less obvious, but in my opinion certainly of equal importance, will be improved marketing and storage facilities, the adoption of adequate price policies, land reform, and a host of other institutional measures.

With a view to increasing the effectiveness of FAO's work I have selected five areas of special concentration on which to focus our action. They are: (a) high-yielding varieties; (b) filling the protein gap; (c) war on waste; (d) mobilization of human resources; (e) earning and saving foreign exchange. Programmes in these five areas will cut across our lines of divisional responsibilities within FAO and thus involve a new organization-wide approach to our work.

One of the two special chapters included in the report this year, dealing with forestry, is of particular relevance for the last of the five areas of concentration just mentioned. More

than half of the world's productive forest resources are in the developing countries. The demand for forest products is everywhere rising rapidly. Forest industries thus offer the developing countries important opportunities for increased export earning and import saving. The fact that these opportunities are so far only partially exploited is to a large extent a reflection of defects of an institutional and organizational nature. The special chapter is therefore devoted to an examination in some detail of how some of these obstacles can be overcome so as to enable the forestry sector to play more fully its potential development role.

The other special chapter presents a critical analysis of recent experience in agricultural marketing improvement programmes in developing countries. This field is of close relevance to at least two of the areas of concentration, namely those on high-yielding varieties and on the earning and saving of foreign exchange. The chapter gives particular emphasis to the problems of combining the requirements of marketing efficiency with those of government price policies, and to a critical examination of the relative roles of private and public enterprise in different marketing functions and situations. With rapid urbanization, changes in the pattern of consumer demand, and the increasing use of modern production techniques in agriculture, the marketing systems in these countries are facing both a growing challenge and an ever greater opportunity to contribute actively to economic growth.



A.H.Boerma
Director-General

Chapter I. - WORLD REVIEW

Agricultural production

According to FAO's preliminary indices, the world¹ agricultural, fisheries and forestry production combined increased in 1968 by approximately 3 percent. This was roughly in line with the average rate of increase over the past ten years and somewhat more than the growth of population (Table I-1). The index for agricultural products proper, which dominates the combined index by its size, showed a similar increase. In some contrast with the past, however, when fishery production has tended to grow faster and forestry more slowly, in 1968 the increases in output in the three sectors were approximately equal.

In agriculture proper, the performance of the developing countries is currently of even more than usual interest, to see to what extent they have been able to maintain the very substantial increases shown in 1967 and whether the greater emphasis on agricultural development in these countries in recent years has continued to bear fruit. In 1967 each of the developing regions had shown marked increases in output, in most cases after one or two years of poor crops mainly because of bad weather; their combined agricultural production, whether of food or of all farm products, had shown an increase of 5 percent.

¹Unless otherwise indicated, world totals shown in this report exclude China (Mainland).

In 1968 the growth of production in this group of countries combined was more modest, at around 2 percent. Although this preliminary indicator may somewhat underestimate the change,² nevertheless, with their population continuing to grow at a rate of 2.7 percent a year, it is unlikely that there was any substantial increase in output per head (Table I-2).

However, performance varied widely as between the individual regions.³ Real progress is evident in the widespread increases in output achieved in 1968 in the developing countries of the Far East, the most populous region and the one where the food situation in recent years has been most critical. Both the food and the total agricultural production in these countries, which in 1967 had regained the previous trend line, are estimated on the basis of the preliminary indices for 1968 to have risen by a further 5 percent. Output per head of population regained most of the loss of

²This results from what seems to be a slight downward bias in many of the latest year production estimates, both official and unofficial, and affecting both developed and developing countries. The bias tends to be corrected in the course of revisions made in the subsequent two or three years. A study is under way to determine whether it is possible to eliminate or reduce its effect on the regional and world production indices.

³Fuller details of the 1968 production situation in individual regions are shown in Chapter II, including indices for 64 individual countries.

TABLE I-1. - INDICES OF WORLD¹ PRODUCTION OF AGRICULTURAL, FISHERY AND FORESTRY PRODUCTS

	Average 1948-52	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 ²	Change 1967 to 1968 ²	Annual rate of growth 1955-57 - 1965-67
..... 1952-56 average = 100 .....														..... Percent	
Total production .....	...	107	113	116	119	121	125	128	131	133	137	143	146	3	2.7
Agriculture	87	107	114	116	120	121	126	129	132	133	138	143	147	3	2.7
Fisheries	85	110	112	116	121	127	135	139	146	154	162	169	176	4	4.2
Forestry .....	...	105	106	111	112	111	113	115	121	122	124	125	128	2	1.6
Population	93	106	108	110	112	114	117	119	122	124	127	129	132	2	2.0
Per caput production ...	...	101	105	106	106	106	107	107	108	107	109	110	111	1	0.6
Agriculture	93	101	105	106	107	106	108	108	108	107	109	111	112	1	0.7
Fisheries	92	104	104	105	108	111	116	117	120	124	128	131	133	2	2.1
Forestry .....	...	100	98	101	100	97	97	97	99	99	98	97	97	-	-0.4

Note: For details of the methodology and coverage of these indices, see the explanatory note to the Annex tables.

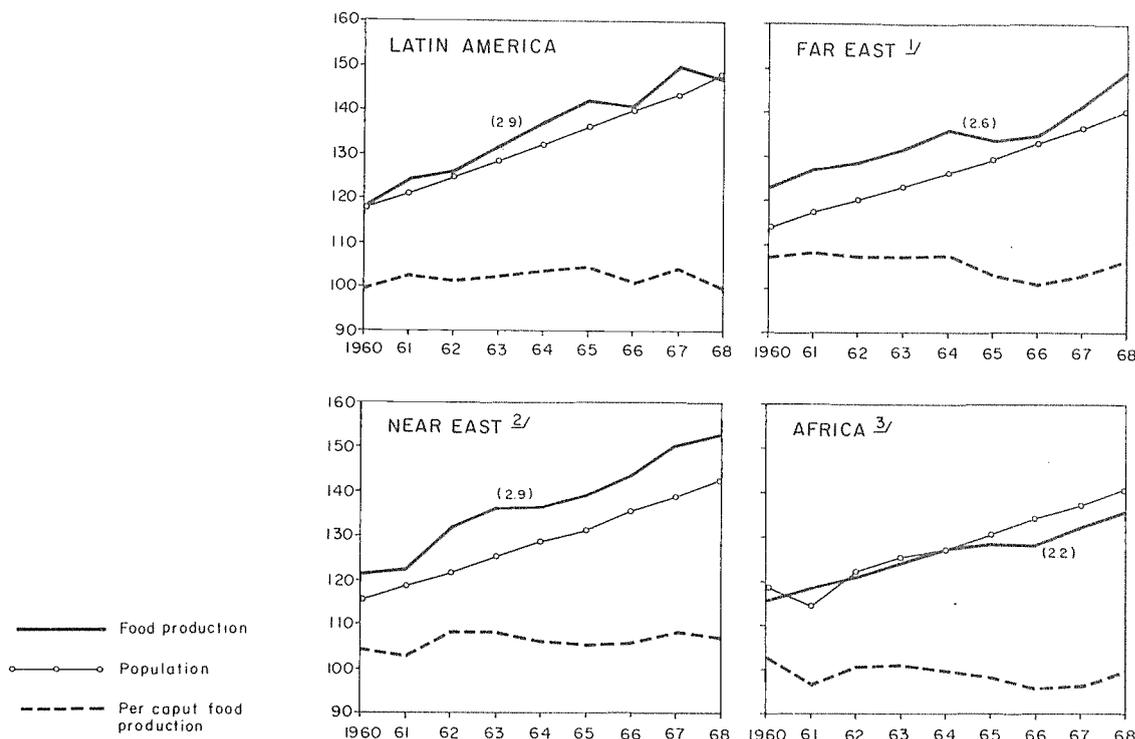
¹Excluding China (Mainland). - ²Preliminary.

TABLE I.2. — INDICES OF WORLD¹ AND REGIONAL AGRICULTURAL PRODUCTION IN RELATION TO POPULATION

	1948-52 average	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 ²	Change 1967 to 1968 ²	Annual rate of growth 1955-57 — 1965-67
	1952-56 average = 100													... Percent ...	
Total production															
ALL AGRICULTURAL PRODUCTS															
Western Europe	84	106	109	112	119	118	126	128	129	130	133	143	146	2	2.7
Eastern Europe and U.S.S.R.	82	118	128	130	132	135	138	133	145	148	165	167	174	5	3.6
North America	93	98	106	107	109	109	112	119	117	119	120	124	125	2	1.8
Oceania	90	101	118	119	122	125	133	137	141	135	151	143	165	15	3.3
Other developed countries ³	81	114	117	119	121	126	134	134	137	137	144	165	162	-2	2.9
Developed countries	87	106	114	116	119	120	124	127	130	131	138	143	147	3	2.7
Latin America	87	111	118	118	121	128	130	133	136	142	140	148	145	-2	2.9
Far East ¹ (excl. Japan)	87	107	112	117	121	126	128	131	135	133	135	148	148	5	2.6
Near East (excl. Israel)	84	115	118	122	123	123	135	138	141	144	147	153	155	1	3.2
Africa (excl. South Africa)	87	107	110	115	122	117	126	129	133	135	134	138	142	3	2.6
Developing countries	87	109	114	118	121	125	129	132	136	137	137	144	147	2	2.7
World ¹	87	107	114	116	120	121	126	129	132	133	138	143	147	3	2.7
FOOD PRODUCTS ONLY															
Western Europe	84	106	109	113	119	118	126	128	130	130	134	144	147	2	2.7
Eastern Europe and U.S.S.R.	83	118	129	131	133	137	140	134	146	149	167	168	177	5	3.7
North America	92	101	109	110	111	110	114	121	119	122	127	132	132	-	2.2
Oceania	92	97	118	115	121	124	135	138	144	136	158	145	173	19	3.8
Other developed countries ³	82	115	117	120	123	127	137	137	139	139	147	170	167	-2	3.1
Developed countries	87	108	115	117	120	121	126	128	131	133	142	147	151	3	2.9
Latin America	86	111	117	116	118	124	126	132	137	142	141	151	148	-1	3.0
Far East ¹ (excl. Japan)	87	107	112	118	123	127	129	132	136	134	135	142	149	5	2.6
Near East (excl. Israel)	84	115	118	121	121	123	132	136	136	139	144	151	152	1	2.9
Africa (excl. South Africa)	88	106	109	112	119	115	122	125	127	129	128	132	136	3	2.2
Developing countries	87	109	114	117	121	124	128	131	135	136	136	144	147	3	2.7
World ¹	87	108	115	117	120	122	126	129	132	134	140	146	150	3	2.8
Per caput production															
ALL AGRICULTURAL PRODUCTS															
Western Europe	87	104	106	108	113	111	117	118	118	117	120	128	129	1	1.7
Eastern Europe and U.S.S.R.	87	113	121	121	121	122	123	117	126	128	141	141	146	4	2.3
North America	100	93	98	98	98	96	98	102	99	99	99	100	101	-	0.2
Oceania	99	94	107	106	106	107	111	112	113	106	117	108	122	3	1.1
Other developed countries ²	87	110	111	112	113	115	121	120	121	120	124	140	136	-3	1.7
Developed countries	92	102	108	109	110	109	112	113	114	114	119	122	124	2	1.4
Latin America	97	103	106	103	102	105	104	104	103	105	100	102	97	-5	0.1
Far East ¹ (excl. Japan)	94	101	102	105	106	108	107	107	107	103	101	104	106	2	0.1
Near East (excl. Israel)	93	107	107	108	106	103	110	110	109	109	109	110	109	-1	0.6
Africa (excl. South Africa)	95	100	101	102	106	99	104	104	104	103	100	101	101	-	0.1
Developing countries	95	102	104	105	105	106	107	106	106	105	102	104	104	-1	0.2
World ¹	93	101	105	106	107	106	108	108	108	107	109	111	112	1	0.7
FOOD PRODUCTS ONLY															
Western Europe	86	104	106	108	114	112	118	118	119	118	120	129	130	1	1.8
Eastern Europe and U.S.S.R.	88	113	122	122	122	123	124	118	127	128	143	142	148	4	2.4
North America	99	96	101	100	100	98	99	104	101	102	104	107	106	-1	0.6
Oceania	102	91	107	102	106	105	113	113	116	107	122	109	128	17	1.6
Other developed countries ³	87	110	111	113	114	117	124	122	123	121	127	145	140	-3	1.9
Developed countries	92	103	109	110	111	110	113	114	115	116	122	126	128	2	1.6
Latin America	96	103	105	101	100	103	101	102	104	104	101	104	100	-4	0.1
Far East ¹ (excl. Japan)	94	101	103	106	107	108	107	107	108	103	101	104	107	3	0.1
Near East (excl. Israel)	92	107	107	107	105	103	108	108	106	105	106	108	107	-1	0.3
Africa (excl. South Africa)	97	99	99	100	103	97	101	101	100	98	96	96	97	1	-0.3
Developing countries	94	102	104	104	105	105	105	106	106	104	101	104	104	-	0.1
World ¹	93	102	106	106	107	106	108	108	109	108	111	113	114	1	0.8

¹Excluding China (Mainland). — ²Preliminary. — ³Japan, South Africa and Israel.

FIGURE I-1. -- TRENDS IN FOOD PRODUCTION AND POPULATION IN THE DEVELOPING REGIONS



Note: The figures in brackets show the food production annual rate of growth in the decade 1955-57 to 1965-67.

¹Excluding Japan and China (Mainland). — ²Excluding Israel. — ³Excluding South Africa.

1965-66, and most major food importing countries of the region were able to move toward greater self-sufficiency in food grains, and to improve their stock position. This progress was all the more remarkable in view of the by no means uniformly favourable weather conditions in the region.

Production results in the other three developing regions were less satisfactory. Output increased by about 3 percent in the developing countries of Africa, but remained stagnant in per caput terms. Production in the Near East rose only fractionally, and in Latin America the preliminary estimates indicate a fall of about 2 percent. Bad weather was a main factor, especially in Latin America, which was hit by severe and widespread droughts, but also in parts of the Near East and Africa. In both Latin America and the Near East the growth of production thus remained below the average rates recorded for the past decade. In turn, these average rates have generally been judged too slow relative to both the growth of population and the growth of demand associated with what are considered acceptable rates of economic growth.⁴

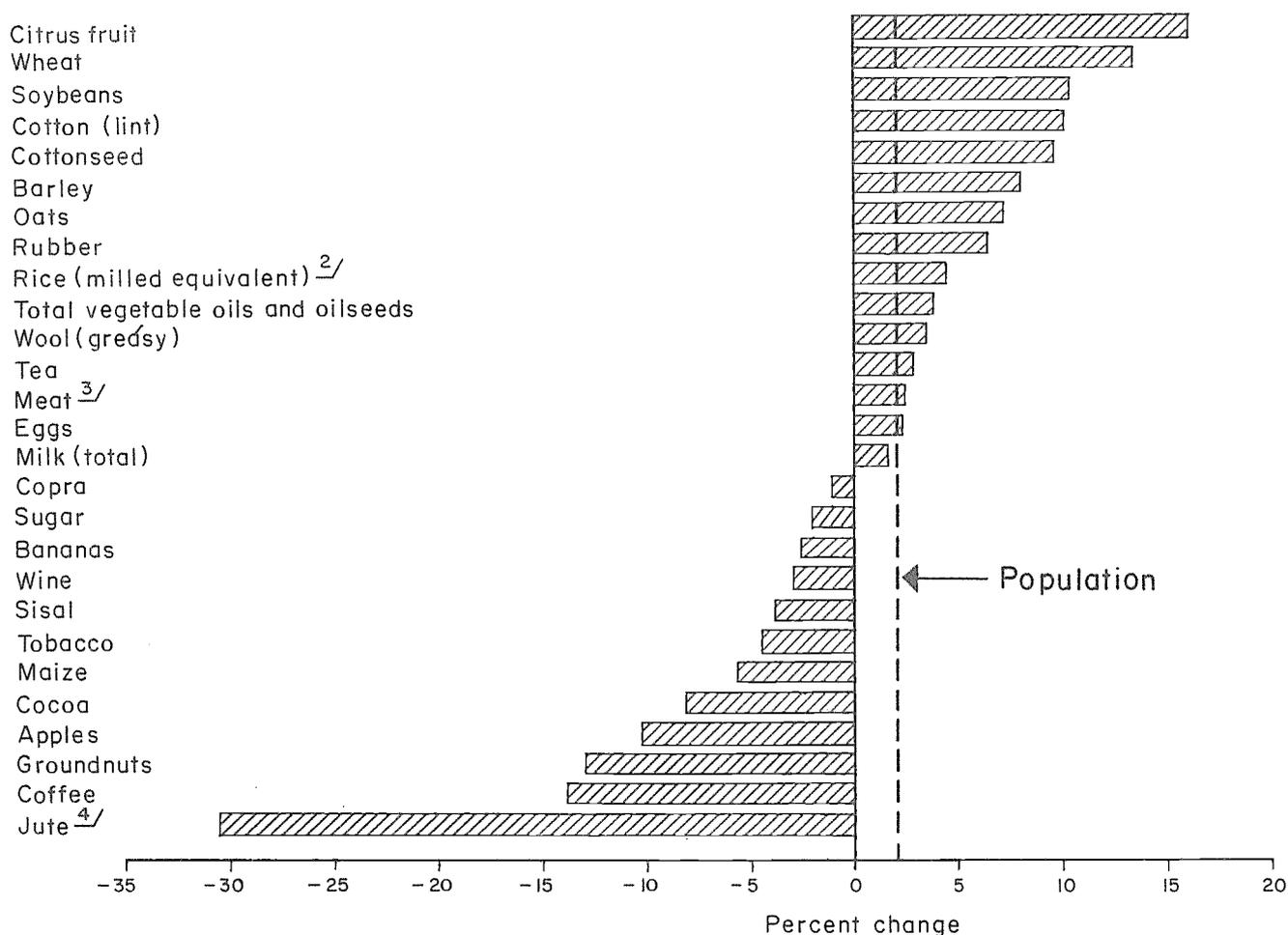
⁴The estimated increase in demand for food in the developing countries associated with the growth objectives of FAO's Indicative World Plan, for instance, is 3.9 percent a year, and the corresponding annual growth rate for agricultural production 3.5 percent.

At the same time, it should be noted that in the Near East, where wide fluctuations in output in individual countries are the rule, 1967 had been a relatively favourable year. If the two years 1967 and 1968 are taken together, the increase in output is more in line with the longer term rate of growth for the region, which in turn is the highest for all developing regions. And in Latin America much of the decrease in production in 1968 was accounted for by some food exporting countries, particularly Argentina and Cuba, where the longer term rate of growth has also been below the regional average. For the rest of the Latin American countries combined, most of which are food importers, both the longer term rate of growth and the course of production in 1968 were better than for the region as a whole.⁵

Agricultural production in the developed regions was generally higher than in 1967. Despite decreases in some individual countries reflecting in part weather, in part efforts to restrain the growth of output, the preliminary indices for western Europe and North America show increases of about 2 percent. There was a

⁵Their average rate of production growth (all agricultural products) for the period from 1955-57 to 1965-67 is 3.5 percent, compared with 2.9 percent for the region as a whole, and their agricultural production in 1968 remained unchanged.

FIGURE I-2. - CHANGES IN WORLD¹ PRODUCTION OF MAIN AGRICULTURAL COMMODITIES IN 1967 IN RELATION TO 1968



¹Excluding China (Mainland). - ²Paddy converted at 65 percent. - ³Beef and veal, mutton and lamb, pork. - ⁴Including allied fibres.

greater increase in eastern Europe and the U.S.S.R., and a very large increase in Oceania where, however, the 1967 output had been reduced by drought. The 2 percent fall for the "other" developed countries, grouped here separately for the first time, resulted from a steep fall in production in South Africa.

In some countries these increases meant higher farm incomes. Compared with the situation a few years ago, moreover, when grain stocks in the United States had suddenly been drawn down to levels which caused concern about the world's ability to meet further large emergency requirements, the current ample supply situation in cereals is a source of assurance. All in all, however, the further addition to the already plentiful food supplies in the developed regions has become a serious problem for many countries, as it has resulted in a renewed expansion in surplus stocks of a number of products, not only in the United States and Canada but increasingly also in other high-income countries, including Australia, Japan and the U.S.S.R.

Production of main commodities⁶

In terms of commodities, the greatest contribution to the increase in world agricultural production was, as in 1966 and 1967, made by cereals (Figure I-2 and Annex table 1A). Wheat production increased by 14 percent, to a record 307 million tons, with widespread advances in both exporting and importing countries. The increase was particularly large, almost 20 percent, in the developing countries, especially India and Pakistan, and in North Africa where, however, the 1967 harvests had been poor. More favourable weather also raised production in North America and the U.S.S.R., as well as in Australia where the area cultivated was also larger. A somewhat lower wheat crop is reported from Latin America (12 percent). The world barley crop was 8 percent more, and another new record was

⁶For a detailed account of the commodity situation, see FAO, *FAO Commodity review and outlook 1968-69*, Rome, 1969.

achieved in the production of rice in spite of the less favourable weather in some countries. The only major cereal to show a decline was maize, but this was mainly due to the deliberate cut in production in the United States.

Among other major foods, there was a small decline in total sugar production, as substantial increases in beet sugar in some European countries and the U.S.S.R. were more than offset by reduced cane sugar production, especially in Cuba. The world production of oilseeds increased moderately (by 4 percent in terms of oil equivalent) in 1968, reflecting mainly sharp increases in the production of soybeans and cottonseed, specially in the United States, and of sunflowerseed in the U.S.S.R.

World meat production increased in 1968 by 2 percent, or at half the rate of 1967. Beef production remained high in all western European countries except Sweden and the United Kingdom, while slaughterings in the United States were higher than in 1967 and imports of store and slaughter animals greater. Production in Argentina fell; and in Australia livestock numbers have recovered completely from the losses of the 1966 drought. Pigmeat production rose overall by some 3 percent. Poultry meat production, which has grown very rapidly for a number of years, rose only slightly in 1968 as output in developed countries stagnated. Milk production also increased only marginally, with increases in most European countries and Japan offset by decreases in the United States, Australia and New Zealand. The proportion of total milk output converted into butter was again larger, and there was a further substantial growth in surpluses.

Total production of citrus fruits recovered from the low level of 1967, with larger crops in the United States, Japan and the Mediterranean area. The output of pears also increased sharply but that of apples and bananas fell.

Production of both coffee and cocoa decreased substantially in 1968. Drought and cool weather, as well as the eradication campaign, reduced the coffee harvest in Brazil to its lowest level for 12 years, and the cocoa harvests in west Africa were low, mainly because heavy and persistent rains badly damaged Nigeria's main crop. World output of tea increased only marginally, but was again a record with larger crops in both the Far East and east Africa. Tobacco production fell by 4 percent, due mainly to smaller harvests in the United States, Greece and Turkey. Production in developing countries remained virtually unchanged, as the increases in Asia were offset by a further reduction in Africa.

Among raw materials, world cotton production recovered by 10 percent from the setback of a year earlier. The acreage allotments in the United States were increased and weather was better, and there were increases also in Brazil, Colombia and Mexico, where government incentives to growers stimulated cultivation. Wool production also rose by some 3 percent as record clips in Oceania and the U.S.S.R. were partly offset by a further decline in North America and western Europe. World rubber production increased by 6 percent to

2.6 million tons, with large gains in West Malaysia. Jute and kenaf production fell, however, by 30 percent, due to droughts during the sowing season and floods at a later stage in India and Pakistan, and unfavourable prices at sowing time in Thailand. There was also a further moderate reduction in the output of hard fibres.

Agricultural production in 1969

Early indications for 1969 suggest that the combined gross agricultural production in developed countries (without allowances for seed, feed and waste) may show no increase over the 1968 level. A decrease in total production was expected in eastern Europe and the U.S.S.R., principally because of a reduced wheat crop in the latter country owing to bad weather. In the other developed regions production was estimated to have remained at or near the 1968 level. In western Europe grain production was expected to be slightly larger than in 1968, mainly reflecting a larger maize crop, but the output of most other major crops remained unchanged or fell. Milk production fell marginally, and butter production by rather more, though not sufficiently to halt the growth of stocks in a number of countries. In North America the wheat crop was smaller, owing to a reduction in the United States where acreage allotments had been cut, but stocks of wheat were nevertheless expected to rise further. Some slight increase beyond the record level of 1968 was expected in production in Oceania. The wheat harvest in Australia was expected to be smaller, though still more than foreseeable demand, and the region's sugar production was likely to be reduced, but most other major commodities were expected to be up from 1968.

The information for developing countries was more fragmentary, and no overall quantitative forecast could be made at the time of writing. Some recovery was expected in Latin America, though its extent was likely to be limited by the continuation of drought into 1969 in some countries, including Argentina, where a further fall in wheat production was expected. Also in the Near East the performance was likely to be better than in 1968, reflecting substantial increases in grain crops. The outcome in the Far East depends very much on the progress of the rice crop toward the end of the year. The scattered information available suggested, however, that unless unfavourable weather ensues, food-grain production in the developing countries of the region should show a further increase, though a smaller one than in 1968. In Africa a recovery in output was expected in parts of west Africa, but in the Maghreb countries only average harvests were anticipated in 1969, following the very good crops of 1968. Additional detail on regional production situation and prospects in 1969 can be found in Chapter II.

For most individual commodities, only small changes were expected in production in 1969. Grain production was forecast at slightly below the 1968 record level. Total wheat output was expected to be slightly smaller, principally because of a reduced wheat crop in the U.S.S.R., but that of coarse grains was expected to

reach and possibly exceed the 1968 level. The most important crop for which quantitative indications were lacking at the time of writing was rice, but it was anticipated that, if weather conditions remained favourable in the Far East, production might reach the previous season's record despite smaller crops in the United States and Japan. The output of other foods, including sugar and fats and oils, was expected to increase only marginally. Milk production during the first half of 1969 was somewhat lower than a year earlier, but still large enough to cause a further expansion of butter and dried skim milk stocks.

Relatively larger gains were expected in the output of nonfood commodities. Good coffee crops were expected in most of Africa, Central America and in Brazil (although for the last-mentioned country the provisions were being scaled down at the time of writing), and tea production in most areas was expected to exceed the high level of 1968. The jute and kenaf crops in India, Pakistan and Thailand were expected to be considerably larger than the extremely low ones of 1968, and a large increase was also forecast in rubber production, in response to strong demand and larger output from new high-yielding trees in some countries.

Use of high-yielding cereal varieties

A question of great topical interest is to what extent the better production performance in 1968 in the Far East than in the other developing regions was a reflection of more fortunate weather conditions, and to what extent it was due to conscious efforts in the Far East to accelerate the growth of output, in particular through the more widespread use of the high-yielding cereal varieties and the other inputs associated with them. This is important for an assessment not only of the basic factors underlying the current food situation, but also of the future prospects for food production and imports in the developing countries.

No quantitative answer can be given. Information is incomplete on the areas where these new techniques were applied, and still less information is available on the yields achieved. Even if such data were available, it would be difficult to apportion the gains in yields as between the new techniques and the influence of weather and other factors.

Some qualitative judgements can, however, be made which suggest that the greater use of the new techniques in the Far East was indeed a factor. First, and most obviously, the rate of adoption of the new cereal varieties has been very much faster in the Far East than in the other developing regions. In the developing Far East at least seven countries — China (Taiwan), Ceylon, India, Republic of Korea, Malaysia, Pakistan and the Philippines — representing some 70 percent of the area's total cereal output, have moved well beyond the experimental stage in the use of the new techniques. In contrast, only one country in Africa — Kenya — and two in the Near East — Turkey and the United Arab Republic — have reached such a stage. In Latin America a number of countries have developed

high-yielding varieties of rice, wheat and maize, but accurate data on the extent of their use are lacking.

Secondly, while there is no doubt that poor weather was the main reason for the small increase or stationary level of agricultural output in the developing countries of the Near East, Africa and Latin America, in each of which performance in 1968 was well below the average for the preceding ten years, the fact remains that in the Far East, too, where the increase in output was about twice as fast as the past rate of growth, weather was unfavourable in many areas. In the Philippines, for instance, rainfall is reported to have been well below normal. In India, the largest single producing country, there was drought at the time of monsoon sowings in southern and central states. It is also worthy of note that, with the exception of the recovery in 1967, the increase in food production in the Far East in 1968 was the largest achieved since 1959, a year when there was very good weather in most of the region.

The varying rates of adoption of the new technology no doubt reflect a number of factors of a technical, economic, institutional and political nature, which are by now well known.⁷ But it may be questioned whether these reasons are sufficient to explain the differences between the extremely fast rate of adoption in, say, wheat in India and Pakistan on the one hand, and the much slower rate in some nearby countries on the other; or between maize in Kenya and some of the neighbouring African countries. Nor have the methods used to achieve rapid adoption been the same in all countries, nor their previous technological level the same.

It is probably no coincidence that the most rapid adoption has taken place in the Far East, where the food situation has been particularly precarious in recent years and where food imports have been greatest; and that progress has been greater in importing than exporting countries. This suggests that the most important single reason for the shift to the new technology in these countries has been a strong government commitment, triggered by the urgency of the food shortage and made possible by the genetic successes achieved at this point in time. Where this urgency is lacking — for reasons such as a less precarious food situation, a greater ability to import food, and a better competitive position in the production of export crops — a wholehearted commitment to the adoption of the new technology is less likely. On these grounds, as well as others, differences in the rates at which the new techniques are adopted can also be expected in the future.

Renewed accumulation of surplus stocks

Following several years when stocks of a number of important temperate zone commodities, particularly wheat, were reduced, the tendency to accumulate

⁷See for instance FAO, *The state of food and agriculture 1968*, Rome, 1968, p. 81-84.

surpluses has again manifested itself in the last two years. By the end of the 1968/69 crop year, the combined wheat stocks of the major exporting countries were expected to reach a level only slightly below the all-time peak of 1961, and a further increase by the end of the 1969/70 season appeared almost certain. The stocks of butter and skim milk powder, the other principal products affected, reached a record level at the end of 1968 (Table I-3) and continued to expand in 1969. Aside from North America and western Europe, significant surplus stocks appeared in 1967 and 1968 also in other high-income countries, such as Australia, Japan, where the larger rice stocks now constitute a major problem, and the U.S.S.R., where vast stocks of butter have accumulated for the first time.

These stock accumulations reflect the longstanding conflict in high-income countries between the effects of technological progress and farm income policies on the one hand, and the slow growth of demand on the other. In 1968 and 1969 the latter factor was important in the case of the dairy products. For wheat, production was significantly higher in some countries in 1968, especially Canada and Australia, but an important contributory factor has been reduced demand on international markets as a result of larger production of food grains in some major importing areas, including both the centrally planned and some developing countries.

In addition to the overall increase of the wheat stocks, there were some significant changes in their geographical location. Stocks in the United States, which in the previous peak year (1961) had accounted for about 65 percent of the total held by the principal exporters, were in mid-1969 expected to equal only some 40 percent of the total. Three fifths of the exporters' wheat stocks at the end of 1968/69 were expected to be located in three other countries: Canada, where they reached an all-time record level of some 23 million tons; Australia, where at 7.5 million tons they also were at a record level and were severely straining the available storage capacity; and France. The only major exporting country holding no excess stocks at the end of 1968/69 was Argentina, where the season's crop had been drastically reduced by drought.

Moreover, although the surplus element in the total wheat stocks can be estimated only approximately, it would seem that the geographical shift in the surplus wheat stocks has been even greater than that in the total wheat stocks. This follows from the greater normal carryover stocks required by the United States, and the special role of food aid in that country's exports. The shift in the geographical distribution of the surplus wheat stocks has particular significance for their future management and for their impact on world trade in and prices of the commodity. In fact, as is mentioned elsewhere in this report and in the *FAO Commodity Review* wheat export prices have already declined below the IGA minima.

The situation with regard to coarse grains is less acute. Stocks, held mainly in the United States,

increased slightly in 1968/69, but they remain smaller than those of wheat, both in absolute terms and, in particular, relative to the total domestic consumption and exports of the principal countries concerned. On the other hand, the actual situation and outlook may be somewhat worse than suggested by the figures, because of the increasing use of wheat for feed purposes, which has already shown signs of cutting into the exporters' markets for coarse grains.

The factors mainly responsible for the emergence of the large butter stocks in the last two years, and the measures taken to reduce them in individual countries, are discussed elsewhere in this report.⁸ The international policy consultations relating to the problem are dealt with later in this chapter. By the end of 1968, stocks in 16 major dairying countries with a significant participation in world trade were estimated at nearly 600 000 tons, a quarter more than at the same time a year earlier, and some three times as high as the estimated commercial stock requirements. In addition, the U.S.S.R. was reported to be holding unusually large stocks at the end of 1968.

Aside from the domestic costs involved, the most serious impact of the butter surpluses has been on the trade of some traditional exporting countries, such as New Zealand, Australia and Denmark, which have found their prices undercut in their customary markets by subsidized exports from other countries, including some which until recently were importers like the Federal Republic of Germany. Some of the measures proposed or introduced in stock-holding countries for their reduction, though unavoidable as long as the levels of output are not affected, are potentially harmful also for developing and some developed countries, insofar as they aim at reducing the price of butter relative to that of margarine, and will thus tend to limit the imports of vegetable fats and oils by the butter surplus countries.

An important longer term policy effect of the butter surplus has probably been the extra impetus it has given to policy makers and public opinion in the high-income countries to shift their attention from the traditional farm income policy measures, based essentially on the guarantee of high producer prices, to structural policies aiming at the creation of a numerically smaller but more efficient farm sector, and one whose output is more in line with the pattern of demand.

Surplus problems in developing countries continued to affect some export products, such as coffee (mainly in Brazil) and, to an increasing extent in 1968 and 1969, tea. Physically, much of the tea stocks is usually held in importing countries, particularly the United Kingdom, and in 1968 stocks there rose to 103 000 tons, the highest level since the war and equal to 5 months' imports into that country. The continued fall in tea prices in 1968 and 1969 — in the course of 1968 the average auction price in London fell by about 4 percent — has added urgency to the efforts for an international agreement on tea. The world stocks of

⁸See the section on western Europe in Chapter II.

TABLE I-3. — STOCKS OF SELECTED AGRICULTURAL PRODUCTS

	Date	1960-62 average	1963-65 average	1966	1967	1968	1969 (Forecast)
<i>Million metric tons</i>							
Wheat							
United States	1 July	36.7	26.4	14.6	11.6	14.7	22.1
Canada	1 Aug.	14.5	13.2	11.4	15.7	18.1	22.6
Argentina	1 Dec.	0.7	2.0	0.2	0.3	1.0	0.7
Australia	1 Dec.	0.9	0.6	0.6	2.3	1.4	7.5
France	1 July	2.0	2.5	2.6	1.7	2.4	2.7
Total of above		54.8	44.7	29.4	31.6	37.6	55.6
Coarse grains¹							
United States ²	1 July	70.2	57.0	38.6	34.2	44.2	44.2
Canada	1 Aug.	4.0	4.8	4.5	5.1	4.4	6.2
Argentina	1 Dec.	0.4	0.3	0.1	0.6	1.8	1.8
Australia	1 Dec.	0.1	0.3	0.6	0.9	0.8	1.0
France	1 July	1.6	1.3	1.2	1.1	1.6	1.4
Total of above		76.3	63.7	45.0	41.9	52.8	54.6
Butter							
Canada and United States		0.15	0.10	0.04	0.11	0.08	...
EEC ³		0.08	0.11	0.15	0.20	0.33	...
Other European countries ⁴		0.05	0.06	0.07	0.08	0.10	...
Australia and New Zealand		0.07	0.06	0.07	0.07	0.07	...
Total of above	31 Dec.	0.35	0.33	0.34	0.45	0.58	...
Dried skim milk							
United States		0.23	0.12	0.05	0.12	0.13	...
EEC		...	...	...	0.20	0.31	...
Total of above	31 Dec.	...	...	...	0.32	0.44	...
Sugar (raw value)							
World total	1 Sep.	15.1	13.2	18.6	18.7	18.7	17.4
Coffee							
United States	30 June	0.18	0.22	0.21	0.15	0.20	...
Brazil	30 June	3.05	3.48	3.95	2.96	3.13	...
Cotton (lint)							
United States		1.64	2.74	3.66	2.72	1.40	...
World total ⁵	31 July	4.38	5.58	6.63	5.84	4.70	...
<i>Thousand metric tons</i>							
Tea							
United Kingdom	31 Dec.	69.0	76.4	74.4	77.3	103.3	...
India	31 Dec.	50.3	61.3	70.3	65.6	68.6	...
Ceylon	31 Dec.	34.8	32.6	37.3	23.0	27.5	...

Note: Quantities shown include normal carryover stocks.

¹Barley, oats, maize, sorghum, and rye. — ²Maize and sorghum, 1 October. — ³Excluding Italy. — ⁴Denmark, Finland, Ireland, Sweden, Switzerland, United Kingdom. — ⁵Including estimates of cotton afloat.

sugar, on the other hand, are expected to decline in 1968/69, and this has helped the new International Sugar Agreement in raising the world market price of that commodity.

A positive result of the increased cereal production in a number of deficit developing countries in the Far East was their ability to increase the level of stocks. Problems of surplus cereal stocks in exporting developing countries remain exceptional. But the fact that difficulties of disposal have begun to emerge in

some countries that have been particularly successful in the introduction of high-yielding cereal varieties, such as Kenya (for maize) and Mexico (for wheat), is significant for the future. With the prospects for continued ample supplies in world markets, developing countries which may be able to enter world markets as exporters will be facing keen competition. While continuing to pursue greater self-sufficiency in cereals where it is economically justifiable, they therefore need to give close attention to the progress of their

programmes, and to their costs of production, particularly when output begins to approach the level of full import replacement so that, if necessary, timely adjustments in policies can be made to shift productive efforts to other fields. At the same time, the international community must watch the situation carefully, so that appropriate adjustments in both international arrangements and national policies can be made in time. It is in this light that the recent initiative for international action on rice should be viewed.

Fishery products

World fishery production rose in 1968 by approximately 6 percent, to 58 million tons (Table I-4). Among the developed countries with major fishery industries, only Norway and Iceland caught significantly less fish than the year before. Most developing countries with major fisheries were also able to achieve gains in production, especially in Latin America where Chilean landings recovered steeply from the low 1967 level, and in southeast Asia. In the centrally planned countries, plan targets for fishery expansion were reported fulfilled.

In contrast to the trend in recent years, fish meal and fish oil accounted for a smaller share of the increase in production than fishing for human consumption. World fish-meal production was in the neighbourhood of 4.9 million tons, moderately above 1967, and marine oil production was also slightly higher. Fish-meal output by Latin American and South African suppliers was at a record level, but Norwegian and Icelandic production was handicapped by raw material shortages. Among the internationally important marine oils, fish-body oils made up the bulk of supplies, as baleen whale oil production dropped to a postwar low.

Food fish production increased partly in response to a moderate improvement in markets for staple varieties in developed countries, after a serious depression which had lasted for the greater part of two years. In the developing countries of southeast Asia, the major part

of the production is still destined for local consumption, although catches of high unit value finfish and crustacea have also been expanding with the accelerated development of export fisheries.

Forest products

A marked improvement took place in 1968 in world forest production, after a period of reduced growth or even declining activity in some regions in 1966 and 1967.

Primary forest production, as measured by the removal of roundwood, is tentatively estimated to have expanded by about 2 percent (Table I-5). There was little or no change in the removals of fuelwood, as lower production in developed countries was largely offset by greater production in developing regions. Removals of industrial roundwood expanded, however, by about 3 percent. The increase was largest in North America (4 percent), and the removals in Africa also rose substantially. The increase in Asia was less than in the past two years, but in Europe logging activities recovered in response to the acceleration of economic growth and following a situation of excess supplies caused by salvage of wood from storm-damaged forests in central Europe in 1966/67.

Among forest industries products, the production, of sawn softwood rose by between 4 and 5 percent, to the record level of 293 million cubic metres (see Annex table 1A). The rise was particularly marked in North America, where strong demand from the booming construction industry resulted in a very tight supply position. In contrast, the world output of sawn hardwood remained stationary in 1968 for the first time in a decade as the appreciable increases in Africa and Asia, much of it for export, were offset by a fall in North America.

Production of wood-based panel products accelerated again in 1968, after two years of slower than average growth. Plywood production rose by between 7 and 8 percent to some 28 million cubic metres, particularly

TABLE I-4. - ESTIMATED WORLD¹ CATCH OF FISH, CRUSTACEA AND MOLLUSCS

	1948-52 average	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 ²	Change 1967 to 1968 ²	Annual rate of growth 1955-57 1965-67
	Million metric tons													Percent	
Western Europe	6.31	7.59	7.45	7.84	7.71	7.94	8.21	8.50	9.18	10.24	10.87	11.26	10.97	-3	3.4
Eastern Europe and U.S.S.R.	1.94	2.82	2.91	3.08	3.40	3.63	4.02	4.47	5.05	5.73	6.01	6.43	6.93	8	8.0
North America	3.50	3.80	3.75	3.98	3.79	4.00	4.15	4.01	3.91	4.04	3.95	3.78	3.97	5	-
Oceania	0.09	0.11	0.11	0.12	0.13	0.14	0.15	0.15	0.16	0.18	0.19	0.20	0.21	5	6.3
Latin America	0.63	1.36	1.87	3.23	4.73	6.62	8.62	8.78	11.40	9.43	11.57	12.71	13.48	6	26.0
Far East ¹	6.85	10.30	10.60	10.92	11.81	12.45	13.04	13.37	13.72	14.52	15.23	16.41	18.04	10	4.8
Near East	0.35	0.39	0.38	0.39	0.40	0.42	0.44	0.51	0.54	0.52	0.51	0.49	0.53	8	2.5
Africa	1.20	1.98	2.03	2.16	2.20	2.40	2.52	2.67	2.95	3.04	3.09	3.62	4.10	13	5.8
World ¹	20.90	28.40	29.10	31.70	34.20	37.60	41.20	42.50	46.90	47.70	51.40	54.90	58.20	6	6.4

¹Excluding China (Mainland). - ²Preliminary.

TABLE I-5. - INDICES OF WORLD¹ ROUNDWOOD PRODUCTION

	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 ²	Change 1967 to 1968 ²	Annual rate of growth 1955-57 - 1965-67
	..... 1952-56 average = 100 .....													..... Percent
Saw and veneer logs	103	108	115	118	116	120	122	129	125	126	128	132	3	1.8
Pulpwood and pitprops	114	107	112	120	121	122	120	129	134	137	141	146	4	2.1
Other	112	103	108	99	92	91	96	97	129	131	133	136	2	2.2
Industrial wood	106	107	114	116	114	117	119	125	127	129	131	135	3	1.9
Fuelwood	102	102	103	101	101	102	106	107	108	108	107	107	-	0.7
Total roundwood	105	106	111	112	111	113	115	121	122	124	125	128	2	1.6

¹Excluding China (Mainland). - ²Preliminary.

in North America and in a number of Asian countries which export to the North American market. There was an even greater increase, of 15 percent, in the production of particle board. Europe is the main producing and consuming region for this product, and the growth was particularly great, at 25 percent, in the Federal Republic of Germany which is the world's largest producer. Fibreboard output rose by about 9 percent to over 6.5 million tons, with a strong recovery in North America and a renewed acceleration in Europe.

At the beginning of 1968, pulp and paper production capacity in the main producing regions, North America and northern Europe, was still underutilized. Several years of strong capacity expansion, coupled with a slowing down in growth of demand in 1966 and 1967, had led to excess supplies

and some weakness in prices. During 1968, however, the balance between supply and demand improved. Prices for chemical wood pulp rose somewhat, and by the spring of 1969 capacity operating ratios for most grades of pulp had been considerably raised.

Newsprint production, which had barely risen in 1967, increased in 1968 by some 4.5 percent to 19 million tons. North American output was up by 3 percent, as a slight decline in production in Canada, which produces about two fifths of the world total, was more than offset by higher output in the United States. Production of other paper and paperboard accelerated in 1968, rising to over 90 million tons. There was an expansion of about 7 percent in North America, which accounts for nearly half of world production, and smaller increases in all other major producing areas, with the exception of the U.S.S.R.

International trade in agricultural products

Preliminary data indicate that the value of exports of agricultural, fishery and forest products combined increased by some 3 percent in 1968 (Table I-6).⁹ In the main, however, this modest increase reflected a sharp rise in earnings from forest products. For agricultural products proper trade failed to increase, a decline in prices offsetting a limited (3 percent) increase in volume. Although the estimates point to some improvement in the position of the developing countries - their combined earnings from agricultural exports are

estimated to have increased by about 3 percent - the increase was unevenly distributed as between regions, and much of it consisted of a recovery following widespread declines in 1967. The combined agricultural export earnings of the developed countries fell for the second successive year. A detailed discussion of the trade of individual regions is contained in Chapter II.

The failure of the value of world agricultural trade to increase in 1968 appears particularly significant if viewed against the somewhat longer term trend: for the world as a whole, the value of agricultural exports has shown no sustained increase for the past four years, and for all regions but three (western and eastern Europe

⁹The indices discussed here exclude China (Mainland).

TABLE I-6. INDICES OF THE VOLUME, UNIT VALUE AND TOTAL VALUE OF WORLD¹ TRADE IN AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 ²	Change 1967 to 1968 ²
..... 1957-59 average = 100															Percent
Value of exports	93	98	103	96	102	108	112	114	126	137	139	145	144	148	3
Agricultural products ..	93	98	103	96	101	107	111	112	125	134	134	139	137	137	-
Fishery products	76	88	92	100	108	109	115	135	138	156	174	190	188	147	4
Forest products	97	96	101	95	104	115	116	118	129	147	155	164	170	192	13
Volume of exports	89	94	98	97	105	112	119	122	128	135	139	143	144	150	4
Agricultural products ..	88	95	98	97	105	111	119	121	126	130	134	137	138	142	3
Fishery products	83	91	92	101	107	113	120	133	137	153	154	158	167	180	8
Forest products	95	94	97	96	106	118	122	126	137	153	158	167	172	187	8
Average export unit value	106	104	106	100	95	98	95	94	99	103	101	101	100	99	- 1
Agricultural products ..	108	105	106	100	94	98	95	93	100	104	100	101	99	97	- 2
Fishery products	90	97	99	99	102	99	99	105	105	109	118	125	122	114	- 6
Forest products	102	103	104	99	97	97	95	94	94	96	98	98	99	103	5
Total value of world trade (agricultural and nonagricultural)	84	93	100	96	103	115	121	127	139	155	168	183	193	215	11

¹Excluding China (Mainland). - ²Preliminary.

TABLE I-7. INDICES OF THE VALUE OF WORLD¹ EXPORTS OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS, BY MAIN COMMODITY GROUPS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 ²	Change 1967 to 1968 ²
..... 1957-59 average = 100															Percent
Agricultural, fishery and forest products	93	98	103	96	102	108	112	114	126	137	139	145	144	148	3
Agricultural products	93	98	103	96	101	107	111	112	125	134	134	139	137	137	-
Food and feedstuffs ..	85	94	99	96	104	108	118	123	142	153	158	165	167	163	- 2
Cereals	86	101	102	96	102	108	126	133	151	170	173	187	181	166	- 8
Sugar	88	86	114	98	89	102	118	106	150	147	116	112	121	125	3
Vegetable oils and oilseeds	86	101	100	94	106	112	111	119	132	140	152	161	157	165	5
Fruit	84	87	102	101	98	105	110	122	123	130	144	152	158	157	- 1
Meat	77	81	89	98	114	113	119	131	153	167	183	197	203	207	2
Dairy products	91	100	97	90	114	109	109	107	117	126	136	137	150	142	6
Beverages and tobacco	100	103	103	101	96	98	97	96	103	113	107	111	113	118	4
Coffee	107	119	110	98	92	91	88	89	94	113	101	112	106	115	9
Cocoa	112	85	86	106	108	104	93	91	98	101	96	86	112	127	14
Tea	102	105	99	104	97	99	102	102	105	102	103	94	100	94	- 6
Tobacco	91	91	104	98	98	105	109	107	121	130	126	127	132	126	- 4
Agricultural raw materials	104	104	113	89	99	111	108	101	108	108	103	102	92	94	2
Wool	99	103	122	83	95	98	104	102	117	120	106	110	92	94	2
Cotton	102	109	118	95	87	115	112	97	107	111	108	104	101	106	5
Rubber (natural)	115	99	95	83	122	122	99	97	92	83	84	79	69	69	- 1
Fishery products	76	88	92	100	108	109	115	135	138	156	174	190	188	190	1
Forest products	97	96	101	95	104	115	116	118	129	147	155	164	170	192	13
Roundwood (excl. fuel)	96	95	98	96	106	131	153	156	174	193	216	239	274	312	14
Processed wood	109	97	103	95	102	115	112	115	125	142	144	143	141	168	19
Panels	80	77	88	91	120	117	120	137	157	188	211	230	240	291	21
Pulp and paper	93	99	102	96	102	111	112	110	118	135	141	152	157	170	8

¹Excluding China (Mainland). - ²Preliminary.

TABLE I-8. — INDICES OF WORLD¹ AVERAGE EXPORT UNIT VALUES OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 ²	Change 1967 to 1968 ²
	..... 1957-59 average = 100														Percent
Agricultural, fishery and forest products	106	104	106	100	95	98	95	94	99	103	101	101	100	99	- 1
Agricultural products	108	105	106	100	94	98	95	93	100	104	100	101	99	97	- 2
Food and feedstuffs ..	101	101	102	99	99	97	96	97	106	109	108	109	109	106	- 3
Cereals	108	104	102	100	98	96	97	103	103	105	104	109	113	111	- 2
Sugar	92	93	112	96	92	89	88	87	131	132	96	94	95	94	- 2
Vegetable oils and oilseeds	98	103	101	98	101	97	95	91	98	98	109	105	100	100	--
Fruit	92	101	105	104	90	92	94	97	102	98	99	103	104	104	--
Meat	98	97	95	101	104	107	105	101	106	119	127	133	129	128	- 1
Dairy products	108	109	104	92	104	103	96	96	102	104	114	110	105	94	-10
Beverages and tobacco	110	103	104	104	92	89	84	81	84	93	89	90	90	92	3
Coffee	120	117	114	103	83	80	76	73	72	94	87	86	79	82	4
Cocoa	114	81	79	118	103	83	66	63	68	70	53	56	74	87	18
Tea	118	104	102	100	98	100	98	94	95	93	90	86	85	78	- 8
Tobacco	97	94	103	98	99	98	93	91	100	95	96	104	102	102	- 1
Agricultural raw materials	120	114	118	99	84	108	101	96	101	101	94	92	86	83	- 3
Wool	108	109	126	89	85	92	90	89	102	113	92	95	87	77	-12
Cotton	120	110	110	101	88	94	97	92	92	91	93	85	84	88	5
Rubber (natural)	118	106	101	87	112	126	93	89	85	77	76	74	61	57	- 6
Fishery products³	90	97	99	99	102	99	99	105	105	109	118	125	122	44	- 6
Forest products³	102	103	104	99	97	97	95	94	94	96	98	98	98	103	5
Roundwood (excl. fuel)	109	104	103	100	97	103	106	107	106	108	112	114	115	124	7
Processed wood	106	105	104	98	98	98	96	95	96	99	102	102	100	109	9
Panels	104	103	102	99	99	96	94	96	97	94	95	97	95	100	5
Pulp and paper	99	101	104	99	97	95	93	90	89	92	93	92	94	96	1

¹Excluding eastern Europe, U.S.S.R. and China (Mainland). — ²Preliminary. — ³Excluding China (Mainland).

and the Near East) its level in 1968 was at or below that of 1964. This stagnation is particularly striking in view of the continued steady growth of total world trade in all commodities, which has expanded at an average rate of about 8 percent per year during the same period.

Agricultural export earnings

The total value of exports of food and feedstuffs fell again in 1968 by some 2 percent, reflecting another sharp fall in earnings from cereals (except rice) and dairy products, and smaller declines in those from fruit (Table I-7). These commodities together account for about one third of the value of agricultural trade. Receipts from agricultural raw materials increased for the first time in five years, and earnings from the beverages and tobacco group were also higher. Receipts from cocoa, in particular, increased sharply, and the value of trade in coffee, wool and cotton was also higher. These increases more than offset declines in

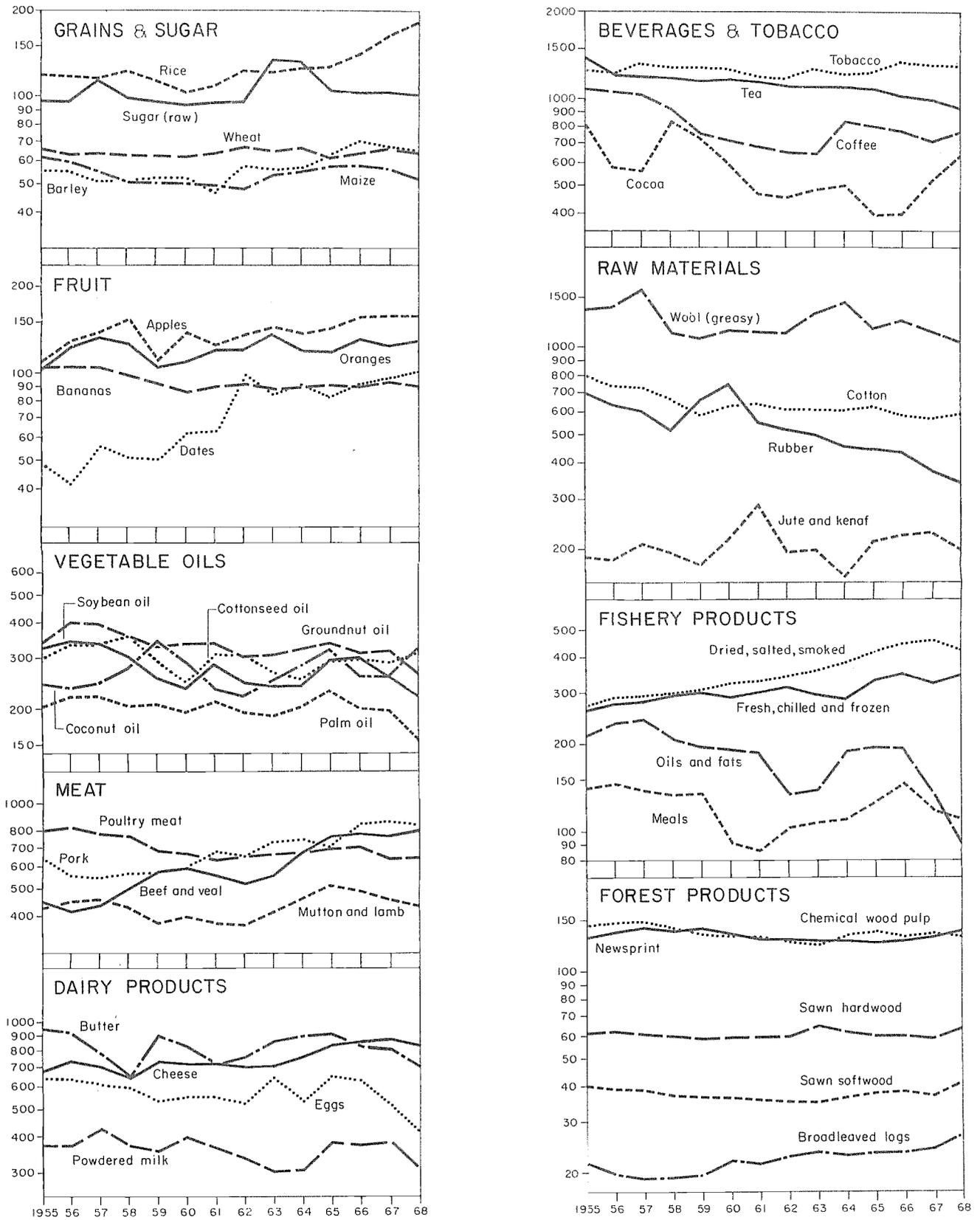
earnings from some other commodities, including tea, tobacco and jute.¹⁰

The larger earnings resulted, for the most part, from an expanded volume of trade, particularly of raw materials. Shipments of wool and rubber were substantially larger, reflecting a higher level of economic activity and consumption in most developed countries, as were those of cotton, for which world consumption continued to exceed production. Imports of raw materials into North America, western Europe and Japan, which take about 85 percent of the total, increased substantially.

Export unit values of certain commodities — particularly rice, copra, coconut oil, palm kernels, cocoa, and cotton — were also significantly higher (Table I-8 and Figure I-3). International prices for rice declined during the year from the high levels of 1966 and 1967, reflecting increased supplies in the importing countries of the Far East, but the large quantities shipped under contract prices, which did not begin

¹⁰For a more detailed discussion of trade in agricultural commodities, see FAO, *FAO Commodity review and outlook 1968-69, op. cit.*

FIGURE I-3. — WORLD: AVERAGE EXPORT UNIT VALUES OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS
(U.S. dollars per metric ton,¹ semilogarithmic scale)



¹ U.S. dollars per cubic metre for sawn softwood, sawn hardwood and broadleaved logs.

TABLE I-9. -- INDICES OF THE VALUE OF AGRICULTURAL EXPORTS BY REGION

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 ¹	Change 1967 to 1968 ¹
	..... 1957-59 average = 100														Percent
Western Europe	89	91	101	98	100	111	116	120	139	151	163	168	181	187	3
Eastern Europe and U.S.S.R.	75	71	93	89	118	114	138	145	151	135	154	167	193	184	- 4
North America	76	102	107	96	97	115	123	119	135	159	153	170	151	146	- 4
Oceania	96	99	110	85	105	102	112	112	133	147	133	132	138	122	-12
Total developed regions ²	84	95	105	93	102	111	121	122	138	151	151	160	162	159	- 2
Latin America	104	106	105	99	96	99	100	103	112	120	124	122	118	119	1
Far East ³	108	101	101	93	106	109	103	103	113	111	109	106	101	99	- 1
Near East	95	100	109	91	99	103	97	103	115	114	123	128	125	131	5
Africa ⁴	94	95	96	104	100	100	100	100	107	116	109	113	106	116	10
Total developing regions	102	102	102	98	100	103	101	102	112	116	116	116	111	114	3
All above regions	94	100	104	96	100	106	109	110	123	134	133	137	134	134	-
World ⁵	93	98	103	96	101	107	111	112	125	134	134	139	137	137	-

¹Preliminary. -- ²Including Japan and South Africa. -- ³Excluding Japan and China (Mainland). -- ⁴Excluding South Africa. -- ⁵Excluding China (Mainland).

falling until early 1969, contributed to raise the average unit values received. Reduced supplies and a strong import demand kept up prices of copra and coconut oil, and hence of palm kernels.

On the other hand, there were marked declines in the export unit values of dairy products (particularly butter), tea and raw materials (except cotton). For both butter and tea, the sharp fall in prices reflected the excess of supply in relation to demand and the high level of stocks. There was a tendency for most raw material prices to move upward in 1968 as demand tended to outrun supply, but because price changes are reflected in changes in export unit values only with some delay, and because sales tended to be made in periods when prices were low, export unit values averaged lower than the previous year. Increased exportable supplies and reduced import requirements also exerted a downward pressure on international wheat prices, which averaged lower than the previous year, despite the coming into effect of the IGA price range in mid-1968.

Because data for the developing countries are relatively incomplete, the indices for these regions must be considered tentative, and little significance should be attached to small changes in them. Preliminary estimates indicate, however, that their combined export earnings rose by some 3 percent in 1968 (Table I-9). This increase represents only a partial recovery from the low level of 1967, when the total had fallen by 4 percent, and for all developing countries combined the level of earnings remained below that of 1964-66.

Nearly all of the increase, moreover, benefited only two of the four regions -- the Near East and Africa (excluding South Africa). In the former, the 5 percent increase resulted largely from high prices for rice and cotton, which together provide over 60 percent of the region's agricultural export earnings. The value of exports from Africa seems to have risen even more (by 10 percent), but the data for this region are particularly incomplete and may be subject to considerable revision.

For the other two developing regions -- Latin America and the Far East (excluding Japan) -- earnings remained largely unchanged. For Latin America, lower prices for cereals and sugar depressed the value of exports of these commodities, largely offsetting the larger receipts from most other exports. Far Eastern earnings also failed to increase, thus remaining at their lowest level since 1953, reflecting unchanged or lower receipts from all major agricultural exports except coconut products.

In the case of the developing regions, the unit values for most of their main export products -- grains, meat and dairy products, for North America also soybeans and soybean oil, and for Oceania wool -- fell sharply, as supplies were generally ample. Since the volume shipped from North America and Oceania failed to increase, earnings fell to their lowest levels since 1962-63. Only western Europe, most of whose trade is with other countries in the region, was able to expand the volume of its exports. This expansion was more than sufficient to make up for the lower prices received, and the total receipts from the region's exports were higher.

Agricultural imports

The volume of the developed countries' imports of agricultural products increased by 3 percent in 1968 (Table I-10). This reflected primarily an increase in beverages and tobacco and raw materials imports (by 6 and 5 percent respectively), particularly into North America. Imports of food and feed were only slightly (2 percent) higher.

Competition from synthetics remains a major determinant of trends in the trade of raw materials, although in 1968 it tended to be overshadowed by the revival in consumption from the low levels of the previous year and by an acceleration of imports for stock building in anticipation of the dock strike in the United States. Imports of wool were stimulated by the low level of prevailing prices, and those of rubber were particularly high in the United States where consumption had contracted the previous year owing to a prolonged strike. In the case of cotton, however, competition from man-made fibres was an important factor in causing both consumption and imports to fall in 1968, except in Japan.

North American agricultural imports rose by 9 percent to a record level, partly in anticipation of the dock strike in the United States: imports of beverages

and tobacco (except cocoa) and of raw materials were more than 10 percent larger, while those of all food and feedstuffs combined increased by somewhat less (7 percent). For western Europe total imports were only slightly above the depressed level of the previous year, and barely recovered to that of 1966. Imports of meat and dairy products remained on the whole unchanged, as did total cereal imports (larger imports of wheat, maize and rice were offset by smaller ones of other cereals), while those of coffee, wool and rubber rose substantially. Tobacco and cotton imports were lower. Japanese imports were up by 6 percent, reflecting equal increases in the raw materials and food and feedstuffs groups. Sharp declines in the imports of rice, in which Japan is now self-sufficient, and dairy products were offset by increases in most others. Imports of textile fibres continued to increase rapidly to meet the growing requirements for domestic consumption and for export.

For the developing regions, a significant feature of 1968 was the effect on imports of the greater cereal production in many major deficit countries in 1967 and 1968. The volume of their combined cereal imports fell some 8 percent below the peak level that had been reached in 1966-67, following poor harvests in 1965 and 1966. This sharp decline caused both the volume

TABLE I-10. - INDICES OF THE VOLUME AND VALUE OF AGRICULTURAL IMPORTS BY REGION

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 ¹	Change 1967 to 1968 ¹
	<i>1957-59 average = 100</i>														<i>Percent</i>
Volume															
Western Europe	89	96	100	97	103	107	109	114	116	118	122	127	125	127	1
Eastern Europe and U.S.S.R.	79	81	94	95	111	117	129	127	135	167	167	163	147	149	1
North America	92	95	95	97	108	101	106	115	113	104	107	112	113	123	10
Oceania	101	93	98	102	100	101	104	95	105	110	120	116	109	106	2
Total developed regions ²	89	94	98	97	105	108	112	117	120	124	128	133	131	135	3
Latin America	92	89	99	102	99	103	108	116	123	137	133	147	143	147	2
Far East ³	71	89	103	98	98	121	117	117	133	143	147	156	166	160	- 4
Near East	73	86	94	96	110	121	133	139	142	146	158	173	165	168	2
Africa ⁴	85	96	100	95	105	119	131	129	115	120	130	144	140	137	- 2
Total developing regions	79	89	100	98	102	116	120	122	129	138	143	155	156	155	- 1
World	87	94	99	97	104	109	113	117	124	126	130	136	134	138	3
Value															
Western Europe	94	101	106	96	98	104	102	108	117	124	128	133	129	124	- 4
Eastern Europe and U.S.S.R.	83	85	99	94	107	115	122	119	134	174	165	161	142	141	- 1
North America	102	102	101	97	102	95	93	97	102	101	98	104	103	114	10
Oceania	114	97	101	99	100	100	97	88	102	109	113	110	100	96	- 5
Total developed regions ²	95	100	105	96	99	104	104	107	118	128	129	135	130	129	- 1
Latin America	101	91	103	102	96	101	101	112	122	140	133	146	147	147	-
Far East ³	74	90	108	98	95	114	111	110	128	149	146	157	169	163	- 4
Near East	78	88	103	93	104	112	122	124	137	155	155	167	154	150	- 3
Africa ⁴	87	97	103	97	99	112	120	115	108	122	129	136	132	125	- 5
Total developing regions	83	91	105	98	97	110	112	114	125	143	142	153	155	151	- 3
World	93	98	105	96	99	105	105	108	119	131	131	138	134	132	- 1

¹Preliminary. - ²Including South Africa and Japan. - ³Excluding Japan and China (Mainland). - ⁴Excluding South Africa.

and value of total agricultural imports to decline for the first time in 10 years, despite larger imports of most other foodstuffs, beverages and tobacco, and agricultural raw materials. The biggest decline in volume terms (4 percent) occurred in the developing countries of the Far East, which take over 40 percent of the total agricultural imports of the developing regions, and whose cereal imports were down by almost 15 percent. Near Eastern imports were also smaller in both volume and especially value. In this region the decline was primarily due to a drop in coffee and tea imports, but again there were substantial decreases in the grain imports of two major deficit countries, Turkey and the United Arab Republic. For both Latin America and Africa data on imports remain too incomplete to permit a general assessment of the situation in 1968. The available figures suggest, however, that drought-induced shortages caused some increase in Latin American grain imports, particularly in the Dominican Republic, Peru and Uruguay. African imports of food and feedstuffs appear to have remained at about the record level of 1966-67, although grains imports are estimated to have declined again, primarily because of favourable harvests in Algeria and Morocco.

International trade in fishery products

Exports of fishery products expanded slightly in 1968 (Table I-6). High prices were received for luxury crustacean products, for which there was substantial demand in the United States, Japan and Europe, and for fish meal, but prices of staple varieties such as frozen groundfish declined.

Japan and Peru, the world's leading fish producing and exporting countries, were able to increase substantially their export shipments and earnings. Canada took the place of Norway as the third largest fish exporter (in terms of value) since its remunerative trade in salmon and other luxury products made up for the disappointing results in the groundfish trade, which affected both countries.

Among the developing countries, Chile — like its neighbour, Peru — benefited significantly from the recovery of fish-meal markets, and well over 60 countries continued to ship shrimp and other crustacean products to high-income developed countries.

International trade in forest products

Forest products shared fully in the growth of world trade in 1968, as exports increased by more than 13 percent. Despite the slower growth in imports by Japan, the leading importer of tropical forest products, the export earnings of the developing countries from forest products rose by 20 percent, partly because of an increase in the total volume of exports, partly because of higher prices, and partly because a higher proportion of total forest products were exported in processed or semiprocessed form. Exports from the developed regions were also substantially higher.

World roundwood exports continued to expand

strongly in 1968, led by a further 25 percent gain in United States coniferous log exports to Japan. Japanese imports of coniferous roundwood from the U.S.S.R. also continued to rise and, although ample stocks reduced the growth of its imports of broadleaved logs from southeast Asia, import demand in other countries in the region continued to climb. In Europe imports of tropical hardwood logs, chiefly from west Africa, rose strongly.

An important feature of the sawnwood trade in 1968 was the growth of Canadian exports of sawn softwood to the United States, to meet the exceptionally strong demand there. European trade in sawn softwood — both imports and exports — was also higher, and there were larger increases in imports of sawn hardwood, primarily from Malaysia, Singapore, Ghana and Ivory Coast.

A renewed expansion in North American imports was largely responsible for the acceleration in the growth of world trade in wood-based panel products. United States imports of plywood and veneers, chiefly from Asian countries but also from Finland, and of fibreboard, rose appreciably. In Europe, the other main trading region in panel products, both exports and imports continued to expand strongly.

Trade in wood pulp reflected the improvement in the international market in 1968 with world exports rising by an estimated 9 percent to reach 14.8 million tons, 1.3 million tons above the 1967 level. An important feature was the sharp increase in Europe's net imports of chemical pulp.

World trade in newsprint expanded only slowly in 1968 and remained below the peak level of 1966. In contrast, exports of other paper and paperboard continued to expand rapidly. Despite an increase of nearly 13 percent in European exports, the region became for the first time a net importer of these products.

Recent trends in the value of agricultural trade

As already mentioned, a striking feature to emerge from this year's review of developments in world agricultural trade is the virtual stagnation of its value since 1964 (Tables I-9 and I-11). This is in strong contrast with the preceding period shown in Table I-11

TABLE I-11. — ANNUAL GROWTH RATES OF THE VOLUME, VALUE, AND UNIT VALUE OF AGRICULTURAL EXPORTS¹

	Value			Volume, world	Unit value, world
	Developed regions	Developing regions	World		
..... Percent per year					
1955-58	3.4	- 1.4	0.9	3.3	- 2.4
1959-63	7.9	2.8	5.5	4.7	1.7
1964-68	1.3	- 0.5	0.6	2.1	- 1.6

¹Excluding China (Mainland).

(1959-63), when this trade increased at a rate of more than 5 percent a year, and with the behaviour of world trade in general (agricultural and nonagricultural), which has grown steadily over the last decade at a rate of about 8 percent a year. The reduction in the share of agricultural products in world trade, which has characterized much of the postwar period, has thus accelerated in the last four years.

Not all regions have been equally affected. The value of exports from western Europe has risen at a steady rate of some 6 percent a year and that of eastern Europe even faster, though 1968 appears to have brought at least a temporary setback for the latter region (see Chapter II). North America's exports, too, increased steeply until 1966, but have since fallen below the 1964 level. Most significant of all, the agricultural export earnings of all developing regions except the Near East were in 1968 no higher than in 1964, and for the Far East considerably lower. In terms of the broad commodity groups, the value of exports of food and feedstuffs and beverage crops and tobacco has increased slightly while that of agricultural raw materials has fallen steeply.

The basic reasons for the slow growth of agricultural trade are by now well known: saturation levels of consumption of many agricultural products in the developed countries that constitute the main markets; increasing agricultural self-sufficiency in many of the high-income countries, fostered by technological progress and high price supports; various tariff and nontariff obstacles to trade, particularly for processed products; the continuously increasing competition of synthetic substitutes; the problems faced by developing countries in competing in third country markets with the frequently subsidized exports from developed countries; and in some cases difficulties on the part of developing countries in increasing the production of commodities for which demand has been good.

The phenomenon discussed here is therefore not new, but merely an accentuation of past tendencies. For the first time a wide enough range of commodities and regions has been affected for the value of total agricultural trade to remain unchanged for as long as four years. This does not imply that the stagnancy has been universal. The exports of a number of commodities, including the by now familiar "growth products" (such as meat and coarse grains) as well as a variety of minor products which are often of importance for particular countries, have continued to rise. As always, moreover, some countries have been more successful than others in expanding exports of commodities whose overall trade has not grown rapidly, because of their superior competitive ability in terms of costs and quality, more aggressive sales techniques, geographically favourable position, or because of preferential trading arrangements. The rapid growth shown by the exports of western Europe and of eastern Europe and the U.S.S.R. is undoubtedly due to a large extent to the important position which trade within and between the two regions holds in their total agricultural trade. Intraregional trade accounts currently

for some three quarters of the agricultural exports of western Europe and for almost half of those of eastern Europe and the U.S.S.R.; and western Europe absorbs about one third of the agricultural exports of the last-mentioned region. Trade between high-income countries is fostered by the increasing demand for highly differentiated and technically sophisticated products, even when total demand may be rising only slowly. Although the number of exceptions is increasing, more often than not exports from developing countries remain unable to satisfy this type of demand.

The persistence in an acute form at a time of generally rapid advance in economic growth and international trade should bring home more strongly than before the need for national and international action to enable agricultural trade to regain at least some of the growth, limited as it was, which it seemed to possess until a few years ago. This would be particularly important for the developing countries, which depend on agricultural exports for the bulk of their foreign exchange earnings.

Action to promote the growth of agricultural trade is also needed because the persistence of poor prospects in export markets will tend to strengthen further the tendency for developing countries to become increasingly self-sufficient in agricultural products. This does not mean that import substitution as such needs to be uneconomic. But where it is resorted to in response to poor prospects for exports because of artificial trade barriers and subsidized competition in third countries, import substitution can lead to a less efficient pattern of resource use in both the individual countries concerned and in the world as a whole.

International trade policies

International action in the field of agricultural trade policies in 1968 and during most of 1969 was characterized by two principal features. Following the two major events in 1967 and early 1968 – the conclusion of the Kennedy Round of trade negotiations, and the holding of the second session of the United Nations Conference on Trade and Development (UNCTAD II) – much of the attention of governments and the concerned international secretariats was taken up by preparatory work with a view to renewing the search for broad solutions to the problems of agricultural trade, those of developing countries in particular. In the meantime some significant advances were being made in the field of individual commodity arrangements and consultations.¹¹

The question of general preferences for the exports of developing countries, on the desirability of which UNCTAD II had agreed,¹² was being explored both

¹¹For a detailed description of them, see FAO, *FAO Commodity review and outlook 1968-69*.

¹²The principal recommendations of UNCTAD II were discussed on p. 38-39 of the 1968 issue of this report.

within the framework of Part IV of the General Agreement on Tariffs and Trade (GATT) and in the UNCTAD Committee on Preferences. Some progress was made by the UNCTAD Committee on Commodities in finalizing the texts of broad recommendations on international commodity policy. The newly established Committee on Agriculture of GATT, moreover, was active in collecting and analysing detailed documentation on national production and trade policies for a wide range of agricultural products, in an effort to maintain the momentum of trade liberalization and to extend it to agricultural products, which had benefited but little from the Kennedy Round.

The interest of the International Monetary Fund (IMF) in the trade problems of developing countries also continued to expand. Following the broadening of the compensatory financing facility in 1966, greater use has been made of it in 1967 and 1968, partly due to the generally less satisfactory trends in developing countries' exports described above. Following a staff study on the problem of stabilization of primary products prices, the Executive Board of IMF have recently decided that, subject to certain principles and limitations, assistance should be given to member countries in connexion with the financing of international buffer stocks of primary products, and that, in consultations with its members, IMF would pay greater attention to their commodity problems.

Activities in the field of individual commodity arrangements and consultations, while falling short of the accelerated timetable of simultaneous study and action on the problems of specified primary commodities recommended by UNCTAD II, showed some definite results. New agreements were concluded on two important commodities, sugar and grains — although the latter accord soon came under strain as prices fell — and two others, on coffee and olive oil, were renewed. The informal arrangements to bring stability to international trade in hard fibres and jute were successfully continued although, in the case of jute, a small crop led to world prices exceeding the indicative price range. Considerable progress has been made in preparatory work aiming at the possible organization of international trade in tea, and the basis of a draft agreement is now being examined by governments. The feasibility of international action on rice, for which the possible emergence of large exportable supplies relative to demand was causing some concern, and on oilseeds, oils and fats was considered in the study groups concerned. A wine and vine products study group was established and meat was, for the first time, the subject of an ad hoc international consultation.

The International Sugar Agreement, negotiated under the auspices of UNCTAD, came into force for a period of five years from 1 January 1969. Like the old agreement, which had been inoperative since the end of 1961, it depends primarily on variable export quotas to maintain sugar prices within an agreed range, but again covers only that portion (about half) of the total world market which is not included under special

arrangements such as the Commonwealth Sugar Agreement, the United States Sugar Act, and the bilateral arrangements between Cuba and the centrally planned countries. New features include the preference it gives to developing countries in the distribution of quota increases, and the lighter stockholding requirements it assigns them. A weakness of the new agreement is the absence of the European Economic Community (EEC), an important exporter with a potentially growing surplus, and a number of importing countries.

The renewed International Coffee Agreement which is also based on export quotas has been strengthened against disruptive effects from trade of nonmember countries. Additional strength has also been given to the provisions establishing national production goals to adjust output to requirements, which were ineffective before, and a diversification fund has been established to help countries to shift the area under cultivation away from coffee. The export quotas themselves have been reallocated, largely in accordance with adjustments made during the course of the previous agreement, giving a relatively larger share to some of the African and Central American exporting countries at the expense of Brazil and Colombia. Following a year of generally falling prices, the initial export quotas for 1969/70 were set at 46 million bags, 1.5 million bags less than the initial quotas for 1968/69.

Discussions on a possible international agreement on tea continued during most of 1968 and the first half of 1969. During the talks held in May 1969 importing and exporting countries were, however, unable to agree on whether the market situation was critical enough to require the prompt conclusion of a formal agreement. Exporting countries therefore decided to proceed among themselves to the immediate negotiation of an informal scheme which would, if possible, be brought into effect by the beginning of 1970. In August 1969, representatives of tea exporting countries agreed to submit to their governments a scheme for the removal from export markets in 1970 of some 90 million pounds (40 000 tons) of tea. In October, the FAO Committee on Commodity Problems established a Consultative Committee on Tea.

The informal arrangements to stabilize world trade in jute and hard fibres, with the participation of importing countries, were continued. Though the prices of hard fibres have improved during the period in which the arrangement has been in existence, they have not yet reached the desired target level. The Consultative Subcommittee of the Study Group on Hard Fibres therefore reduced the global export quota for 1969 in April of that year, and prices of some qualities have since strengthened. Both minimum prices and the global export quota will be reviewed in January 1970 in the light of market conditions at that time. In the case of jute, prices were successfully maintained within the recommended indicative range between September 1967 and October 1968, when the shortfall in output in the main producing countries led to a sharp rise in world prices. This situation lent urgency to the work of the

newly constituted Advisory Working Party on Jute Stabilization Reserves, which has recommended the establishment of national buffer stocks to be operated under some form of informal international agreement. This working party is now awaiting specific proposals from the main producing countries, requested for December 1969. Further progress has also been made toward the establishment of an indicative price range for Thai kenaf.

For several other important commodities, however, efforts to deal with international commodity problems have been less successful. Negotiations for an international arrangement on cocoa were continued but without results, in part because in the view of some exporters the recent changes in the world cocoa economy made it necessary to reconsider some of the basic points agreed during the 1966-68 negotiations. The International Grains Arrangement (IGA), which came into force on 1 July 1968, was under severe strain throughout its first year. As noted elsewhere, the increase in exportable supplies and lower import requirements which followed the generally good 1968 harvests have caused international wheat prices to fall below the minimum IGA levels, which were agreed at a time when world wheat supplies were relatively short. Consultations have been held both among the main exporting countries and within the IGA Prices Review Committee, but as yet no decision to change the price range has been taken. This may be a reflection of the fact that a lowering of the minima would probably not be effective in solving the immediate problem, which is basically one of oversupply. Its solution would seem to lie outside the present scope of IGA, in an agreement which regulates the flow of supplies and, over the longer term, in the policies of national governments to control production.

No advance appears to have been made in international efforts to ease or solve the problem of excess butter supplies which has led to stock accumulation, unremunerative international prices, and disruption of markets. Negotiations in the GATT Working Party on Dairy Products toward obtaining an agreement on minimum prices and increased food aid have been suspended since February 1968 because of the incompatibility of the positions of the main negotiating parties, i.e., EEC and New Zealand, especially in relation to the United Kingdom market. In the long run, changes in national policies in Europe appear a necessary condition for achieving a better market balance. So far the only effective action in this respect has been taken by Switzerland and Austria, where production has been cut. The next meeting of the working party was scheduled to be held on 16 October 1969.

The experience in 1968 and the first half of 1969 in international trade policies for agricultural products has a number of implications for work in this field.

Until the preparatory work under way in UNCTAD and GATT toward broad solutions to problems in this field has been completed and the reactions of governments become known, it cannot be judged whether there has emerged any less reluctance to adopt such an approach. In any case, because of the complexity and importance of the issues involved, rapid progress would appear unlikely. While it is in the interest of the developing countries that such efforts be continued, it would seem that for the time being a commodity-by-commodity approach remains more acceptable to governments, and more likely to bring results.

However, experience with grains, coffee and butter in 1968 has lent new strength to the argument (already reflected in the principles for international commodity arrangements approved by the first session of UNCTAD) that, in order to be effective, arrangements for individual commodities need to go beyond agreement on price ranges and their maintenance through trade intervention, and deal with the underlying factor of national production. At the same time recent developments, particularly with butter, have shown how difficult it is to influence national production policies and patterns, even in developed countries where the alternative uses for resources are relatively numerous, both within and outside agriculture.

Three other points would seem to warrant mention. First, the past success and the renewal of the International Coffee Agreement, despite the divergent interests of the participating exporters, is testimony to the importance of flexibility in the form and interpretation of quota provisions, so that the arrangements can be adapted to the changing circumstances; and of cohesion among the participating countries to keep nonparticipants from disrupting the arrangement. The year's experience also suggests that there may be a case for making further use of informal arrangements based on flexibility and the voluntary acceptance by exporters and importers of specific mutual obligations, without formal negotiation of legally binding international instruments, at least in the initial stages. The success achieved for jute and fibres in this way, and the decision of exporters to explore such an informal arrangement on tea, both speak in their favour particularly when the commodities are produced largely or exclusively for export by a small number of countries.

Finally, the growing number of commodities and problems being studied in depth through international consultations of various kinds suggests that the need is being increasingly felt for action on commodities to be preventive, rather than in response to crises. At the same time, it indicates a realization that a large amount of groundwork has to be done before a commodity or a problem area is sufficiently understood by all parties concerned to make possible international action.

Development assistance

In the field of international aid, 1968 was a year of uncertainty and questioning. Although the total net flow of financial resources to the developing countries increased by 14 percent (Table I-12), this was accounted for almost entirely by a sharp increase in the flow of funds in the form of direct investment and particularly export credits. The official flow of aid from the member countries of the Development Assistance Committee (DAC) of the Organization for Economic Cooperation and Development (OECD) stagnated in 1968, as the disbursements of "official development assistance" (the portion of total aid which is significantly concessional in character) declined by about 3 percent.

In part the decline in official aid transfers stemmed from the economic and balance of payments problems of some of the principal aid-giving nations. There was also evidence of a more critical questioning in some donor countries of the purposes and effectiveness of foreign aid programmes. These tendencies were reflected in the data for individual countries. The total net flow of resources to developing countries increased in the case of virtually all of the 16 member countries of DAC, but the net flow under official development assistance programmes declined in the case of six countries. They included such major contributors as the

United States (from where the net flow under this account was the smallest since 1962), the United Kingdom (smallest official aid transfers since 1963), Canada, and Japan. Only France, the Federal Republic of Germany and Italy, among important contributors, showed a further increase in 1968, and also some of the minor contributors made greater sums available than in 1967. The flow from non-DAC countries combined declined.

Although there was some increase in the flow of aid through multilateral programmes, some of them were experiencing difficulties in obtaining sufficient financing. This applied particularly to the International Development Association (IDA), the soft-loan affiliate of the International Bank for Reconstruction and Development (IBRD). Although an agreement on a higher level of replenishment (\$1 200 million over three years) had been reached in March 1968, IDA remained without replenishment of its funds until July 1969 when the United States passed the necessary legislation.¹³ To some extent, the position of IDA had

¹³ Under the terms of agreement on the second replenishment the obligation was not to be binding on all donor countries until and unless at least 12 countries pledging not less than \$950 million had formally notified their ratification.

TABLE I-12. — NET FLOW OF FINANCIAL RESOURCES¹ TO DEVELOPING COUNTRIES, 1960-68

	1960	1961	1962	1963	1964	1965	1966	1967	1968 ²
	<i>Million U.S. dollars</i>								
Flow from DAC member countries³									
1. Official development assistance⁴									
Bilateral grants	3 716	4 031	4 102	4 034	3 868	3 770	3 802	3 673	3 377
Bilateral development loans at concessional terms	473	658	963	1 518	1 784	1 864	2 022	2 271	2 404
Contributions to multilateral institutions	534	521	511	368	362	444	479	748	689
Total above	4 723	5 210	5 576	5 920	6 014	6 078	6 303	6 692	6 470
2. Other official flows									
Bilateral	175	704	440	188	- 81	226	252	156	477
Multilateral	66	230	15	- 3	18	5	53	186	2
Total above	241	934	455	185	- 63	231	305	342	479
Total official flows (1 and 2)	4 964	6 144	6 031	6 105	5 950	6 309	6 608	7 034	6 949
3. Private flows									
Direct investment	1 762	1 825	1 467	1 631	1 791	2 509	2 197	2 010	2 742
Bilateral portfolio	645	613	214	280	409	670	455	802	782
Multilateral portfolio	205	90	239	- 33	141	248	15	306	590
Export credits	537	569	577	634	851	753	1 189	1 095	1 790
Total above	3 149	3 097	2 497	2 512	3 192	4 180	3 856	4 213	5 904
Total official and private (1, 2 and 3)	8 113	9 241	8 528	8 617	9 143	10 489	10 464	11 247	12 853
Estimated flow from non-DAC countries⁵	206	305	406	382	386	334	360	365	345
Grand total	8 319	9 546	8 934	8 999	9 529	10 823	10 824	11 612	13 198

Source: Organization for Economic Cooperation and Development.

¹Gross disbursements minus amortization receipts on earlier lending. — ²Preliminary. — ³Australia, Austria, Belgium, Canada, Denmark, France, Federal Republic of Germany, Italy, Japan, Netherlands, Norway, Portugal, Sweden, Switzerland, United Kingdom, United States. — ⁴Flows which are intended primarily to promote the economic development and welfare of developing countries, and which are intended to be concessional in character. — ⁵Finland, New Zealand, South Africa and the centrally planned countries.

been eased by the steps taken in the latter part of 1968 and in early 1969 by the Scandinavian countries, Canada, Netherlands, Federal Republic of Germany, Italy and Japan to contribute a total of \$325 million to IDA replenishment in advance of action by the United States, and a transfer by IBRD of \$75 million from its profits in 1967/68. A number of countries have also agreed to provide IDA with contributions over and above those agreed.

IBRD and the financing of agriculture

For the World Bank group of institutions, 1968 and 1969 have been a period of challenge and change. Since early 1968 the twin aims of the Bank, under its new president, continue to be to expand its activities in an attempt to offset the decrease in the flow of bilateral aid, and to give a better sense of direction and purpose to foreign aid programmes.

Following a recommendation in November 1967 by the then president of the World Bank group that an assessment might be undertaken of the results of the last 20 years of development efforts by both donors and recipients of development assistance, and suggestions made for policies which might be more effective in the future, the Bank sponsored in the latter part of 1968 an independent commission under the chairmanship of Mr. Lester B. Pearson. Reporting in October 1969, the commission concluded that the aid effort was "flagging" at the very time that the drive for economic development was beginning to produce results. It therefore called for a large increase in government aid (as distinct from private investment) to 0.7 percent of the gross national product of the industrial countries by 1975, compared with just under 0.4 percent in 1968, and urged that 20 percent of the total be channelled through multilateral institutions, compared with 10 percent now. It also proposed that donor countries use part of their inflow of interest and principal on past loans to "subsidize interest rates on some World Bank lending" and that they adopt a staged

plan of trade liberalization to give the developing countries a gradually rising share of the market for some agricultural products and for a growing range of manufactured products.

Aside from aiming at a rapid increase in the volume of Bank financing, the new operational policy of IBRD envisages a reorientation of lending priorities. While doubling the total volume of loans during the next five years over that in the previous five, the rate of lending in Asia and Latin America would be more than doubled and that in Africa raised threefold. Changes are also envisaged in the distribution of loans among the functional sectors. Without cutting back on the financing of infrastructure, traditionally the main field of the Bank's activities, the highest importance is now attached to the financing of agriculture, which will increase fourfold, with assistance from FAO through the FAO/IBRD Cooperative Programme. The financing of education will be increased threefold and the financing of industries doubled. The Bank has also expressed its concern as regards problems of population growth, and intends to give priority to these problems and to ask governments to which it gives assistance to do the same.

Striking results in the pursuit of these objectives have already been achieved in the first fiscal year, 1968/69, during which Bank lending increased by 87 percent to \$1 784 million and its borrowing by over 65 percent to \$1 224 million, as compared to 1967/68. By late 1969 the position of IDA was further improved by the transfer of \$100 million from the Bank's profits.

The special accent on financing agriculture has also been reflected in the operations of 1968/69 during which Bank loans and IDA credits approved for strictly agricultural projects (including fisheries and forestry, but excluding agricultural education and agricultural components in other projects such as roads) more than doubled from \$172.5 million to \$367.3 million (Table I-13). In fact, even in 1967/68, when total lending by the World Bank group declined by nearly 23 percent compared to the preceding year, loans and credits to agriculture recorded a considerable increase. As a result, the share of agricultural projects in the total loans and

TABLE I-13.-- IBRD LOANS AND IDA CREDITS FOR AGRICULTURE BY PROJECT TYPE

	1966/67 ¹		1967/68 ¹		1968/69 ¹	
	Number	Amount	Number	Amount	Number	Amount
	Million U.S. \$		Million U.S. \$		Million U.S. \$	
Livestock development	2	6.0	2	55.3	7	86.8
Irrigation	2	19.0	4	75.0	5	129.0
Agricultural credit	2	6.6	2	13.0	4	69.0
Land settlement and development	3	41.0	3	23.7	4	39.0
Tropical crops	—	—	2	5.5	7	32.9
Forestry	—	—	—	—	1	5.3
Fishery	1	14.4	—	—	1	5.3
Total agriculture	10	87.0	15	172.5	29	367.3
Grand total all sectors	67	1 230.3	62	953.5	122	1 784.2

Source: FAO/IBRD Cooperative Programme.

¹July-June.

credits approved by the group has increased from 7 percent in 1966/67 to 18 percent in 1967/68 and 21 percent in 1968/69.

Beyond the details shown in Table I-13 of agricultural projects approved in 1968/69, there has been diversification in the Bank's investment in agriculture. For the first time IBRD financed in 1968/69 projects for forestry development and for the production, processing and distribution of improved seed of high-yielding cereal varieties. While irrigation projects continue to account for the largest proportion of the loans and credits, general agricultural development — including plantation, tree and field crops — has accounted for one third of the number of projects. Further, the International Finance Corporation (IFC) has continued its role in the financing of fertilizer projects. The Bank has also come out with a policy statement in favour of increasing its support for projects for diversification of production away from surplus commodities.

Regional banks

In addition to the Inter-American Development Bank (IDB), which has been established for a number of years, the Asian Development Bank (ASDB) and the African Development Bank (AFDB) started lending operations in 1967/68. FAO has cooperative programmes with each of these banks.

Fertilizers

In 1967/68 world consumption of commercial fertilizers (NPK, in terms of nutrient content) increased by nearly 10 percent, at about the same rate as the year before, to a total of 53 million tons (Table I-14). Of this, 87 percent was used in developed countries. The increase was, however, much more rapid in the developing countries (26 percent, as against 7 percent in the developed ones). For the individual developing regions the increases ranged from 17 percent in the Near East and Africa, to 24 percent in Latin America, and 31 percent in the Far East.¹⁴

Among individual countries particularly rapid progress in increasing fertilizer utilization was made (in descending order of increase) by Ecuador, Senegal, Brazil, Turkey, India, Ceylon, Pakistan, Argentina and Thailand. The use per hectare in all of these countries,

¹⁴The increases have been calculated from unrounded consumption figures.

Being a regional institution, ASDB accords high priority to those regional, subregional and national projects and programmes which will contribute most effectively to the harmonious economic growth of the region as a whole, and gives special consideration to the needs of the smaller or less developed member countries in the region. Since initiating its operations in December 1966, ASDB has engaged in financial and technical assistance activities, and has extended total loans amounting to about U.S.\$53 million. ASDB has also completed a regional agricultural survey to help the management in formulating strategy and policies for the development of agriculture in the region. In the agricultural sector, ASDB has approved loans, including technical assistance, for a number of fishery projects, tea and palm-oil processing, irrigation rehabilitation, etc.

IDB approved in 1968 55 loans for a total amount of \$431 million, a figure exceeded only in 1967. Although emphasizing the financing of basic economic infrastructure, even in such projects agriculture and rural development have been recognized as a priority area.

The resources of AFDB are much smaller than those of IDB or ASDB. It is still in the process of building up a pipeline of projects, especially in the agricultural sector to which it attaches priority, and is planning the establishment of a special fund which would provide loans primarily to its less developed members.

with the exception of Argentina, is already relatively high. From the information available it appears that the largest increases took place in countries which produce fertilizers locally, in part no doubt because fertilizer imports tend to be limited by the shortage of foreign exchange. The share of domestically produced fertilizer in the total use has not, however, risen much.

World production of fertilizer rose in 1967/68 by about 8 percent, and was again somewhat higher than consumption (Table I-14). Output in the developing countries generally failed to keep up with the sharply increasing demand, and more than 75 percent of the additional fertilizer used by all of them combined had to be imported in 1967/68. Senegal and Morocco have started to produce nitrogenous fertilizers.

Data for 1968 on the prices of fertilizers and crops are insufficient for a systematic review of their influence on fertilizer use. For some countries, however, reports indicate that the economic advantage of fertilizer use, as measured by the price relationship

TABLE I-14. -- WORLD¹ AND REGIONAL CONSUMPTION AND PRODUCTION OF COMMERCIAL FERTILIZERS² 1952/53 - 1956/57 AVERAGE, - 1966/67 AND 1967/68

	Consumption			Consumption per hectare of arable land	Production		
	1952/53-1956/57 average	1966/67	1967/68	1967/68	1952/53-1956/57 average	1966/67	1967/68
	Million metric tons			Kilogrammes	Million metric tons		
Western Europe	7.5	13.5	14.5	153	8.5	16.5	17.5
Eastern Europe and U.S.S.R.	3.5	11.8	13.2	44	4.0	12.9	14.2
North America	5.9	13.5	14.3	64	5.9	16.0	17.1
Oceania	0.7	1.6	1.5	38	0.6	1.3	1.3
Japan	1.1	2.1	2.1	356	1.0	2.4	2.7
Total developed countries ³	18.8	42.9	46.1	68	20.2	49.8	53.8
Latin America	0.5	1.7	2.1	20	0.4	0.8	0.8
Far East ⁴	0.6	2.7	3.5	13	0.1	0.9	1.2
Near East ⁵	0.2	0.6	0.8	619	-	0.3	0.3
Africa ⁷	0.1	0.4	0.5	3	0.1	0.3	0.3
Total developing countries	1.4	5.5	6.9	12	0.6	2.3	2.6
World total	20.2	48.4	53.0	46	20.8	52.1	56.4

¹Excluding China (Mainland). - ²In terms of nutrient content (N, P₂O₅ and K₂O). - ³Including Israel, South Africa and Kuwait. - ⁴Excluding Japan. - ⁵Excluding Israel and Kuwait. - ⁶Consumption is calculated per hectare of cropped area, to take account of extensive multiple cropping in the United Arab Republic and fallow in other Near East countries. Consumption per hectare of arable land would be only 11 kilogrammes. - ⁷Excluding South Africa.

between fertilizer and crops, has increased. In India producer prices for rice, wheat, cotton, jute and sugarcane rose relatively more than fertilizer prices, and in Ceylon the fertilizer subsidy scheme was improved. In Ghana the fertilizer subsidy was also raised, lowering the cost of fertilizers to farmers by 30-40 percent. Lower fertilizer prices are also reported from Ecuador and the Republic of Korea, where prices paid by farmers have declined by 5 to 15 percent, and from Syria and Algeria where they fell by 22 and 30 percent respectively. Perhaps more important, however, the use of fertilizers has been stimulated because of the large

increases in yields which can be obtained through the use of high-yielding cereal varieties and other improved planting material, supported by the intensification of efforts to promote fertilizer application through demonstrations, extension and improved distribution, and through special programmes to intensify crop production.

Table I-15 presents, in summary form, some indications of how world consumption and production of fertilizers might develop between 1967/68 and 1972. Total consumption is expected to increase by 50 percent, to over 80 million tons, a figure which can be

TABLE I-15. -- ACTUAL AND PROJECTED CAPACITY, PRODUCTION AND CONSUMPTION OF FERTILIZERS¹ IN DEVELOPED AND DEVELOPING COUNTRIES

	1967/68			1972		
	Capacity (1)	Production (2)	Consumption (3)	Gross capacity ² (4)	Potential production ³ (5)	Projected consumption (6)
	Million metric tons					
Latin America	1.6	0.8	2.1	4.0	2.5	3.5-4.0
West, central and east Africa	-	-	0.3	0.7	0.6	0.5-0.6
Near East and north Africa	1.7	0.6	1.0	3.5	2.4	1.8-2.0
Far East (excl. Japan)	1.9	1.2	3.5	5.3	3.3	7.0-8.0
of which:						
India	(1.1)	(0.6)	(1.8)	(3.3)	(2.0)	(4.0-4.5)
Pakistan	(0.2)	(0.1)	(0.3)	(0.7)	(0.5)	(0.6-0.8)
Total developing countries	5.2	2.6	6.9	13.5	8.8	13-15
Total developed countries ⁴	63.0	53.8	46.1	108.4	78.6	65
World total	68.2	56.4	53.0	121.9	87.4	78-80

Sources: Columns 1, 4 and 5: F.M. Kennedy et al., Estimated world fertilizer production capacity as related to future world needs, Muscle Shoals, Alabama, Tennessee Valley Authority, June 1968; Columns 2 and 3: FAO fertilizer statistics; Column 6: various sources.

¹In terms of nutrient content (N, P₂O₅ and K₂O). - ²Gross capacity includes plants in operation and plants and factories under construction, contracted, or in an advanced stage of planning in 1967/68; for the U.S.S.R., production goals have been used. - ³Potential production has been derived from gross capacity by taking into account closure of old plants, reduced capacity utilization during the first year of operation of new plants, losses in manufacturing and nonagricultural use of primary plant nutrients. - ⁴Including eastern Europe and the U.S.S.R.

met adequately by the then installed production capacity. In developing countries present consumption is expected to double and production to increase nearly threefold. Nevertheless, production of these countries will in 1972 still amount to only half of estimated requirements, indicating continued need for fertilizer imports.

Of the developing regions the largest gap between potential production and estimated consumption would occur in the Far East. Up to 1972 most of the additional capacity in the region will be installed in India and Pakistan.

Although regional fertilizer production in west, central and east Africa might be equal to regional

consumption in 1972, and production in the Near East and north Africa might even exceed regional utilization, fertilizer imports will still be necessary for most countries in these areas because production will continue to be concentrated in a few countries. Nitrogen production is being expanded mainly in the oil-producing countries, while additional production of phosphate fertilizers will primarily take place in countries with natural phosphate deposits.

Regional production in Latin America is expected to increase about threefold and to cover up to two thirds of the expected regional consumption. Nearly all major fertilizer consuming countries in the region already manufacture fertilizers, and most of the additional capacity envisaged will be constructed in them.

Food prices

Consumer food prices continued to increase in 1968 in the majority of the 104 countries for which data are available (Table I-16), although again, in keeping with the longer term trend, there seemed to be some evidence of a slowing down in the rate of increase. In 25 countries the price level remained the same as in 1967 or declined, and in only 10 was the increase over 10 percent. This represented an improvement over past years (Table I-17).

Greater price stability was particularly evident in the Far East, partly as a result of the greater availability of domestic supplies following the increases in cereal production in a number of food deficit countries, and partly because of an increasing liberalization of imports. In India, where prices had been increasing at an annual rate of over 10 percent during the past four years (which included two years of widespread food scarcity) the rise was held down to 3 percent in 1968. Even in Indonesia, the only country in the Far East region

(except for the Republic of Viet-Nam) where food prices increased very steeply in 1968 (by more than 100 percent), this still represented a great improvement over 1966 and 1967 when prices rose tenfold and by 180 percent respectively, and reflects the success of government stabilization policies. At the same time, policies within the region have been increasingly directed toward the removal of rigid price controls. In a number of countries this has meant that prices have tended to increase more rapidly than in earlier periods. It has been an important factor in Ceylon where the rise in food prices has accelerated over the last few years, from only 1 percent in 1965 to 7 percent in 1968. In that country the rise in prices of certain agricultural products such as potatoes appears to arise from scarcity, but there was also some pressure from higher wages and the devaluation of the rupee in 1967.

In Latin America food prices still tend to increase more rapidly than elsewhere, although in several countries

TABLE I-16. — CHANGES FROM 1967 TO 1968 IN INDICES OF RETAIL FOOD PRICES, BY REGION

	Europe	North America	Oceania	Latin America	Far East	Near East	Africa	Total
	<i>Number of countries</i>							
Decline	2	—	—	1	1	1	9	14
No change	4	—	—	—	2	1	4	11
1-4 percent	12	2	4	16	4	3	7	48
5-10 "	4	1	1	3	7	1	4	21
11-20 "	1	—	—	3	—	—	1	5
21-50 "	—	—	—	1	1	—	1	3
Over 51 "	—	—	—	1	1	—	—	2

TABLE I-17. -- CHANGES IN INDICES OF RETAIL FOOD PRICES, 1964 TO 1968

	1964	1965	1966	1967	1968
	..... <i>Number of countries</i>				
Decline	8	12	14	16	14
No change	10	7	6	8	11
1-4 percent	43	46	42	5	48
5-10 "	26	23	28	13	21
11-20 "	8	6	6	7	5
21-50 "	4	8	5	3	3
Over 51 "	5	2	3	3	2

more effective policies have significantly reduced the rate of inflation. Progress is particularly evident in Argentina, Brazil and Colombia. In Argentina the increase in food prices in 1968 was halved in respect of previous years as the result of the effectiveness of a price and wage policy which was directed to the elimination of cost inflation. In Brazil, where food prices had almost doubled in 1964, the increase was limited in 1968 to about 20 percent. Moreover, increases of retail prices of some basic food items, including rice, black beans and beef, have been relatively small. In some countries, and especially in Chile and Peru, drought-induced shortages brought a further acceleration in the rise in food prices. In Uruguay, where food prices almost doubled in both 1967 and 1968, a general wage and price freeze imposed in mid-1968 was repealed toward the end of the year as it proved to be unworkable.

Except under special circumstances such as devaluation, changes in food prices in developed countries tend to be associated with changes in the general price level and with price and income policies, rather than with changes in the supply situation. In the United States price increases were widespread in 1968 despite efforts by the Government to slow down the rate of economic growth. Food prices increased by 3.6 percent, reflecting higher prices for eggs, fruit and vegetables, dairy products and beef, while the overall cost of living rose by 4.2 percent.

In most other developed countries the increases in

food prices were of a similar magnitude. In some — including Denmark, New Zealand, Spain and the United Kingdom — wage and price controls were introduced following devaluation in November 1967. In the United Kingdom food prices rose by 4 percent compared with 2.5 percent in 1967. In Denmark the increase in 1968 was roughly the same as the previous year (less than 9 percent). In Spain the controls established following devaluation were relaxed in October 1968 but, when prices moved upward as a result (for the year as a whole, food prices rose by 4.5 percent compared with 3.8 percent in 1967) the freeze was reimposed. In New Zealand tight price control has helped reduce the increase in food prices from over 7 percent in 1967 to 3 percent in 1968. In France in 1968 both food and total consumer prices were increasing twice as rapidly as the previous year partly because of the inflationary pressures which resulted from the wage increases awarded as a result of the general strike and disturbances in May 1968. As a result, a series of measures was taken by the Government at the end of the year with the aim of preventing a further rise in prices.

In the Netherlands food prices increased by less than 3 percent in 1968 and the cost of living by just under 4 percent, but rapidly rising prices during the early part of 1969 led the Central Planning Bureau to forecast a price increase of 7 percent for 1969. A general price freeze was declared in April 1969 while other steps were being taken to ease inflationary pressures.

Production outlook

It is always difficult, and often misleading, to base an assessment of the food and agricultural situation on a single year's performance. Development is a continuous and dynamic process, and current developments have to be placed in the context of both

the past trends and the future prospects. The large potential impact on the world cereal situation of the accelerating production of grains and rice in the developing countries, as well as of the current trends in the cereal economies of developed countries make it

particularly timely to examine the prospects for this sector of agriculture in some detail. A basis for this is provided by FAO's long- and medium-term outlook work.

Indications of the long-term prospects for the world cereal economy are given by the provisional results of the FAO Indicative World Plan for Agricultural Development (IWP).¹⁵ These, it should be noted, are not forecasts or projections, but the outcome of objectives consistent with chosen general growth assumptions, which can only be achieved if the recommended investments are made and production policies implemented.

Very briefly, the implications of IWP for the cereals sector may be summarized as follows:

1. For all cereals combined – wheat, rice and coarse grains – the developing regions as a whole have the productive capacity to reach an overall self-sufficiency before 1985, and even to regain their prewar position as a net exporter. Most of the increases in exportable supplies would, somewhat paradoxically, come from a small number of large Asian countries which since the war have been major net importers (India, Pakistan and possibly Indonesia), as well as some traditional cereal exporters such as Thailand and Argentina. The majority of developing countries would, however, be in a heavy deficit position and require large imports of cereals.
2. Should the IWP objectives be realized and an overall self-sufficiency in cereals in the developing regions achieved, this could call for far-reaching policy changes in the high-income cereal exporting countries, which at present produce a large net export supply in order to fill the net deficit of the developing world. A more challenging question would be the extent to which the developed countries could make room for the possible exportable surpluses from developing countries. On this, IWP concludes that policy changes in developed countries (such as reductions in area under cereals and reduced self-sufficiency ratios) could help, but they are unlikely to provide a full answer. This would raise the possibility of intensified competition between developed, developing and centrally planned cereal countries in the world markets, and the possible emergence of the problem of overproduction in developing countries, which is already affecting the high-income countries.
3. In such circumstances, expansion of cereal production in developing as well as developed and centrally planned countries would require a more

selective approach, and efforts at a better harmonization of price and production policies. Since a number of developing countries would still have sizable cereal deficits, the promotion of trade among them would be of major importance. For rice, in particular, the supply/demand equilibrium would have to be sought largely within the developing world itself.

4. Some developing countries may need to decide whether to expand production of cereals for exports, or to use the resources that would be released as a result of higher productivity to produce protein and other foods in demand. The most crucial production problem in many countries may arise in meeting the demand for livestock products. The preliminary IWP objectives for livestock production up to 1985 fall considerably short of the projected increase in demand. The use of cereals for livestock feeding would be boosted by plentiful supplies and by more favourable price ratios between cereals and some livestock products.

This schematic picture contains many uncertainties. First, achievement of the production objectives of IWP would require an immense investment in agricultural inputs, and it remains to be seen whether the resources for financing these can be secured. Moreover, as imports and exports of cereals by developing countries constitute only a small portion of their total production – about 5-6 percent for both rice and grains in 1985 – even relatively small differences in either production or consumption from those indicated by the provisional IWP regional studies could drastically affect the import needs or export availabilities of these countries. Other uncertainties include the role of China (Mainland) in the future rice and wheat trade and the difficulties of estimating the feed use of grains in developed countries, and hence their import requirements and export availabilities. Nevertheless, the direction of the trends in the world cereal economy implied by the aspirations and objectives under IWP appears fairly clear.

Medium-term forecasts for cereals

Against this background, and that of the discussion of national plans and policies in Chapter II, it is of interest to examine the course of cereal production actually thought likely to materialize in the developing countries in the next three or four years. A basis for this is provided by the currently experimental medium-term food outlook reviews prepared by the FAO secretariat.¹⁶ Though different in nature from the

¹⁵The preliminary world study of IWP is being presented to the Fifteenth Session of the FAO Conference in November 1969. The findings described below are based on this world study and on the four regional studies which preceded it, covering Asia and the Far East, the Near East, Africa south of the Sahara and Latin America. Subsequently the work has been extended to additional areas, and the work so far completed covers approximately 85 percent of the developing countries in terms of GDP and population.

¹⁶The medium-term food outlook reviews were started on an experimental basis in 1967, in response to a desire for a "continuing appraisal and reappraisal of the prospects of production, consumption and trade and possible requirements for food aid" expressed by the United Nations Economic and Social Council. Their objectives and method of preparation are described in FAO document CCP 68/16, *Reviews of*

TABLE I-18. — MEDIUM-TERM (1972) FORECAST FOR CEREAL PRODUCTION IN SELECTED COUNTRIES

	Actual production			Forecast production	Possible variation due to weather	
	1964-66 average	1967	1968 ¹	1972	Below	Above
	Thousand tons				Percent	
Latin America						
Argentina	17 800	17 200	19 600	22 900	19	23
Bolivia	412	408	410	460	19	24
Brazil	18 155	20 245	20 176	23 000	4	4
Chile	1 617	1 654	1 700	1 960	6	6
Colombia	1 817	1 836	1 974	2 150	10	11
Ecuador	477	566	526	710	6	6
Guyana	264	198	180	300	15	17
Mexico	12 136	13 197	13 431	14 400	4	4
Peru	1 219	1 353	1 058	1 580	6	6
Venezuela	710	896	895	1 050	8	9
Total above	54 607	57 553	59 950	68 510	...	...
Central America²						
	1 999	2 075	...	2 860	...	...
Near East						
Iran	4 744	5 630	6 713	6 850	7	7
Iraq	1 839	2 068	2 615	2 550	19	24
Sudan, The	1 392	2 445	1 705	2 100	13	15
United Arab Republic	6 324	6 766	7 376	9 000	6	6
Total above	14 299	16 909	18 409	20 500	...	...
Far East						
Ceylon	953	1 198	1 375	1 710	12	13
China (Taiwan)	3 025	3 267	3 359	3 920	3	3
Malaysia, West	857	932	1 091	1 560	6	6
India ³	94 600	114 500	115 500	145 000	6	6
Pakistan	23 343	22 407	26 827	35 700	5	5
Total above	122 778	142 304	148 152	187 890	...	...
Africa						
Ethiopia	5 214	5 490	5 675	6 277	7	7
Ghana	503	564	428	740	7	8
Kenya	1 793	2 018	1 942	2 452	7	8
Senegal	666	795	472	960	6	6
Sierra Leone	407	433	446	517	4	4
Tanzania	2 024	2 068	2 269	2 570	6	6
Total above	10 607	11 368	11 232	13 516	...	...
Morocco	2 289	2 445	5 162	3 500	33	49
Tunisia	560	400	513	650	35	53

¹Preliminary. — ²The data refer to split years beginning in the year shown. Includes Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua. — ³The data refer to split years beginning in the year shown, and include pulses; rice is included in terms of paddy.

other outlook work done by FAO — they put forward neither targets and aspirations as does IWP, nor projections based on rigid assumptions, but are forecasts of the most likely course of events based on the secretariat's judgement of the outlook — they can be used as an indication of the changes actually taking place relative to the longer term prospects.

medium-term food outlook, dated 14 August 1968. These forecasts, which are "rolled forward" each year by one year, are based on the known national and international policies affecting agriculture in the 3-4 year period ahead, and on investment programmes currently being carried out which will affect the size of the output during the forecast period. Initially the reviews are restricted to cereals and give priority to developing countries.

Production forecasts for 1972, together with data on recent levels of output, are shown in Table I-18. The 32 countries included cover 94 percent of the cereal production in Latin America, 73 percent in the Near East, 68 percent in the Far East (other than Japan), and 35 percent in Africa.¹⁷

The forecasts for 1972 are to be interpreted as applying to a year of "normal" climatic conditions, exclusive of the random changes caused by the weather.

¹⁷The data in Table I-18 are derived from a progress report to be submitted to the forty-fourth session of the FAO Committee on Commodity Problems in September 1969. The forecasts have been prepared on the responsibility of the secretariat, and do not necessarily represent government views.

In practice, the latter can be quite important and tend to render figures for single years and comparisons between such figures somewhat uncertain. For this reason, no growth rates between the years included in the table have been shown, and too much importance should not be attached to small differences between the implied rates of increase. The forecasts are accompanied by a range of percentages to indicate the possible variation in harvests due to weather.

As may be expected, no uniform or generally applicable picture emerges from these forecasts. On the contrary, their most striking feature is the highly variable prospective situation they suggest, both as among countries or regions, and over a period of time.

The possible impact of weather on output is well illustrated by Latin America, where cereal crops in Argentina, the source of one third of the combined output of the countries shown, may in any one year fluctuate by as much as one fifth. On the whole, the FAO forecasts for this region expect only a little acceleration in the growth of cereal production to 1972. A noteworthy feature, however, is the difference in both the expected rate of growth and in its acceleration relative to past rates, as between the three major producers (Argentina, Brazil and Mexico), which jointly account for nine tenths of the total shown, and the rest of the countries combined. In the first group of countries, in fact, the growth of production is expected to slow down, especially in Mexico where self-sufficiency in wheat and maize has been reached and, according to the 1966-70 development programme, no further wheat exports are planned. In contrast, the combined output of the minor producers, all of them cereal importers, is forecast to grow at a rate which is both higher than in the recent past (admittedly affected by the poor crops in 1968 in some countries) and much more rapid than the rate shown by the major producers.

In the Near East, also, harvests tend to fluctuate widely in many of the countries shown. The forecasts suggest, however, a definite slowing down of the growth of output, from the very fast increase of some 9 percent a year recently (aided by a good year in Iran in 1968) to not much more than half that rate in the next few years. The deceleration forecast is particularly strong in the case of Iran, but less so in the case of Iraq and the Sudan, while in the United Arab Republic cereal production is expected to increase faster in the coming years than in the recent past.

The picture for the Far East is dominated by two factors: the overwhelming proportion produced in India (nearly 80 percent of the total for the countries shown); and the poor harvests in India and Pakistan in two of the three years (1964-66) used as a basis of comparison. In fact, the most important feature of the forecasts for this region would seem to be that the very high rate of growth of 6.5 percent a year in the period from 1964-66 to 1968, which includes recovery from the poor 1965 and 1966 harvests, is expected to

continue in the next few years; not only in India and Pakistan, the main producers, but also in the other countries shown with the exception of China (Taiwan). The latter is the only cereal exporting country among those shown for the Far East and, as is pointed out in Chapter II, its agricultural and general economic development has reached a stage where the emphasis on agriculture in the overall development effort is being reduced.

In Africa extremely wide fluctuations in output are commonly met with in the two Maghreb countries shown, Morocco and Tunisia, and there was an exceptionally high cereal harvest in Morocco in 1968. Excluding these two countries, which accounted for some 20 percent of the total in 1964-66 and for over 30 percent in 1968, the forecasts for the remainder of the countries combined indicate a prospective increase in their cereal output at an average rate that compares quite favourably with those forecast for the other regions, and in some individual countries, such as Ghana, Kenya and Senegal, very rapid increases in output are expected.

For a limited number of the countries shown in Table I-18, forecasts have been made also of cereal utilization and of import requirements and export availabilities. The number of countries studied is too small to permit even tentative generalizations of the prospective impact of the forecast changes on the world cereal markets. Some of the partial findings may, however, be of interest. Thus they suggest that the export availabilities from Argentina may increase during the period examined, and that by 1972 Pakistan may already emerge as a net exporter, though in the latter case the forecast exportable margin is small in relation to the total anticipated consumption and output, and could thus be either wiped out or increased substantially by deviations from the forecast in either utilization or production. The forecasts for some other countries, on the other hand, draw attention to the difficulties of reducing the level of imports in countries where demand is expected to grow rapidly. Cases in point are Malaysia and Ceylon, which have recently imported about half of their total cereal consumption. Although the production of rice is expected to grow rapidly in both countries, the overall level of their cereal imports is expected to remain approximately the same as in recent years. However, some change may take place in its composition as domestic rice production will tend to displace imports, while imports of wheat, which is not produced domestically, will continue to increase.

It is intended to up-date these forecasts regularly in the light of changing circumstances and the most recent information available, and thus to provide in future issues of this report an improved measure of the food production performance in developing countries, and more generally a better basis for assessing the implications of the food outlook in the medium term.

Chapter II. - REVIEW BY REGIONS

Western Europe

Total agricultural production in western Europe, some 2 percent higher than in 1967, reached a new record level in 1968. Increased output of livestock products accounted for most of the expansion. The general level of prices received by farmers rose and agricultural incomes were higher in most countries. First estimates for 1969 suggest that the 1968 level of output may not be exceeded. Major agricultural problems of an immediate nature relate to excess supplies of dairy products (especially butter and dried skim milk), grains and sugar, and to efforts to dispose of these. The European Economic Community (EEC) continued to implement its Common Agricultural Policy and the United Kingdom to seek further expansion of its agricultural production as a means of saving foreign exchange. Because of their financial and economic costs, existing agricultural policies and programmes have been subjected to increasingly critical review in many countries. There has been additional evidence of mounting interest in policies and programmes for a more rapid modification of agricultural structures to increase productivity, to narrow the income gap between persons engaged in agriculture and those employed in other economic sectors, and to avoid the production of surpluses. Toward the end of 1968, the EEC Commission proposed a comprehensive programme for reform of agricultural structures in the Community during the 1970s. Agricultural development has continued to receive high priority in the less industrialized countries of southern Europe.

A draft treaty for a Nordic Economic Union has been completed, although agreement has not yet been reached on the treatment of agriculture and fisheries in the four countries concerned.

The economic recovery in western Europe that marked the latter part of 1967 has continued and in most countries gained momentum. Regional real gross national product in 1968 is estimated as 4.7 percent above that of the previous year, rather more than the growth registered in 1967. The rate of economic expansion was generally higher in EEC and the less industrialized countries of southern Europe than in the European Free Trade Association (EFTA) countries. Notably high rates of economic growth — above 6 percent in real terms — were recorded in Greece, Portugal, Spain and Yugoslavia, while three countries (Austria, Ireland and the United Kingdom) recorded increases of less than 4 percent. The international

monetary crises, generated by massive movements of speculative short-term capital, have had remarkably slight adverse effects on the actual performance of economies in the region. The generally high level of economic activity was accompanied by a higher level of trade and, as the increase in exports (12 percent for the region as a whole) exceeded that in imports (10 percent), the trade balance of many countries improved; notable exceptions included France, Greece, Ireland, Sweden, the United Kingdom and Yugoslavia. Balances on current account, overall balance of payments position and changes in international liquidity reserves tended largely to reflect the erratic speculative movements of short-term capital and arrangements by national monetary authorities to counter the effects of these.

Further acceleration in the growth of output was reported in a number of countries in 1969, including Belgium, France, Italy, Netherlands, Sweden and Switzerland. Although the growth in the Federal Republic of Germany and in the United Kingdom showed signs of slowing down, for the region as a whole some increase in the rate of growth over 1968 was generally forecast. The United Kingdom balance of payments improved markedly in the second quarter. In the latter part of the year, changes in the exchange rates of the French and Federal German currencies necessitated the introduction of measures to realign prices of commodities covered by the Common Agricultural Policy of the EEC.

Agricultural production

In 1968, for the fourth consecutive year, total agricultural production in western Europe reached a new record level. According to preliminary FAO estimates, however, the rate of increase was only about 2 percent as compared with 7 percent in 1967 and an annual average during the preceding ten years of 2.7 percent (Table II-1). Increases within EEC ranged between 4 and 6 percent except in Italy where, mainly because of drought, 1968 production fell slightly short of the 1967 level. In northern Europe, increases ranged from 1 percent to 11 percent, except in the United Kingdom where, again mainly because of unfavourable weather, 1968 production was about 3 percent lower. Total output was significantly lower in Greece and

TABLE II-1. -- WESTERN EUROPE: INDICES OF AGRICULTURAL PRODUCTION

	1966	1967	1968 ¹	Change 1967 to 1968 ¹	Annual rate of growth 1955-57-1965-67
	1952-56 average = 100			Percent	
EEC					
Belgium-Luxembourg	109	126	133	5	1.2
France	138	160	166	4	3.7
Germany, Fed. Rep. of	127	137	144	5	2.2
Italy	130	135	134	- 1	2.3
Netherlands	123	134	143	6	2.0
Other northern Europe					
Austria	134	146	151	4	2.4
Denmark	121	123	126	2	1.4
Finland	133	143	145	1	3.3
Ireland	122	137	145	6	1.7
Norway	99	103	115	11	- 0.1
Sweden	94	106	110	4	0.4
Switzerland	113	122	131	7	1.4
United Kingdom	145	149	145	- 3	3.3
Other southern Europe					
Greece	170	173	161	- 7	3.8
Portugal	112	125	127	2	1.6
Spain	139	139	150	8	2.9
Yugoslavia	183	178	172	- 3	3.3
Region	133	143	146	2	2.7

¹Preliminary.

Yugoslavia because of drought, but increased by more than 8 percent in Spain.

The 1968 grain harvest was slightly above the 1967 level; there was a record maize crop but production of other coarse grains combined was slightly lower, while wheat output remained unchanged. Sugar production showed a further moderate increase, despite lower yields and sugar content because of widespread unfavourable weather, as the area planted to sugar beet increased, especially in EEC countries. The area and production of potatoes declined almost everywhere. There was no change in the overall level of fruit production.

Livestock production was higher in 1968 except in Denmark whose shrinking export markets remained the limiting factor. Beef and veal production increased by 12 percent in Spain and by more modest proportions in Ireland, the EEC countries, Greece, Portugal and Switzerland; it dropped sharply in Austria, however, and by relatively small amounts in the rest of the countries. Except for slight decreases in Denmark, Finland and France, pigmeat production increased throughout western Europe and by a notable amount in the Federal Republic of Germany, Italy and the Netherlands. Milk production increased by about 2 percent in the region, with an appreciable decrease only in the United Kingdom (-4 percent). Despite the small overall increase, surpluses of dairy products have become the most important immediate agricultural problem confronting western Europe and are discussed below.

The first estimates for 1969 suggest that the region's

gross agricultural production may not have exceeded the 1968 level. The output of most crop products, with the exception of barley, maize, rice, eggs and wine, is estimated to have declined, and livestock numbers have generally fallen.

Total grain production may be somewhat above the 1968 level. Wheat production was estimated to be some 2 percent smaller than in 1968, with reductions in the Federal Republic of Germany, France, Portugal, Spain and possibly the United Kingdom, and rye production continued to decline. Barley and oat harvests may, however, be somewhat greater, and a notable increase was expected in maize production, following expansion of area sown in France, Italy and the Federal Republic of Germany, and a recovery of output in Yugoslavia. Italy's rice crop was expected to be up by about 25 percent, and also output in Yugoslavia is increasing.

Due to government measures, and in some areas because of drought, milk production in the region is estimated to have been marginally smaller than in 1968. The largest decreases were in Austria, Denmark, Sweden and the United Kingdom. Butter production fell in the first half of the year, both in the EEC and in the other countries combined, by some 3-4 percent. The first estimates of sugar production indicate a slight fall below the 1968 level, due mainly to late sowings and unfavourable spring weather in some areas. The largest reductions are reported in the United Kingdom and in the Nordic countries. Fruit crops will probably be less than in 1968, and potato production continued to decline, but oilseed production is rising rapidly.

Fishery production

In contrast to other regions of the world, the production of fishery products in western Europe dropped rather sharply in 1968, as the industry continued to be confronted with structural imbalances and problems of export markets and prices became increasingly acute. Iceland's herring catch was again less than half the 1966 level and the Norwegian herring fishery a virtual failure. Total Danish landings, however, increased by about 17 percent and production in Ireland expanded notably as a result of the new investment promotion programme.

In order to improve the structural balance and efficiency of their fishing operations, several of the countries concerned are embarking on large-scale programmes of reorganization and reequipment. In Norway, investment is being shifted from purse seiners to more specialized vessels and to factory trawlers. In an effort to lower the costs of the United Kingdom's traditional deep-sea trawler fleet, the Government established a three-year programme of financial assistance linked to vessel efficiency and, early in 1969, the largest of the United Kingdom fishery companies opened negotiations for the merger of their trawler operations. In the Federal Republic of Germany, the Government also established a policy to promote structural consolidation in the deep-sea fishing industry.

Forest production

The higher rate of economic activity in western Europe in 1968 was accompanied by an upturn in prices and output of forest products. Production of sawn softwood increased notably, particularly in Sweden, to reach a new record level. Possibly because sawmills switched to softwood, output of sawn

hardwood is estimated not to have risen in 1968, for the first time in a decade. Among wood-based panel products, plywood production increased modestly, the output of fibreboard returned to the levels of the mid-1960s, and the growth of particle board production accelerated again after having slowed down to an increase of 10 percent in 1967. Output of wood pulp, paper and paperboard is also estimated to have expanded at a somewhat faster rate, allowing an improvement in capacity-operation ratios for most grades of chemical wood pulp and some recovery in prices. These tendencies continued through 1969 and, as stocks had been run down to a low level by the second half of the year, prices rose substantially.

Trade in agricultural products

In contrast to both the long- and short-term situation in most of the other regions of the world, western European earnings from agricultural exports continued to rise in 1968 (Table II-2) despite the generally lower prices received for all products. The average unit value of its exports declined by almost 6 percent. The quantities exported of almost all commodities were higher, except for citrus fruit, tobacco and wine, the only commodities for which earnings did not increase.

The volume of cereals exports increased by over 20 percent: total shipments of wheat more than doubled, reflecting a sharp increase in French exports both to other EEC countries as well as to several developing countries. The wheat exports of most other countries were also higher, except for Greece. Only maize exports were lower, reflecting a drop in Yugoslavian shipments from the exceptionally high level of the previous year and a 5 percent reduction in those from France, the largest exporter. As a result of the

TABLE II-2. - WESTERN EUROPE: INDICES OF THE VALUE OF EXPORTS OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	Share of total agricultural exports in 1968	1966	1967	1968 ¹	Change 1967 to 1968 ¹
	Percent	1957-59 average = 100			Percent
Agricultural products	100	168	181	187	3
Food and feedstuffs	87	173	187	194	4
Cereals	(17)	256	274	311	14
Fruit	(8)	162	164	155	- 6
Meat	(26)	228	248	253	2
Dairy products	(20)	149	161	167	4
Beverages and tobacco					
Tobacco	2	133	149	119	- 21
Wine	7	179	198	201	2
Raw materials	3	109	101	112	11
Fishery products	-	178	176	170	- 3
Forest products	-	146	150	169	13
Agricultural, fishery and forest products	-	162	171	180	5

¹ Preliminary.

new emphasis placed by the Government of Spain on barley production at the expense of wheat, this country has increased its exports and virtually eliminated its imports during 1968. Substantial increases in sugar exports resulted from higher output in most producing countries. Bad weather in citrus producing countries and reduced imports were responsible for the 13 percent decline in the quantity of oranges exported. Shipments from all of the main exporters were smaller and a serious market crisis developed within EEC. Exports of meat generally increased. French exports of live cattle and beef, mainly to other EEC countries, more than doubled, and Yugoslavia made record shipments of chilled and frozen beef to the United Kingdom in part to replace lower imports of the latter from Argentina. Ireland's exports of beef and cattle were down from the exceptionally high level of 1967. Exports of pigmeat from most producing countries increased as a result of greater demand and despite higher production in many importing countries. Greek tobacco exports were 20 percent lower than the previous year as a result of intense competition and reduced international demand for oriental leaf. Although shipments of wine from the major exporter, France, were higher, the total volume was reduced slightly but, because trade in vintage wines expanded, a higher unit value brought increased total returns.

The value of exports of fishery products fell for the second successive year. Markets for frozen fillet exports from Norway and Iceland continued to be weak and the stockfish (dried unsalted cod) shipments of these countries to Nigeria came to a virtual halt. Falling prices for frozen products in the major importing countries, the United States and the United Kingdom, stimulated demand and led to greater imports. The United Kingdom tried to brake this trend by imposition of a new import duty. Iceland, whose economy is to a large extent dependent on its fishery trade, and which

does not enjoy the advantages connected with membership in a regional trade grouping, devalued its currency for the second time in 12 months to improve its trade position.

Failures in the herring fisheries of Norway and Iceland prevented these countries from deriving substantial benefits from improved conditions in world fish meal markets. Denmark was able to maintain its exports of high quality fresh and frozen products and of fish meal and fish oil, raising the total value of its fishery exports by 11 percent. Minimum prices were set for Danish herring exports to the EEC countries to counter complaints of dumping. Exports from the Faeroe Islands dropped by nearly 15 percent, largely because of increased competition in Italy and Spain, their principal markets for salt fish. Export markets for the principal fishery products of Iceland, affiliated with neither EEC nor EFTA, were very depressed and this was a major factor behind the further devaluation of the Iceland króna in November 1968. This action further affected Norwegian exports, already hurt by the virtual cessation of dried cod (stockfish) exports to Nigeria and the 10 percent import duty imposed by the United Kingdom on frozen fish from EFTA countries.

Earnings from forestry products were substantially larger, reflecting large increases in exports of sawn softwood from Austria, Finland and Sweden, a rapid growth in shipments of plywood and fibreboard from northern Europe to the booming United States market, moderate increases in exports of chemical pulp from Finland and Sweden, and markedly higher quantities of newsprint from Norway.

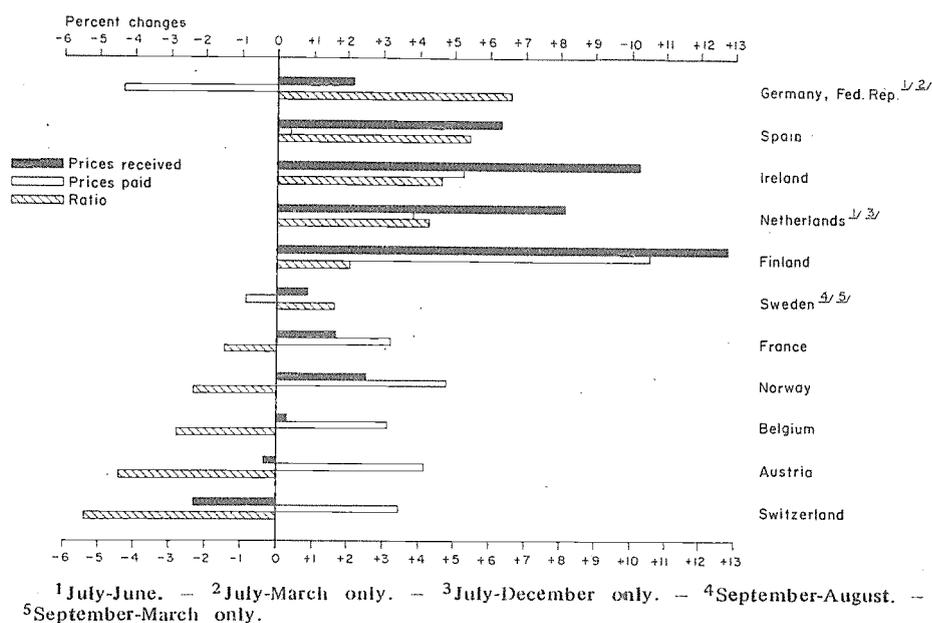
There was a partial recovery in the volume of western European imports of agricultural products in 1968, back to the 1966 level (Table II-3). Imports of food and feedstuffs remained at the generally reduced level of 1967, and those of beverage crops (except cocoa) and raw materials (except cotton) increased.

TABLE II-3. - WESTERN EUROPE: INDICES OF THE VOLUME OF IMPORTS OF AGRICULTURAL PRODUCTS

	Share of total agricultural imports in 1968	1966	1967	1968 ¹	Change 1967 to 1968 ¹
	..... Percent	1957-59 average = 100			..... Percent
Agricultural products	100	127	125	127	1
Food and feedstuffs	61	138	136	136	-
Cereals	(15)	142	127	127	-
Fruit	(8)	146	143	139	-3
Oils and oilseeds	(9)	136	138	140	1
Meat	(10)	140	152	150	-2
Dairy products	(6)	112	115	117	1
Beverages and tobacco	21	126	128	132	3
Coffee	(9)	155	159	172	8
Tobacco	(4)	128	138	132	-4
Raw materials	18	102	95	99	3
Wool	(7)	94	86	94	9
Cotton	(6)	102	96	92	-4
Rubber	(3)	116	115	123	7

¹Preliminary.

FIGURE II-1. — WESTERN EUROPE: CHANGES IN INDICES OF PRICES RECEIVED AND PAID BY FARMERS AND IN THE RATIO BETWEEN THE TWO INDICES (1968 in comparison with 1967)



Prices were generally lower, however, and the total value was down by almost 4 percent.

Imports of grain remained generally unchanged. Purchases of wheat were larger, but those of coarse grains (except maize) were reduced. This pattern reflected the excellent European harvests of coarse grains in 1967 and 1968, some changes in grain production patterns in favour of feed grains in countries with emerging or growing wheat surpluses, and in EEC a partial substitution of other concentrates for grains in compound feed mixtures.

United Kingdom imports of tea, which account for almost 80 percent of the total entering the region, rose by almost 9 percent, the increase going partly into increased reexports and partly into substantial additions to stocks. Coffee imports into most important markets were larger, again in part for additions to stocks. The volume of cocoa and tobacco imports was about 4 percent lower.

The recovery of raw material imports from the depressed level of the previous year reflected the generally increased economic activity in the region. In the case of wool, lower prices stimulated imports for stock building and for consumption. Destocking contributed to the decline, for the second year in succession, in imports of cotton. Continued inroads of man-made fibres, increased imports of cotton textiles, and rationalization programmes designed to eliminate uneconomic cotton processing capacity, have also contributed to this tendency.

The region's imports of forest products grew appreciably faster than exports, and the net imports rose to a level well above the previous peak in 1965. Imports of tropical hardwood logs were particularly large. — about 12 percent above the level of the

previous year — reflecting low stocks and increased demand for processing. These imports might have been even larger, but for a shortage of shipping space and a particularly severe rainy season in west Africa which hampered exports from this zone. There was also a moderate increase in pulpwood imports, but trade in other categories of roundwood declined. There was a marked rise in sawn hardwood imports, particularly of certain tropical varieties, which reflected a growing appreciation of the qualities of these species for use in joinery and furniture making. Imports of chemical pulp and newsprint by the United Kingdom and the Federal Republic of Germany also increased considerably.

Agricultural incomes and farm prices

The general level of prices received and paid by farmers again rose, with decreases reported only in the indices of prices received by farmers in Switzerland and Yugoslavia (Figure II-1). The accumulation of excess supplies of certain commodities had but limited effect on the prices received by farmers for the products concerned, since, in most countries, changes in these prices result mainly from government policies and support programmes. The rise in prices paid by farmers reflected the widespread persistence of inflationary pressures and the generally high level of economic activity.

Gross agricultural incomes were generally higher in 1968, as output expanded and prices received by farmers rose. However, because of the higher level of prices paid by farmers, especially for labour, the increase in net farm incomes was somewhat less. With the continued decline in the number of farms and in employment in agriculture, the percent increases in

incomes per farm and per person employed were greater than for the agricultural sector as a whole. In EEC the gross income of the agricultural sector appears to have been higher in 1968, except possibly in Italy where total agricultural production was lower. The total net farm income was also higher in the Netherlands and the Federal Republic of Germany, but lower in Italy and, possibly, Belgium-Luxembourg and France. Incomes per farm and per person employed in agriculture appear to have increased in all of the EEC countries. Elsewhere in western Europe, agricultural incomes are reported to have been lower only in Denmark, Greece, Switzerland and the United Kingdom.

Problems, policies and programmes

Dairy surpluses

The most important immediate agricultural problem confronting western Europe is the large surplus of dairy products. Although the major part of these dairy surpluses have accumulated in the EEC countries, the problem has also reached acute proportions in Denmark, Finland and the United Kingdom. Largely in response to highly favourable price policies and government support programmes, and mainly as a result of increased milk yield per cow, milk production in western Europe has continued to increase (Table II-4). Moreover, an increasingly large portion of the milk produced is being delivered to dairies rather than used on farms, as mixed feed and dried skim milk are being substituted for whole milk in calf feeding. However, the increase in domestic demand for all dairy products combined has been limited almost entirely to that resulting from population growth. More of the surplus milk has gone into butter and dried skim milk production than previously, as most of the major producing countries have tended recently to shift from cheese production, partly because of import restrictions on cheese by various importing countries (Switzerland, United Kingdom, United States), and partly because cheese (except for certain Italian types) is not subject to intervention support under the EEC regulations on dairy products that became effective on 29 July 1968.

Within EEC, the surplus problems of butter and skim milk are closely linked, not only because the two commodities are joint products in the technical sense but also because they have been selected for intervention operations to maintain the target price for all milk produced in EEC. While butter production has continued to increase and surplus stocks to accumulate, domestic consumption has stagnated, in part because of consumer reaction to the prices that have resulted from government market support measures. Following the entry into force of the EEC regulations for dairy products, the commission authorized all of the intervention organizations to dispose of butter at less than intervention prices for various processing uses and export. It also authorized the sale of butter at reduced prices for domestic consumption in the form of melted butter and butter concentrates for cooking purposes, and also to military and public institutions. Regulations for the 1968/69 dairy season continued in effect pending a decision by the Council of Ministers concerning regulations for the 1969/70 season.

In a further effort to reduce the growing stocks, the EEC Ministers of Agriculture agreed in principle in September 1969 to introduce premiums for slaughtering cows, and for not delivering milk to dairies, but using it for animal feeding on the farms. At the same time the ministers agreed to supply 125 000 tons of dried skim milk as international food aid, mainly through the United Nations/FAO World Food Programme, in addition to the 35 000 tons of butter oil earlier contributed for the same purpose.

Sugar policies

Sugar production has expanded by about 50 percent since the mid-1950s, largely in response to highly favourable government policies and guaranteed prices. The high level of protection afforded beet sugar has had important effects on the allocation of productive resources within western Europe and on the level of imports of cane sugar from developing countries. In Belgium, Denmark and especially France it has resulted in accumulation of stocks and, in 1968, substantially increased exports to the world market at heavily subsidized prices.

TABLE II-4. - WESTERN EUROPE: PRODUCTION AND STOCKS OF DAIRY PRODUCTS

	EEC			Other ¹			Total		
	1966	1967	1968	1966	1967	1968	1966	1967	1968
	..... Thousand metric tons								
Production									
Fluid milk	70 645	72 679	74 616	36 571	37 026	37 500	107 216	109 705	112 116
Butter	1 250	1 302	1 400	538	539	574	1 788	1 841	1 974
Cheese	1 545	1 618	1 554	511	538	516	2 056	2 156	2 070
Dried skim milk ²	820	1 048	1 305	227	272	305	1 047	1 320	1 610
Dried whole milk	154	163	136	133	150	140	287	313	276
Stocks (31 Dec.)									
Butter	² 154	² 200	² 316	⁴ 76	⁴ 78	⁴ 103	230	278	419
Cheese	³ 104	³ 165	³ 155	⁵ 75	⁵ 92	⁵ 107	179	257	262
Dried skim milk .....	...	160	296	...	...	...	...	160	296

¹ Austria, Denmark, Finland, Ireland, Norway, Sweden, Switzerland and United Kingdom. - ² Excluding Italy. - ³ France. - ⁴ Excluding Austria and Norway. - ⁵ Denmark, Switzerland and United Kingdom only.

In contrast to EEC programmes for other agricultural products, the regulations for sugar and sugar beet that became effective on 1 July 1968 provide for the establishment of a fully competitive common market only on 1 July 1975. During the intervening transitional period, a system of national production quotas is in effect and, on the basis of these, sales and price guarantees are provided for specified volumes of sugar and the related sugar beet. The total of the national production quotas (6 480 000 tons of white sugar) exceeds the Community's requirements for human consumption (estimated at 6 050 000 tons for the 1969/70 sugar season). Moreover, the sales and price guarantees apply, although at a reduced level, to production of up to 35 percent in excess of the quotas. Supplies of sugar, for disposal at subsidized prices by export, or by denaturing, are therefore likely to continue to be a troublesome problem within EEC.

Forest policies

The evolution of forest policies in western Europe continues within the context of an anticipated increase in demand for forest products in the region, the possibility that changes in agricultural policies and structures will make additional land available for forests, and increased awareness of the role of forests as other than a source of raw materials. Current inventory work indicates that the forestry production potential in practically all of the western European countries is greater than had been generally estimated, and production policies are being reshaped to supply relatively larger volumes of small-sized wood (raw material for the production of pulp and board products, the more rapidly growing sectors). In order to achieve a more rational use of national forestry resources, government forestry agencies are becoming more involved in operations at the enterprise level, as well as through advisory or control actions, in the private forestry sectors.

The problem of excess productive capacity in many agricultural sectors, and consequent suggestions for reduction of the areas presently used for agricultural purposes such as have been made by the EEC Commission (see below), has distinct implications for forestry since this constitutes the most evident alternative use for much of the land that would be involved. With rising incomes and the high population density in the region, the demand for forests and forest lands for recreation and tourism is increasing rapidly. Catastrophic floods in some areas, such as northern Italy, have further strengthened awareness of the role of forests in watershed management and torrent control.

Common Agricultural Policy of the European Economic Community

EEC continued to implement its Common Agricultural Policy during the course of 1968. However, as it is being implemented, its financial cost is giving rise to mounting concern within the Community. Its economic impact, in terms of the allocation of

resources within the Community and of trade with nonmember countries, also continues to be the subject of widespread controversy. In December 1968 the EEC Commission presented a comprehensive review of the situation with proposed general policy guidelines for a programme to reform the agricultural sector of the Community over a period of ten years (see below).

Common organization of the EEC markets in sugar, beef and veal, and milk and milk products came into effect during 1968. Regulations were also adopted by the EEC Council for a common organization of the markets in processed fruit and vegetables, in live trees and other plants, bulbs and roots, cut flowers and ornamental foliage. In addition, the commission proposed regulations concerning the establishment of a common structural policy for the fishery sector, a common organization of the markets for fishery products, and the collection of cereals for food aid. A further series of decisions was taken granting aid from the European Agricultural Guidance and Guarantee Fund (Guidance Section). For the 1969/70 season, the commission recommended a series of changes in target and intervention prices and of special measures to assist in dealing with critical excess supply situations which it had identified, concerning dairy products, grains and sugar. The EEC Council approved small increases in the target price for maize and in the target and intervention prices for barley, with prices for other field crops left unchanged. Council decisions concerning prices and special measures for dairy products and beef and veal were still pending at the time of writing.

Following the devaluation of the French franc in August 1969, the trade between France and the rest of the Community which comes under EEC marketing regulations was made subject to an 11.11 percent export tax or import subsidy. For beef and dairy production, partial adjustments in the intervention prices were made immediately after the devaluation, and these and other adjustments required in order to bring French prices into line with those of other EEC countries are scheduled to be completed by the beginning of the 1971/72 season. Similarly, export subsidies and import taxes have been introduced to offset the effect of the change in the Federal German exchange rate in early October.

Agricultural import replacement in the United Kingdom

The United Kingdom continued to be confronted with serious balance of payments problems during 1968. Against this background the Economic Development Committee for Agriculture recommended in June of that year the further expansion of domestic agricultural production as a means of saving foreign exchange. The committee's recommended programme would have extended the objectives and increased the pace of the Government's 1965 five-year programme for the selective expansion of agricultural production; it was designed to reduce the United Kingdom's 1972/73 food import bill by an estimated £220 million (at 1967 prices). In November 1968 the Minister of Agriculture

endorsed in broad terms the committee's assessment but scaled down the import replacement objective for 1972/73 to about £160 million, on the grounds that the committee seemed overoptimistic concerning the rate at which cereal and bacon production could be expanded.

Achievement of the objective, even as modified, is thought to require an important increase in government support for British agricultural production. Viewed in this light the increase of £34 million resulting for the 1969/70 season from the Annual Review and Determination of Guarantees in March 1969 appears small. However, the increases were granted for those commodities which the committee's recommendations had emphasized (beef, bacon, wheat and barley). Thus, it appears that the Government has accepted the committee's general recommendation for further expansion of domestic agricultural production for the purpose of additional import replacement but is proceeding at a somewhat slower pace than the committee had envisaged.

Structural reform of agriculture

The past year has provided additional evidence of increasing interest in western Europe in medium- and long-term policies and measures to reform the structure of the agricultural sector, especially in the highly industrialized countries. To a large extent the measures envisaged represent a continuation of trends and tendencies that have characterized much of western European agriculture for a long time. Considerable improvements in structures have been achieved in recent years.

A number of factors seem at present to combine, however, to give an added sense of urgency to the need for hastening the pace of this evolutionary process. Scientific and technological knowledge, applicable in the production, processing and marketing of agricultural commodities, has continued to accumulate rapidly. As the nonagricultural sectors have continued to operate at full-employment levels, pressures on available supplies of labour, capital and managerial talent have continued to mount and their inflationary effects to be evident. The productivity gap that persists as between agriculture and the rest of the economy has come to be viewed as representing an important potential increment of gross domestic product, which could be realized by shifting resources from agriculture to higher productivity employment. The income gap between the agricultural population and the rest of society, and between various components of the agricultural population, has become increasingly a source of dissatisfaction in the rural areas of these highly urbanized, consumption-oriented economies. And, not least, the financial burden imposed on government budgets by programmes that attempt to solve the problem of farm incomes through price support measures and subsidy payments has become increasingly heavy and continues to mount steadily.

A comprehensive programme for reforming EEC agriculture during the 1970s was put forward by the

commission late in 1968.¹ It proposes reduction in the total inputs of land and labour and a significant increase in those of capital; 5 million hectares of land would be withdrawn from agricultural use and 5 million persons would leave agricultural employment. Most of this land would be shifted to forests, and about half of these people would retire because of age and the other half shift to nonagricultural employment. In terms of the organization of production, the programme would concentrate on the creation, by expansion or voluntary amalgamation, of farms of an adequate size and with sufficient resources to enable the application of modern technology and to provide an acceptable level of income for persons remaining in agricultural employment. These larger scale farms might be organized as "modern production units," specialized in the production of single products, or as "modern agricultural enterprises," consisting of two or more production units. In terms of output, the EEC Commission in principle rejects production quotas on the basis that, in addition to creating technical and administrative problems, these would hamper the specialization of production which is one of the main benefits offered by the common market. Rather, the programme proposes a shift to such a volume and composition of production as would correspond to domestic consumption and export requirements at prevailing market prices without intervention or subsidy operations. This would imply reduced production of dairy products, sugar, oilseeds and possibly food grains, while the production of meat (especially beef and veal) and possibly feed grains would be increased.

Implementation of the programme proposed by the EEC Commission would involve coordination of Community, national and local policies, plans and measures, as well as the support and cooperation of farmers and their organizations. The measures proposed include appropriate adjustments in the schedule of annual target and intervention prices for agricultural products; grants, investment subsidies and arrangements for guaranteeing loans to the larger scale production units and enterprises; financial and other assistance to farmers and their families who leave agriculture, either for retirement or for nonagricultural employment; a series of special measures to restore market equilibrium in the short term for dairy products, sugar, vegetable oils and fats, and beef and veal; and the setting up of Community-wide organizations for producers of each commodity or group of commodities to improve the structure and functioning of marketing and distribution systems. It has been estimated by the commission that the ten-year programme would cost the budgets of the member states and the Community an average of 2 500 million units of account per year, with expenditures heaviest during 1973, 1974 and 1975. The commission has noted, however, that the national expenditures of EEC countries on structural improvements are, in any

¹"The reform of agriculture in the European Economic Community," statement by Sicco Mansholt, vice-president of the commission, at a meeting of the Council of Ministers, 10 December 1968.

case, constantly increasing and has foreseen that the total of these could by 1980 amount to much more than the cost of the proposed new programme.

A number of western European countries, including members of EEC, have in the meantime adopted programmes and measures during the past year similar to some of those proposed by the EEC Commission. Pensions and retirement annuities have been increased in France, the Federal Republic of Germany, Italy and the Netherlands. The provisions of several national schemes to cover early retirement have been liberalized, frequently with the requirement that the holding of the retired farmer should not continue to be operated as a separate unit. In Finland, a soil bank scheme has been instituted, with annual payments to farmers with 2 to 14 hectares of cultivable land who agree not to farm it for a period of three years. In France farmers wishing to change employment are to be assisted in entering professional training centres and scholarships are to be awarded automatically to children of farmers with less than a minimum area. In the Federal Republic of Germany the objectives of agricultural policy were restated with emphasis on assistance for farmers leaving agriculture, assisted investment for expanding farms,

etc. In the Netherlands payments to farmers leaving agriculture are no longer dependent upon the size of their farm or their age.

Although there is also distinct evidence of interest in structural reform in the less industrialized countries of western Europe, it tends to be for the purpose of further expansion of total agricultural production. Current development plans in Greece, Portugal, Spain and Yugoslavia all accord relatively high priority to agricultural development. In Spain the emphasis is on consolidation of holdings, acquisition of farms by tenants and settlers, mechanization, irrigation, a shift from wheat to feed-grain production, expansion of livestock production, and improvement of processing and marketing operations. The Portuguese plan calls for greater resources being devoted to livestock products, fruit and vegetables, and quality wines. In Greece a reduction in wheat acreage is sought, with increased production of feed grains, livestock, and export products such as fruit and vegetables; although the total area of Greek tobacco is not to be increased, licences are being redistributed among regions and producers in order to favour the more suitable zones, and a system of guaranteed prices for tobacco has been introduced.

Eastern Europe and the U.S.S.R.

The economies of the U.S.S.R. and of the countries of eastern Europe continued to grow fast in 1968, with increases in the net material product of 5 percent and upward. In most of eastern Europe the growth was based largely or entirely on a further expansion of industrial output (8 percent in the group as a whole). In a number of these countries, after five successive years of uninterrupted growth, agricultural output levelled off as a result of bad weather, particularly a prolonged spring drought. Also in the U.S.S.R. industrial output increased by 8 percent, but there was a significant increase in agricultural production as well. For 1969, the first estimates suggest some decline in the region's gross agricultural output, mainly because of reduced cereal crops in the U.S.S.R.

The fact that, in spite of some climatic adversities, output in eastern Europe in 1968 could generally be maintained at or near the peak levels of 1966 and 1967 suggests that the growing application of modern techniques and the important policy changes of recent years have produced tangible results. Crop yields in these countries are now comparatively high, due to the progress made in the use of farm machinery, fertilizers and pesticides, in the development and application of improved seeds, and in extending the area under irrigation. These and other improvements have raised

productivity, and made agriculture less sensitive to the vagaries of weather.

In most countries of the region a stage has been reached where expansion of output in purely quantitative terms is no longer the dominant issue. Increasingly the emphasis is shifting to the question of what to produce and how to produce in order to make efficient use of the allocated resources. The options facing the governments have grown in complexity, especially in those countries where industrial inputs in agriculture are already high and where labour resources are becoming increasingly scarce. Efforts to rationalize agriculture and to integrate it better with the other sectors of the economy are therefore gaining importance, and were a major preoccupation of the governments in the region in 1967 and 1968.

Agricultural production

FAO's preliminary indices for eastern Europe and the U.S.S.R. combined show an increase in agricultural production in 1968 of about 5 percent (Table II-5). No indices are calculated by FAO for individual countries of the region. Official estimates indicate, however, that the output in the U.S.S.R. increased by 3.6 percent despite bad weather in some parts of the country. This

TABLE II-5. -- EASTERN EUROPE AND THE U.S.S.R.:
INDICES OF AGRICULTURAL PRODUCTION

	1966	1967	1968 ¹	Change 1967 to 1968 ¹	Annual rate of growth 1955-57 1965-67
	1952-56 average = 100			.... Percent	
Total					
All products	165	167	174	5	3.6
Food only	167	168	177	5	3.7
Per caput					
All products	141	141	146	4	2.3
Food only	143	142	148	4	2.4

¹Preliminary.

compares with an increase of 1.4 percent in 1967. In eastern Europe the performance varied significantly depending on the climatic conditions (Table II-6). Weather was generally good in the northern and western countries of the area. The growth of production in Poland was consequently better than the modest result of 1967, and the increase in Czechoslovakia, though less

than in 1967, was still in line with the trend of the previous five years. Countries in the eastern and southern parts of the area, on the other hand, were affected by prolonged drought in the spring and early summer, to the detriment of output particularly in Romania and Bulgaria.

The increase in the U.S.S.R. was mainly due to cereals, the harvest of which rose in 1968 to 169.2 million tons, 14 percent more than in 1967, and only slightly below the 1966 record. The 1968 harvest brings the average for the first three years of the current five-year plan to 163 million tons; if the plan target of a 167 million ton average for 1966-70 is to be achieved, the crops in the next two years will have to average 173 million tons a year. The desirable annual average is put at 190-200 million tons a year² for the next few years. In an attempt to achieve this, it is intended to increase the use of fertilizers, so far only relatively little used in cereal production, to expand and improve irrigation, and to improve the seed used. Expanded irrigation has already raised the production of rice to

²Indicated by the Central Committee of the Communist Party at its Plenum in October 1968.

TABLE II-6. -- EASTERN EUROPE AND THE U.S.S.R.: AGRICULTURAL PRODUCTION 1963-68 AND THE 1969 TARGETS
(PERCENTAGE INCREASES OVER PRECEDING YEAR)

	1963-67 ¹	1964	1965	1966	1967	1968 ²	1969 plan
	..... Percent						
Albania							
Total	6.9	1.6	- 3.0	15.0	12.0	...	22.0
Crops .....	...	...	- 6.8	...	...	...	...
Livestock .....	...	...	...	...	...	...	...
Bulgaria							
Total	6.6	11.4	1.8	14.3	3.5	- 8.7	16.6
Crops	6.6	10.3	- 1.5	19.0	1.8	-15.4	...
Livestock	6.6	13.7	8.3	5.8	6.9	- 3.1	...
Czechoslovakia ³							
Total	4.1	3.0	- 5.4	11.1	5.5	3.6	2.9
Crops	4.4	1.2	-14.4	21.4	5.3	3.0	...
Livestock	3.9	7.3	3.2	3.0	5.8	4.1	...
Hungary							
Total	2.7	6.0	- 5.0	8.0	1.0	1.0	2.3
Crops	3.2	3.0	- 6.0	12.0	-	-	3.4
Livestock	2.8	10.0	- 4.0	4.0	3.0	3.4	1.2
Poland							
Total	4.2	1.3	7.7	5.4	2.5	4.4	1.7
Crops	6.0	0.5	8.4	5.5	3.8	5.4	3.9
Livestock	1.5	2.3	6.6	5.4	0.3	2.9	1.9
Romania							
Total	6.3	6.3	6.7	14.0	1.8	- 3.6	...
Crops	6.6	3.3	6.4	16.5	-1.9	- 3.9	...
Livestock	6.0	14.7	4.5	12.3	7.7	- 3.0	...
U.S.S.R.							
Total	6.6	14.6	1.8	8.9	1.6	3.6	6.1
Crops	7.7	29.0	- 8.3	12.7	0.8	...	...
Livestock	5.3	-1.6	16.9	3.4	3.3	...	...

Sources: National statistical yearbooks, plans and plan fulfilment reports.

¹Annual compound rates. -- ²Preliminary. -- ³Discrepancies in comparison with earlier published data are due to a change in the price weights for the calculation of index from 1960 to 1967.

about 1 million tons in 1968, or nearly three times as much as the average annual production for 1961-65.

Among other crops, there were very good harvests of sugar beet and potatoes in 1968. The cotton crop remained unchanged, as did that of sunflowerseed. Vegetable production fell by 10 percent, reflecting unfavourable weather in some of the southern areas. The livestock economy fared less well. Output of meat, milk, eggs and wool increased, but the number of cattle and pigs diminished, apparently because of a shortage of fodder.

Crop production in Poland expanded considerably faster than in 1967. More cereals were produced, partly owing to a one-tenth increase in yields, partly because the area under cereals is being gradually expanded at the expense of potatoes, sugar beet and, to some extent, pasture. In Czechoslovakia record yields were obtained for virtually all crops. The cereal harvest in Eastern Germany was about the same as in 1967 but that of other major crops, especially potatoes, was down.

In spite of the dry weather, output of grains in Hungary was somewhat larger than the year before. The lack of expansion in crop production in this country was chiefly caused by the sharp decline in the fruit and vegetable sector, which accounts for about one quarter of the total farm output. In Bulgaria crop output was down by 15 percent, but fruit and vegetables did fairly well, owing to the greatly expanded area under irrigation. In Romania the wheat crop, and therefore the total production of cereals, was below that of a year earlier.

Developments in the livestock sector of the eastern European countries were more uniform. The upward trend in output, which has been evident in most countries in the last few years, continued in 1968, except in Bulgaria where cattle numbers were reduced because of the drought, and in Czechoslovakia. Elsewhere they generally continued to expand at the slow rate of the last few years, which reflects mainly the application of more rational policies in the livestock sector, aiming at harmonizing the expansion of livestock numbers with the growth of feed supplies and investment in buildings and equipment.

Total meat output in Poland was about the same as the year before, and in Czechoslovakia the increase in livestock production was in line with the preceding five-year average. In Hungary, drought losses in domestic feed supplies were made up by increased imports, and total production of meat was higher than in 1967.

In drought-stricken Bulgaria the feed situation was made somewhat easier by the abundant carryover from the previous year. Total animal production nevertheless declined, reflecting smaller output of milk and eggs. A positive development was the impressive expansion, by about 36 percent, of broiler production. Output in Romania increased slightly, despite a reduction in milk production.

The U.S.S.R.'s fishing fleet landed 6 million tons of fish and shellfish in 1968, fulfilling the plan targets for

the year. Poland's production was in excess of 400 000 tons or nearly one fifth higher than in 1967.

As for the forestry sector, no significant increase over 1967 appears to have taken place in roundwood production. Fuelwood production fell in the U.S.S.R., but this was more or less offset by higher removals of industrial roundwood. Sawnwood production is estimated at about the 1967 level, while there were increases in output of wood-based panel products. Production of wood pulp rose slightly, but the planned level for 1968 was not reached. Output of paper and paperboard is reported to have fallen slightly, and serious difficulties appear to have been encountered in completing the installation of new capacity and bringing operating ratios of existing plant up to satisfactory levels. Practically all new capacity is being installed in the relatively undeveloped areas of Siberia and northern U.S.S.R. In eastern European countries, there were moderate increases in the production of soft and hard sawnwood, plywood, pulp and paper. The majority of countries showed a continued decline in the output of plywood, but this was offset by increased production in Romania. Output of particle board and fibreboard in the region grew relatively strongly.

Estimates for 1969, based for a large part on unofficial sources, suggest that agricultural production in the region may have decreased somewhat. In the main this would reflect the smaller cereal crop in the U.S.S.R., estimated at around 150 million tons (including pulses), some 20 million tons less than the very good harvest of 1968. Winter grain had been damaged in some important wheat-producing areas, and the ripening of the crops has been delayed. For the region as a whole, wheat production was expected to be down by about 10 percent, and also the rye crop was forecast to be smaller; the increases expected in barley and oat production would be insufficient to offset these falls. No data were available at the time of writing on the overall maize crop, but Hungarian production was reported to be a record and prospects elsewhere better than in 1968.

Livestock numbers in the region have showed little change in 1969, except for a severe reduction in sheep numbers in the U.S.S.R., and milk production is estimated to have remained at about the 1968 level. Production of sugar is likely to have fallen by some 7 percent, due to a reduced sugarbeet area in the U.S.S.R. Also oilseed production was likely to be less than in 1968. Cotton production in the U.S.S.R. was expected to be about equal to that of 1968.

Trade in agricultural products

The volume of the region's agricultural exports in 1968 remained at the high level of the previous year. Exports of wheat, maize and rye were substantially smaller, as were those of meat and dairy products, but shipments of sugar, sunflowerseed oil and cotton were larger. Agricultural imports increased only fractionally as smaller purchases of most foods and feedstuffs

largely offset the increase in coffee, cocoa and most agricultural raw materials.

The salient feature of the agricultural trade of the U.S.S.R. in 1967 had been the country's reemergence as a net exporter of grains. Although the smaller grain crop in 1967 led to a reduction in exports in 1968, from 6.2 to 5.4 million tons (most of it wheat), imports also fell, from 1.8 to 1.3 million tons, and the country thus maintained its net export status.

As in the earlier years, the bulk of the grain exports went to Czechoslovakia, Eastern Germany and Poland, each of which seems to have received about 1 million tons. The export position of the U.S.S.R. may be further strengthened in 1969. Domestic consumption is not likely to increase much, and the larger 1968 output and the sizable stocks from the previous year will contribute to a further increase in export availability.

For meat, too, the country shifted from being a net importer in 1966 to a net exporter in 1967 and 1968, as exports were increased and imports reduced. The difficulties encountered in the livestock sector in 1968 and 1969 may, however, have since reversed the situation. Of the other commodities important in agricultural trade, imports of raw sugar were reduced sharply in 1968 (by almost 1 million tons to 1.8 million tons), while exports of refined sugar were expanded by one quarter to 1.3 million tons. Imports of most other major commodities, including cocoa, coffee, rubber and wool, also increased substantially. Cotton exports are expanding and imports declining, and net exports have increased by 25 percent between 1966 and 1968. The exports of eastern European countries fared rather less well than in 1967, while their imports were greater. This was particularly the case in Romania, whose total agricultural exports fell by 12 percent in value terms mainly because of a steep fall in the volume of cereal exports, while the value of its imports of farm products increased by 9 percent. But similar tendencies were also shown by the trade in foodstuffs of four other eastern European countries. The value of Hungary's exports fell slightly and the combined value of exports from the four countries was only 3 percent larger than in 1967, while their imports expanded by 10 percent. In the case of Bulgaria, Hungary and Romania the changes were no doubt influenced by the poor harvests of 1968. The 10 percent increase in Czechoslovakia's imports was concentrated mainly in the last quarter of the year, in the aftermath of the events in August 1968.

These changes in the food and agricultural trade of eastern European countries were also evident in their exchanges with western Europe. Exports (including those from the U.S.S.R.), which had increased substantially in 1967, declined by about 5 percent in 1968, while the (much smaller) imports from western Europe, which in 1967 had fallen, now rose by about 5 percent in 1968.³ The difficulties experienced by the

³The fall was greatest (8 percent) in exports to northwestern Europe. Exports to the European Economic Community fell by 4 percent, and those to southern Europe increased by about 8 percent.

eastern European countries in selling their increasing exportable surpluses of agricultural products to western Europe are causing them some concern. Western Europe takes some 35-37 percent of the total agricultural exports of eastern Europe, and as much as 50 percent of those of Hungary, and these exports are likely to remain a major source of convertible currency for the eastern European countries for some time, except in the case of the more industrialized Eastern Germany and Czechoslovakia. All the agricultural exporters of the area, and particularly Bulgaria and Hungary, are therefore making determined efforts to diversify the commodity composition of their exports to western Europe, and to improve their quality to meet the sophisticated requirements of western European consumers.

Farm incomes

With both larger deliveries and often higher prices, farm incomes made further progress in 1968 in all countries of the region for which information is available. The effects of poor 1968 crops in some countries are, however, likely to affect incomes in 1969.

In the U.S.S.R., the income⁴ of kolkhozes grew between 1965 and 1967 by 15 percent, and a further increase of 4 percent is reported for 1968. Farmers' cash receipts in Hungary rose in 1968 by nearly 20 percent, due partly to increases in state procurement prices for pigs and slaughtered cattle. An almost equal rise (by 17 percent) was experienced in Czechoslovakia, especially in the first quarter of the year when the so-called liquidation sums⁵ were paid for the good 1967 performance of collective farms. In that year and again in 1968 the volume of state purchases rose by about 7 percent, and in the former year the average prices paid for agricultural products had been raised by as much as 21 percent. In Poland farmers' cash income from state deliveries rose in 1968 by 40 percent, mainly because of larger grain deliveries. In Bulgaria also farm incomes rose in spite of the disappointing output, owing to marked increases in contractual prices for meat, milk, fruit and vegetables introduced at the beginning of the year. As in Czechoslovakia, the members of the collective farms drew some deferred payments for the very good results obtained the year before.

Agricultural policies

In the past few years the authorities of the U.S.S.R. and of the eastern European countries have placed considerable emphasis on improving the position and performance of the farm sector, and integrating it more fully into the general economy. A number of economic measures have been introduced for this purpose: producer prices have been raised, more farm credit has

⁴Value of production, less cost of inputs other than labour.

⁵Deferred payments to members of the collective farms resulting from farm net incomes in the preceding year.

been provided, and farmers have been given greater freedom to plan and carry out their farming activity and to engage in auxiliary activities. In the U.S.S.R., where there was some slackening in the pace of agricultural development during the period 1959-64, a number of incentive measures were adopted from 1965 onward. Thus producer prices were raised sharply, more farm credit was provided, a minimum remuneration was fixed for kolkhoz members, and the principle of self-financing was introduced progressively in some state farms and in subdivisions of kolkhozes (brigades and livestock farms).⁶ These measures undoubtedly contributed to the 13 percent increase in production between 1964 and 1967. However, they also resulted in a 40 percent increase in state payments for output of kolkhozes and family plots, and in a 20 percent increase in the wages of sovkhos workers, thus increasing the economic pressures for adoption of long-term measures to eliminate waste in the use of land, capital and manpower, and to improve technology. A number of important laws affecting these matters were announced in 1968 and 1969.

Improvement of land-use patterns

Radical new steps toward better land use will be taken in the U.S.S.R. under a law passed in December 1968. Between now and 1975, all farmland in the country will be classified according to its physical characteristics and, for the first time since the abolition of the cadastral records in 1917, its economic value, and parcels of land will be reorganized on the basis of studies to determine the proper use of land and necessary improvements. Within this framework every kolkhoz and sovkhos must work out its own long-term organizational plan (orgkhozplan), which then has to be approved by the state authorities. The State will presumably have to take account of the cadastral classifications and the orgkhozplans in allocating compulsory delivery quotas. In this way earlier mistakes, such as obliging farms to produce an excessive variety of crops or economically unsuitable crops, should be avoided.

New measures have in the meantime been announced for the acceleration of land improvement works, and for ensuring improved returns from investment in them. The 10-year targets announced in 1966 remain unchanged, at 7 million hectares for irrigation and 15 million hectares for drainage. Following a slowdown in 1968, the objectives for 1969 have been raised to 310 000 hectares and 820 000 hectares, but are still much below the annual average needed to achieve the 10-year targets.

A further contribution toward rationalization of agriculture is expected to result from a new law on agricultural research, passed in October 1968. Under it, all research work is to be placed under the direction of the Lenin Institute of Agricultural Sciences, which will organize institutes and experiment stations, to which

⁶These measures have been described in previous issues of *The state of food and agriculture*.

the best farms in each area may be attached as pilot farms. A major aim of research will be to develop those farming systems best suited to each ecological zone of the country.

These efforts are closely linked with others to rationalize farming through specialization. In crop production the possibilities of specialization are restricted by rotation requirements and the need for year-round employment. With livestock production complete specialization is possible, provided that the necessary auxiliary services are available. A cautious policy of specialization is now being pursued in livestock production, and some successes have already been reported.

In eastern Europe as well great emphasis is laid on irrigation and land improvement work. In Hungary the area under irrigation had by 1967 reached 434 000 hectares, or about 9 percent of the total arable land, and that in Bulgaria over 1 million hectares, or about 20 percent of the total. Romania's present five-year plan stipulates that by the end of 1970 the irrigated area should reach 1 million hectares (about 10 percent of the total arable area). By the end of 1968, however, only a further 325 000 hectares had been irrigated in addition to the 230 000 hectares already irrigated at the beginning of the 1966-70 plan period, and another 100 000 hectares was planned for 1969. According to Romanian experts, the long-term target should be in the neighbourhood of 5.3 million hectares. In Hungary it is estimated that about half the cultivated area needs land improvement work of some kind; in Czechoslovakia it is about 40 percent.

Excessive fragmentation of farm holdings has become of late an important issue in Poland. At the beginning of 1968 a large-scale consolidation programme was adopted, designed to integrate dispersed farmland, to improve farm structures and promote technical progress. Under certain circumstances the new legislation provides for obligatory sale of land at auction, where the State has the right of preemption. When taking over land from farmers unable to work, the State grants them an old age pension, lifelong right of use to a plot of up to 1 hectare, and the ownership of all farm buildings.

Technical improvements

As part of the strategy of promoting technical progress in agriculture, pilot operations of various kinds continue to be set up on an extensive scale in eastern Europe. Cattle herds tend to be increasingly concentrated in large well-equipped farms, a move which in some countries, such as Hungary, has been accompanied by a levelling off and even decrease of livestock numbers in private holdings. In Poland, where the small private farm is still predominant, efforts are being made to use the agricultural circles and their machinery centres for modernizing the farm economy.

The supply of production requisites continued to improve in eastern Europe, especially in Bulgaria (where supplies of fertilizers rose by 39 percent over the 1967 level) and Romania. A similar trend is reported in

Czechoslovakia, except that additions to farm machinery were much below those of a year earlier, owing to high prices and inadequate technical quality.

In the U.S.S.R. the requirements for farm machinery remain only partially satisfied. Production of tractors has in recent years been below target, and an increase in the number of machines used is slow because of large replacement needs (70 percent of annual output for tractors). Aside from an increase in numbers, it is also considered necessary to effect a shift toward more powerful machines. Attention is also being given to the mechanization of livestock production as a prerequisite for the concentration of herds on large farms.

A rapid expansion in the output of chemical fertilizers is planned. In 1968, 43 million tons were produced and the revised target for 1972 is now 95 million tons. As in the case of land improvements, a perspective plan is to be drawn up for fertilizers to indicate the types of fertilizers most needed and to determine the location of new fertilizer plants.

Rural population

Some 45 percent of the population of the U.S.S.R. still lives in the country. However, a rapid shift of manpower away from the land is taking place, particularly among the skilled workers and most productive age groups. Already in 1967 it was estimated that the supply of machine operators and mechanics was insufficient (14 percent short of demand in the R.S.F.S.R.) and the requirements for such personnel are expected to more than double in the next few years.

Measures are therefore being taken to slow down the rural exodus. In order to make up for the shortage of mechanically skilled workers, a law was passed in early 1969 giving female workers incentives to take up such employment, including easier work norms. As one main cause of the shift to towns is the income disparity between industry and agriculture (where wages equal only 65-75 percent of industrial earnings), efforts are being made to raise the earnings of farmers, both from agriculture and through the establishment of small-scale industries attached to farms and providing paid employment in the slack season. To raise the productivity of labour, an extensive campaign for the scientific organization of work has been set up.

The greater stress in the U.S.S.R. on the planning of villages and on improving local government can be viewed as constituting a part of the same policy. Two laws passed in 1968 are important in this context. One launches a large-scale programme to make the location of villages and hamlets correspond with the location of resources and the specialization of the farms, and to ensure a certain minimum standard of building and services in the central villages. The other gives the rural councils (selsoviets) a greater voice in decisions affecting village life, which hitherto has tended to be dominated by the economic priorities of the kolkhozes and sovkhozes.

As a result of the various efforts made, the distribution of income has tended to shift toward a

TABLE II-7. -- EASTERN EUROPE: INCREASES IN REAL PER CAPUT INCOME OF WAGE EARNERS AND FARMERS IN CZECHOSLOVAKIA AND BULGARIA

	1951-55	1956-60	1961-65
	Percent		
Czechoslovakia			
Wage-earners .....	...	24	8
Farmers .....	...	30	11
Bulgaria			
Wage-earners	38	39	12
Farmers	11	54	42

Source: United Nations, Economic Commission for Europe, *Incomes in postwar Europe: a study of policies, growth and distribution*, Geneva, 1967.

better balance between the agricultural and non-agricultural sectors, particularly in certain eastern European countries. In some cases the gap is closing rapidly. Table II-7 shows the changes in relative income levels in Bulgaria and Czechoslovakia, the only countries for which fully comparable data are available; the same trend can be observed for Hungary and Poland in the period 1960-65.

Integration of agriculture with other sectors

At the same time, increasing attention is being given in eastern European countries to the relation between farming and the agro-based industries and services in other sectors. The weakness of the vertical links between agriculture on the one hand and industry, transport and distribution on the other has in virtually all countries become increasingly evident, and is in danger of creating a serious bottleneck. In Bulgaria the earlier measures — creation of the big united trusts such as Rodopa and Bulgarplod in the state sector — were followed at the end of 1967 by the establishment of the Central Cooperative Union, to coordinate the activities of consumer cooperatives and collective farms. In Eastern Germany the experimental scheme established in 1967, with unified management of the whole production and marketing chain from farms to retail trade, was extended in 1968 to new areas. With the same purpose in mind, in some countries the planning and management of agriculture and food processing industries have been merged at the central level. Joint ministries for agriculture and food were established in 1967 in Hungary and Czechoslovakia, and in early 1969 in Bulgaria. In Eastern Germany a Supreme Council for Food and Agriculture was created in 1968.

The greater emphasis on the measures aiming at strengthening the links between agriculture and other sectors reflects an increasingly refined approach to economic growth. It is also an indication that agriculture in eastern Europe has reached a more advanced stage characterized by higher capital intensity and increasingly industrialized methods of production. Even in countries where abundant supplies of labour are still available, the share of inputs purchased from other sectors (including imported feedstuffs) is rising rapidly (Table II-8). In the two most industrialized countries of

TABLE II-8. - EASTERN EUROPE: SHARE OF TOTAL PURCHASES OF AGRICULTURE FROM OUTSIDE SECTORS IN GROSS OUTPUT

	1963-65
	Percent at 1963 prices
Czechoslovakia	38
Eastern Germany	41
Hungary	27
Poland	18

Source: FAO/ECE/Joint Agriculture Division.

the region - Eastern Germany and Czechoslovakia - the share of such inputs is roughly equal to that in northwestern Europe, and in Hungary it is approaching this order of magnitude.

New kolkhoz statute in the U.S.S.R.

An event of some importance in the U.S.S.R. was the publication in April 1969 of the draft of the new kolkhoz statute, to replace the original statute of 1935. It codifies the various changes introduced in the organization of kolkhozes in the intervening years, including the guaranteed minimum remuneration of kolkhoz members and the practice of establishing small industries within collective farms. It emphasizes the responsibility of farms for land improvement and recommends specialization and concentration of production. It will be submitted for approval to a congress of kolkhoz representatives to be held in November 1969.

Many of the amendments proposed in the draft statute reflect the evolution of kolkhozes from relatively small units into giant enterprises requiring appropriate management and administrative practices. Thus while the old statute provided that the general assembly, the sovereign body of the collective farm, should be attended by all members, under the new draft statute the various villages comprising the kolkhoz can be represented by delegates. The chairman and the executive committee of the kolkhoz would be elected for three years, rather than two. It also gives a

recognized role to the assembly of the brigade (often corresponding to a village) or livestock farm, including the right to elect its chief (subject to confirmation by the executive committee). It also recognizes the principle of self-financing for the brigade.

Forestry and fishery policies

No major policy decisions, comparable to those made in the field of agriculture proper, were made in the forestry and fishery sectors in 1968. The integration of forestry into overall economic development is, however, facilitating greatly the planning of forestry and forest industries development and the implementation of sectoral development plans. The administrative restructuring of forest operations and the creation of autonomous forest enterprises, frequently combined with forest industrial enterprises, are giving satisfactory results. Problems of forest labour have so far not become serious, in part because of the continued availability of manpower from agriculture. Although forest management practices and production policies are generally rather conservative, a trend toward the greater use of small-sized timber is noticeable. This, along with the planned decline in the use of sawnwood and an increase in pulp and board products, is affecting raw material production policies. The indirect values which the forests provide for society are generally well recognized, particularly in terms of watershed management and torrent control, and forests having such a protective role are subject to rather severe regulation and control.

To meet the planned increases in per caput fish consumption, the countries of the region continue to lay stress on high seas fishery operations based on huge mother ships serving catcher fleets, and operating at great distances from home bases. In the U.S.S.R., however, inland fisheries are also being given increasing attention, and it is planned to increase their output fourfold in the period 1967-70. An important objective for Poland is to raise its degree of self-sufficiency in fish meal, two thirds of which is at present imported.

North America

Agricultural production in North America reached a further record level in 1968 with a 2 percent increase (Table II-9). In contrast to recent years, the increase in nonfood production exceeded that in food production, mainly because of the larger United States cotton crop. The value of agricultural exports from the region, however, fell again. Early estimates for 1969 indicate little change in the level of agricultural production.

Major agricultural problems confronting the region are those characteristic of developed countries with highly productive, technologically advanced agricultural sectors. They involve adjustments to meet the changes in the pattern of domestic requirements and in export demand under the highly dynamic and intensely competitive conditions that prevail in world markets for many temperate zone agricultural commodities.

TABLE II-9. -- NORTH AMERICA: INDICES OF AGRICULTURAL PRODUCTION

	1966	1967	1968 ¹	Change 1967 to 1968 ¹	Annual rate of growth 1955-57 -- 1965-67
	... 1952-56 average = 100 ...			... Percent ...	
Canada	144	122	132	8	2.9
United States	118	124	125	1	1.7
Region	120	124	125	2	1.8

¹ Preliminary.

Important medium- and long-term policy objectives of Canada and the United States therefore include supply management of major agricultural commodities to avoid accumulation of surpluses, maintenance of stable prices at remunerative levels for agricultural products, structural adjustments to increase labour productivity and provide acceptable levels of income for farmers, and the expansion of export markets for their agricultural products.

The general level of economic activity and growth in Canada and the United States, especially in the latter, continued to exceed expectations during 1968. Following the resolution of uncertainties created by the extension of United States foreign exchange controls at the beginning of 1968, the Canadian gross national product (GNP) increased by about 7 percent, approximately the same rate as in 1967, while the general level of prices rose by about 4 percent, slightly more than during the previous year. Monetary policies reflected those of the United States, and the fiscal measures adopted proved inadequate to curb inflationary pressures. Exports increased by 19 percent, largely in response to the booming United States demand, and Canada's usual favourable trade balance widened significantly despite a 13 percent increase in imports. A small surplus on current account resulted and, despite a small net deficit on capital account, a net accrual to Canada's international liquidity reserves. Real output continued to grow in 1969 at about the same rate as in 1968. Inflation remained a problem, however, despite further restrictive measures taken in 1969.

In the United States expansionist budgetary and monetary measures generally overshadowed the restraining influence of fiscal measures imposed in mid-1968 and the economy continued subject to intense inflationary pressures. The index of consumer prices rose by 4.2 percent (the largest annual increase since the early part of the Korean war), the unemployment rate dropped below 3.5 percent, and interest rates rose to the highest levels in a hundred years. GNP increased in 1968 by 9.0 percent, as compared with 5.6 percent in 1967 when, however, the increase in the general level of prices had been notably less. The usually favourable trade balance virtually disappeared, as imports rose by 24 percent and exports by only 10 percent. The balance on current account continued the downward trend of recent years and for

1968 became a net deficit. However, massive capital inflows, especially during the latter months of the year and apparently consisting largely of repatriated short-term funds from Europe, enabled international liquidity reserves to show a small net increase for the year. Most of these tendencies continued into 1969; the rate of inflation accelerated further, despite some slowing down in the growth of real national output.

Agricultural production

In the United States total agricultural production in 1968 is preliminarily estimated to have risen slightly above the previous record 1967 level. Growing conditions were generally favourable and the modest rate of increase in output reflected primarily the effects of government programmes to restrain production. Higher crop yields tended however to offset the smaller area under cultivation. There were record crops of food grains, as wheat production increased again despite reduced acreage, and rice production increased for the seventh consecutive year. Oilseed crops were also up, as soybean acreage expanded for the eighth season and output of cottonseed and linseed both rose sharply from the exceptionally low 1967 levels. Feed-grain output declined, however, as decreases in the maize and grain sorghum harvests more than offset increases in those of barley and oats. Production of sugarcane was lower but that of sugar beet reached a record level, nearly one third above the 1967 harvest and 20 percent above the 1962-66 average. Meat production reached a record level, but that of milk fell slightly short of the 1967 level as dairy cattle numbers continued to decline. Butter production was also lower while that of cheese continued to increase.

In Canada total agricultural production in 1968, about 7 percent above the 1967 level (preliminary estimate), still remained below the 1966 record. Grain yields in general were at record levels; in the case of wheat this more than offset the slight decrease in area, and output rose by 10 percent. In the prairie provinces maturity and harvesting were, however, delayed by cool, wet weather and quantities of wet and frozen grain remained on the farms. There were large increases also in the output of barley, oats and maize, and linseed production doubled as the area increased from the exceptionally low 1967 level. Total meat production set a record in 1968, with increases for beef and veal. Milk production approximated the 1967 level, as did that of butter and cheese, although the output of processed milk products increased.

Preliminary estimates for 1969 suggest that agricultural production in the region may remain at about the 1968 level. The wheat crop is estimated to be down by about 3 percent, as a moderate decrease in the United States offset a small increase in Canada. Yields were higher in both countries. Feed-grain production may be of about the same size as in 1968. The output of barley, oats and sorghum was greater, but the maize

crop was likely to remain below the 1968 figure because of reduced acreage in the United States and unfavourable weather in Canada. Numbers of most livestock were smaller than in 1968, except for a small increase in cattle and calves, and milk production was showing some decrease. The total harvest of oilseeds was likely to increase somewhat, despite a slight reduction in the United States soybean harvest. Other crops which were expected to show an increase include sugar and tobacco. Little change was anticipated in production of cotton lint. Citrus fruit production was likely to be some 10 percent less than in 1968, but harvest of other fresh fruits were greater.

Fishery production

In both Canada and the United States fishery production was higher than in 1967. The 10 percent increase in Canadian landings, which totalled 1.4 million tons, was due largely to a successful herring fishery in the maritime provinces and good salmon catches in British Columbia. However, difficulties were experienced in the disposal of some products at remunerative prices, particularly frozen groundfish products destined for export, and in early 1969 the Government announced new loan and price stabilization measures to provide emergency assistance.

The increase in United States production was mainly of species used for fish meal and fish oil. Catches of some species for human consumption were also larger. The catch of salmon in Washington and Oregon was, however, lower and this restrained canned salmon production to some extent. With good results in the Maine fishery, canned sardine output was the highest since 1954.

Forest production

A strong upsurge in the construction sector in North America generated pressures on available supplies of many categories of forest products until late 1968. Prices therefore rose, and the production of roundwood increased despite disruption by exceptionally severe winter weather. Production of both sawn softwood and softwood plywood also rose sharply, the former to a new record level. Output of sawn hardwood declined, however, leading to a reduction in stocks and exports. Production of fibreboard started to rise again reaching a new high in 1968, and that of particle board continued to expand. Production of most paper and paperboard grades rose markedly during 1968 and, contrary to earlier expectations, by the spring of 1969 supply and demand for most grades of chemical pulp were in reasonable balance and prices became progressively firmer. Producers of most types of paper and paperboard, except newsprint, were also operating at acceptable capacity-utilization ratios. Early in 1969 there was a steep fall in sawnwood prices, due to destocking and a slackening of housing construction as interest rates rose, but these prices recovered partially later in the year and a further slow rise was expected in 1970.

Trade in agricultural products

The value of agricultural exports from North America fell in 1968 for the second successive year from the peak of 1966 (Table II-10). In contrast to recent years, the decrease reflected a lower average export unit value for the region's export products, the index of which fell by 3 percent, while the index of export volume remained unchanged.

The basic reason for the fall in the value of the region's agricultural exports was the generally ample

TABLE II-10. - NORTH AMERICA: INDICES OF THE VALUE OF EXPORTS OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	Share of total agricultural exports in 1968	1966	1967	1968 ¹	Change 1967 to 1968 ¹
	Percent	1957-59 average = 100			Percent
Agricultural products	100	170	151	146	- 4
Food and feedstuffs	82	202	174	165	- 5
Cereals	(50)	217	176	161	- 8
Soybeans and oils	(15)	247	255	260	2
Beverages and tobacco					
Tobacco	9	137	144	153	6
Raw materials					
Cotton	7	60	65	64	- 1
Fishery products	-	151	159	162	2
Forest products	-	148	156	175	12
Agricultural, fishery and forest products	-	164	153	154	1

¹ Preliminary.

TABLE II-11. NORTH AMERICA: INDICES OF THE VOLUME OF IMPORTS OF AGRICULTURAL PRODUCTS

	Share of total agricultural imports in 1968	1966	1967	1968 ¹	Change 1967 to 1968 ¹
	Percent	1957-59 average = 100			Percent
Agricultural products	100	112	113	123	10
Food and feedstuffs	44	123	130	138	7
Sugar	14	97	108	113	5
Meat	13	186	201	223	11
Beverages and tobacco	43	111	110	123	12
Coffee	32	104	101	120	18
Raw materials	14	86	83	92	11
Wool	3	91	63	83	31
Rubber	8	84	88	103	17

¹ Preliminary.

supply situation for many temperate zone products in the world markets, following increases in output in both exporting and importing countries, including some major developing food importers. This was particularly reflected in the reductions in exports of some of the main cereals, particularly wheat and wheat flour, the volume of which fell by 5 percent despite an increase in shipments on concessional terms, and coarse grains other than maize. Rice exports from the United States, which have risen steeply in recent years (since 1964 the United States is the world's largest exporter of rice), fell slightly in 1968, although the value continued to increase. Earnings from soybeans and soybean oil exports were only slightly higher, despite a further substantial increase in the quantity shipped.

Of the other two major exports, tobacco and cotton, United States exports of the former continued to be helped by the United Nations sanctions against trade with Rhodesia. Cotton shipments fell slightly, partly because of a shortage of high quality fibre and partly because of the relatively high prices of American cotton.

Higher earnings from fishery product exports reflected an increase of almost 9 percent in Canadian earnings, although declining prices for some products caused some concern for the future and led to the introduction of price stabilization measures in early 1969. United States exports, particularly of menhaden oil (one of the major items in their trade) and of canned and freshly frozen salmon, were almost 30 percent lower.

The region's exports of forest products, which provide about one third of the combined earnings of agricultural, fishery and forest products, expanded. Much of the increase was in shipments of sawn softwood and chemical pulp from Canada to the United States, but exports to other regions were also larger. Both countries exported appreciably greater quantities of chemical pulp and some categories of paper and paperboard to Europe, and there was also a considerable increase in exports of coniferous logs, sawn softwood and chemical pulp to Japan. Because of the much higher prices in North America, exports of sawn

softwood from Canada to Europe, especially the United Kingdom, were reduced and those to the United States increased.

Imports of agricultural products into Canada and the United States, which had levelled off in 1967, increased in 1968 by about 10 percent (Table II-11). The increases were widely distributed in terms of commodities, reflecting the generally higher level of consumer demand in both countries and, for raw materials, a revival of manufacturing activity from the dip of 1967. Shipments of some commodities (coffee, rubber and wool) to the United States were particularly high late in the year in anticipation of the dock strike. Sugar and meat imports were also substantially higher. There were significant reductions only in the case of cocoa and cotton.

The strong demand from the construction sector in the region led to higher imports of plywood, both from the established Asian supplying countries — Japan, Republic of Korea, Philippines, and China (Taiwan) — and from Finland and some of the newer plywood producing countries, notably Malaysia. United States imports of fibreboard from northern Europe and Canada also rose markedly.

Agricultural prices and incomes

While total agricultural production increased in 1968 in both Canada and the United States, agricultural prices and incomes moved in opposite directions, up in the United States and down in Canada. These opposite movements mainly reflected differences in the price and income programmes and measures of the two governments, although the more buoyant state of consumer demand in the United States was also a factor. The index of United States farm prices averaged 2.8 percent higher during 1968, with livestock prices up by 3.9 percent and crop prices by 1.8 percent. The realized net income of farm operators totalled 4.3 percent more, which on a per farm basis amounted to an increase of 7.4 percent. In contrast, the index of Canadian farm prices averaged about 1.6 percent lower

TABLE II-12. - NORTH AMERICA: SUPPLY AND UTILIZATION OF WHEAT¹

	Canada			United States		
	1966/67	1967/68	1968/69 ²	1966/67	1967/68	1968/69 ²
	<i>Million metric tons</i>					
Beginning stocks	11.4	15.7	18.1	14.6	11.6	14.7
Production	22.5	16.1	17.7	35.7	41.4	42.7
Domestic use	4.2	4.5	4.5	18.5	17.6	20.6
Exports ³	14.0	9.1	8.7	20.2	20.7	14.8
Ending stocks	15.7	18.1	22.6	11.6	14.7	22.1

¹ August-July season for Canada; July-June season for the United States. ² Preliminary estimates. ³ Includes wheat equivalent for wheat flour.

during 1968, although prices for livestock and livestock products were generally somewhat higher. With the important increase in grain inventories, cash receipts are estimated to have fallen slightly below the 1967 level. Operating expenses and depreciation charges continued to increase, and realized net farm incomes were squeezed still lower.

Problems, policies and programmes

Excess supplies of wheat for export have again become a priority problem for the two North American countries. Demand for exports weakened during the 1967/68 season, following the improvement in cereal production in important importing countries. With a reduction in exports from Canada and a bigger crop in the United States, both countries, particularly Canada, ended the season with larger stocks (Table II-12). These were further increased during 1968/69. Crops were larger, and while consumption in the United States increased, mainly due to greater feed use, export outlets were smaller. United States exports were also adversely affected by a temporary Japanese ban on imports of United States wheat during the latter part of 1968 following the delivery of some substandard grain, and by the prolonged east coast dock strike at the beginning of 1969. Canadian exports were also harmed by the failure of the U.S.S.R. to contract for delivery during the 1968/69 season of the 3.7 million tons remaining under its three-year wheat purchase agreement. Although the combined 1969 wheat crop of the two countries was smaller (see above), world exportable supplies in 1969/70 are greater, and prospects for increased trade limited. Markets are therefore expected to remain highly competitive through the 1969/70 season.

In the spring of 1968 the United States domestic wheat prices fell below those in world markets and the government export payments for wheat were discontinued except for wheat products and possibly for relatively small quantities of special grades. After the International Grains Arrangement (IGA) came into force, payments to the Government for the certificates that wheat exporters are obliged to obtain constituted, for most grades of wheat, a *de facto* export tax, the proceeds of which accrued to the United States

Commodity Credit Corporation (CCC) for subsequent distribution to producers. In the second half of 1969, however, wheat prices in international trade fell substantially below the IGA minima and by late September this "tax" had been virtually eliminated for most grades.

In response to the prospects for a continued oversupply of wheat the United States wheat programme for the 1959 crop reduced acreage allotments by a further 13 percent. In Canada the area is reported to have been reduced by a similar proportion. For 1970, the United States has announced a further 12 percent cut in acreage to 45.5 million acres, the smallest in 20 years, while the Canadian Wheat Board has decided to cut the initial payments to farmers in 1970 from Can \$1.70 to Can \$1.50 a bushel.

In addition to wheat, excess supplies of some other agricultural commodities also accumulated in North America during 1968. In the United States CCC investment in inventory and nonrecourse loans increased by 39 percent, the first such increase since 1962 (Table II-13). Inventory increases were limited largely to maize

TABLE II-13. STOCKS INVOLVED IN UNITED STATES COMMODITY CREDIT CORPORATION PRICE SUPPORT OPERATIONS. STATUS 31 DECEMBER 1967 AND 1968

	Inventory		Under nonrecourse loans		Total	
	1967	1968	1967	1968	1967	1968
	<i>Thousand metric tons</i>					
Wheat	2 966	2 722	6 858	14 537	9 824	17 309
Rice	6	4	590	816	596	820
Maize	3 505	6 604	10 618	16 079	14 123	22 683
Other feed grains ..	5 708	5 697	3 342	6 840	9 050	12 537
Soybeans	191	327	4 926	8 981	5 117	9 308
Cotton	272	29	117	471	389	500
Tobacco			520	500	520	500
Butter, inc. butter oil	69	56			69	56
Cheese	36	30			36	30
Dried milk	87	122			87	122
	<i>Million U.S. dollars</i>					
Value						
Above commodities	953	1 022	2 241	3 495	3 194	4 517
Other commodities	44	35	114	110	158	145
Total	997	1 057	2 355	3 605	3 352	4 662

Source: Commodity Credit Corporation reports of financial condition and operations.

and dried milk; most of the increase in CCC investment was accounted for by larger nonrecourse loans on feed grains, soybeans and upland cotton, in addition to wheat.

United States imports of dairy products were further restricted in 1968 by the establishment of import quotas for condensed and evaporated milk and cream in June 1968 and for additional types of cheese in September 1968. This action was taken, under provisions of existing legislation, as the products were being imported under conditions and in quantities that were considered to interfere materially with domestic price support programmes and operations. These pressures on the United States market from imports of dairy products reflected the continued accumulation of excess supplies elsewhere, especially in Europe, and the increasing resort to subsidies and other measures to dispose of these by export.

During the latter part of 1968, the rising level of United States imports of meat threatened to reach the level that under existing legislation would have required the imposition of import quotas. Voluntary restraints by the exporting countries accounting for the major part of the increase (Australia and New Zealand) proved sufficiently effective to avoid this result, and were probably required again in 1969.

Expansion of export markets for their agricultural products is a major policy objective of the Canadian and United States governments. In Canada major emphasis is being placed on wheat, and the objective is to secure 25 percent or more of the world wheat trade or, in quantitative terms, to export 1 300 million bushels (35.4 million tons) of wheat during the three seasons 1968/69-1970/71⁷. It is intended to review and, if found necessary, to amend credit facilities to improve the competitive position of Canadian wheat in world markets, and to continue Canada's food aid programme of which wheat and flour are the major components. A National Grains Council has been established, with all elements of the grains industry represented, to provide liaison between the various branches of the industry itself, and between the industry and the Government. The council is to participate actively in the promotion of exports of Canadian grains and to review and make recommendations concerning existing or proposed programmes relating to all aspects of the Canadian grains industry.

Expansion of agricultural exports has been an important part of United States activity during recent years to improve its balance of payments position. The total value of United States agricultural exports rose from an annual level of \$5 000 million in 1961 and 1962 to \$6 881 million in 1966, but dropped in 1967 and again in 1968 (to \$6 228 million). Intensification of the United States agricultural export expansion

campaign has been concentrated on commercial sales. It has included more aggressive sales efforts, more vigorous attempts through international organizations and other diplomatic channels to secure increased access to export markets especially in other developed countries, an increased number of special export promotion missions to important importing markets, and more effective arrangement for financing export sales. The United States Government has also initiated a policy of granting specific subsidies for designated products exported to selected markets as the means of "regaining a fair share" of the designated market from the subsidized exports of other countries. Programmes for subsidizing exports of poultry meat to Switzerland became effective in May 1968 and of lard to the United Kingdom in January 1969. An early move by the new administration was to create the Export Marketing Service in the United States Department of Agriculture with "principal responsibility for recommending policies and programmes to maximize the exports of agricultural commodities, with particular emphasis on exports for dollars."

Although lower than during previous years, exports under Public Law 480 continued to account for an important part of total United States exports of agricultural products in 1968 (Table II-14). As usual, wheat and wheat flour accounted for about half of the total value of these concessional exports; other commodities for which 1968 exports under PL 480 were valued at more than \$100 million were rice and cotton. In line with the objective of increasing dollar sales, long-term dollar credit sales accounted for 33 percent of total 1968 sales under PL 480, as compared with only 16 percent in 1967.

TABLE II-14. -- UNITED STATES: AGRICULTURAL EXPORTS, CONCESSIONAL AND COMMERCIAL

	1961-1965 average	1966	1967	1968
..... Million U.S. dollars				
Concessional exports				
Public Law 480				
Foreign currency sales	1 036	815	736	539
Dollar credit sales	69	239	201	384
Donations	252	211	287	251
Barter ¹	179	241	13	3
Total exports under PL 480	1 436	1 306	1 237	1 117
Mutual security AID	55	47	33	25
Total concessional	1 491	1 353	1 270	1 182
Commercial exports ³	4 153	5 528	5 110	5 046
Total agricultural exports	5 644	6 881	6 380	6 228
..... Percent				
Concessional sales as percentage of total sales	20	20	20	19

¹Excludes barter for overseas procurement for United States Government agencies. - ²January-June 1968. - ³Commercial exports include, in addition to unassisted commercial transactions, shipments of some commodities with governmental assistance in the form of short- and medium-term credit, export payments or sales of government-owned commodities at less than domestic market prices.

⁷Speech by the Prime Minister of Canada, delivered at Winnipeg on 2 June 1968.

In view of their technological potential at prevailing prices for producing agricultural commodities far in excess of the combined domestic requirements and export demands, supply-management for major agricultural commodities to avoid accumulation of surpluses continues a fundamental objective of Canadian and United States policies and programmes. Other major medium- and long-term objectives include the maintenance of stable prices at remunerative levels for farm products, and adjustments in the structure of the agricultural sectors to increase labour productivity and provide acceptable levels of incomes for farmers.

There were no major changes during 1968 in these policy objectives nor in the programmes and measures for their implementation. In the United States adjustments were made in the details of commodity programmes for the 1969 crops, but their general nature and content continued unchanged. The legislative basis for these programmes – the Food and Agriculture

Act of 1965 – was extended through 1970 with only minor modifications. The legislative bases for other major food and agriculture programmes and measures in the United States – the Agricultural Trade Development and Assistance Act of 1954 (PL 480), and the Food Stamp Act – were also extended through 1970. A number of proposals for legislative action were before the United States Congress at the time of writing, but it appears unlikely that further legislative action of a major sort will be completed before mid-1970.

In Canada also, agricultural programmes and measures have continued without major modifications but with adjustments to meet changing conditions. The work of the Task Force on Agriculture, established in 1967, is providing the basis for lively discussion of future agricultural policies and programmes, and its report was to be submitted to the Canadian Government by the end of 1969.

Oceania

Agricultural production in Oceania reached a record level in 1968, 15 percent above that of 1967, and was expected to show a slight rise also in 1969. The increase was particularly notable in Australia, where output had suffered in 1967 because of drought (see Table II-15). The combined value of agricultural exports from Australia and New Zealand fell by 12 percent, to its lowest level since 1962, mainly because of the lower prices received. Agricultural problems of major concern to the region relate principally to export markets and prices. For Australia the problems of storage and disposal of the large 1968 wheat harvest are seriously compounded by the present congested world market conditions. Major medium- and long-term policy objectives of Australia and New Zealand remain: improved access for their agricultural exports to markets in other industrialized countries; diversification of production and of export markets; and

rationalization and modernization of agricultural production.

During 1968 the Australian economy overcame the adverse effects of the 1967 drought and the November 1967 devaluations of sterling and other currencies and moved again into a period of buoyant expansion. The gross national product (GNP) increased by 7 percent, about half of which may have been accounted for by the increase in the general level of prices, and a further acceleration of economic growth was recorded in the first half of 1969. The trade deficit widened significantly in 1968 as imports increased and the value of exports remained approximately the same. The deficit on current account was, however, more than offset by record capital inflows, and international liquidity reserves increased.

The New Zealand economy turned upward in mid-1968, after more than a year of severe deflation for balance of payments reasons. For the year as a whole, however, GNP increased by only about 3 percent, apparently somewhat less than the increase in the general level of prices. The trade balance improved notably as imports were limited, especially during the first half of the year, and the value of exports increased. Although the current account balance shifted from deficit to surplus, this surplus was absorbed by a heavy net outflow of capital to meet a number of foreign obligations. Toward the end of 1968 the balance of payments position again appeared threatened and monetary and credit measures were further tightened and taxes imposed on luxury imports. Some acceleration in the growth of GNP was forecast for 1969.

TABLE II-15. – OCEANIA: INDICES OF AGRICULTURAL PRODUCTION

	1966	1967	1968 ¹	Change 1967 to 1968 ¹	Annual rate of growth 1955-57 to 1965-67
	1952-56 average = 100			..... Percent	
Australia	154	142	168	19	3.4
New Zealand	145	151	156	4	3.3
Region	151	143	165	15	3.3

¹Preliminary.

Agricultural production

Total agricultural production in Australia reached a record level in 1968, 19 percent above the drought-stricken 1967 level and 9 percent above the previous record established in 1966. The weather was generally favourable, and the area under cultivation for most crops was above the 1966 level. Livestock numbers had generally recovered from the effects of the 1967 and earlier droughts. The wheat harvest is estimated at 535.4 million bushels (14.5 million tons), almost double the 1967 level and 15 percent above the previous record harvest of 1966. Production of the other traditional major field crops – sugarcane, oats, barley, potatoes and tobacco – also showed notable increases, as did that of cotton, rice, grain sorghum and linseed, which have assumed increasing importance during recent seasons. Fruit production was generally higher than during 1967, with the notable exception of grapes and dried vine fruits. The 1968 wool clip is estimated at a record 879 000 tons (greasy basis). Production of meat, except mutton, also reached new record levels, but milk production was lower. The gross value of rural output in 1968/69 is estimated at A\$ 3 970 million, 17 percent above that in 1967/68 and 3 percent more than in 1966/67. Due to a sharp rise in costs, however, farm income was A\$ 1 290 million, considerably below the three best years of the early 1960s.

In New Zealand total agricultural production in 1968 also reached a record level, although the increase was a more modest 4 percent. Both meat and wool production reached new peaks, but the rates of increase were below those of recent seasons. The 1968 wool clip is estimated at 333 000 tons (greasy basis). There was a notable increase in meat production, especially of beef. Dairy production, however, tended to level off; production of both butter and cheese was below the previous season's levels and stocks tended to accumulate

as shipments to the United Kingdom slowed down. Wheat production established a new record and the crop will cover New Zealand's domestic requirements, except for small quantities of speciality wheats.

Few data are yet available on the region's forestry production trends in 1968, but it is estimated that removals of industrial roundwood increased, after levelling off in 1967, while production of sawnwood recovered from the fall recorded in that year.

Early estimates for 1969 suggest that agricultural output in the region will show a further slight increase over the high record level of 1968. Wheat acreage in Australia has changed but little, and moisture conditions have generally been good. Although the total wheat crop in the region may be somewhat smaller than in 1968, it will still probably be the second highest on record, and well in excess of likely domestic needs and export outlets, thus further aggravating the storage problems. The region's sugar production is also expected to be slightly smaller, but most other major commodities show increases. Milk production in both countries was running a few percent above the 1968 level, and a 2-3 percent increase was expected in the wool clip in calendar year 1969. Livestock numbers were rising markedly, except for sheep and lambs. The harvests of secondary cereals, such as barley and oats, were expected to be up by 20-30 percent.

Trade in agricultural products

The value of the agricultural exports from the region fell by 12 percent in 1968 to their lowest level since 1962, reflecting lower world prices of most of the region's major exports (Table II-16). Price declines were particularly sharp for dairy products and for wool (over 15 percent in both cases), which together provide about half of the region's agricultural export earnings, and there were smaller reductions for cereals (except

TABLE II-16. OCEANIA: INDICES OF THE VALUE OF EXPORTS FOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	Share of total agricultural exports in 1968 ¹	1966	1967	1968 ¹	Change 1967 to 1968 ¹
	Percent	1957-59 average = 100			Percent
Agricultural products	100	132	138	122	- 12
Food and feedstuffs	60	154	186	152	- 18
Cereals	(14)	189	348	203	- 42
Sugar	(6)	151	161	189	17
Meat	(23)	174	169	172	2
Dairy products	(11)	122	143	100	-30
Raw materials					
Wool	39	110	93	92	- 1
Fishery products	-	257	274	297	8
Forest products	-	173	212	241	13
Agricultural, fishery and forest products	-	133	140	125	- 11

¹Preliminary.

rice), sugar and meat. The total volume of trade remained unchanged, despite a 40 percent reduction in shipments of grains. In contrast to the other cereals, exports of rice continued to rise. Larger quantities of many important commodities – including sugar, meat, and wool – were exported, and the total value received for the first two was higher.

The value of Australian exports of fishery products, mostly high unit value prawn and other shellfish, is estimated to be up 45 percent in 1968. Earnings from the region's forestry exports increased by about 13 percent, with New Zealand's exports to Australia and Japan expanding particularly rapidly.

Problems, policies and programmes

The bumper wheat harvest in 1968, together with the weak export demand, created serious marketing and storage problems in Australia. Grain handling and storage facilities were, in many districts, seriously strained, and the 1968/69 season was expected to end with carryover stocks of massive proportions (see Table II-17). An important element in the evolution of the Australian wheat situation is that improvements in technology have enabled a continued expansion of wheat acreage into areas of Western Australia, previously considered unsuited for wheat, where yields per acre are proving more reliable than in other major wheat-producing districts. For the 1968 harvest, the guaranteed price for exported wheat under the Wheat Industry Stabilization Scheme, which has been extended for five years, was lowered from A\$ 1.64 to A\$ 1.45 per bushel, and that for wheat sold domestically raised from A\$ 1.655 to A\$ 1.715 per bushel. The latter price is related to the calculated cost of production, and the formula for this has been modified to exclude certain costs that have served in recent years to ensure a steady increase in the guaranteed price for domestic sales.

With the prospect of another large wheat crop in 1969, the growers have been warned that the Government cannot continue financial support for the production of 500 million bushel harvests. For the 1969 crop, proposals to restrict deliveries to the Wheat Board to 357 million bushels (9.7 million tons) have been accepted in principle by the Government, and only these quota deliveries would be eligible for first advance payments. Measures proposed for direct control of wheat acreages or production have been rejected by the Australian Government, at least for the 1969 crop.

Although prices improved with the 1968/69 season, wool (especially the New Zealand crossbred types) continues to be subject to strong competition from synthetic fibres. The general improvement in prices has enabled the New Zealand Commission to dispose of about 200 000 bales of its holdings from the 1966/67 clip during the 1968/69 season. This leaves it with holdings of about 585 000 bales, mostly from the 1966/67 clip, and it is reported to have acquired no wool from the 1968/69 clip.

TABLE II-17. AUSTRALIA: SUPPLY AND UTILIZATION OF WHEAT

	1966/67	1967/68	1968/69 ¹
	<i>Million metric tons</i>		
Beginning stocks (1 Dec.)	0.6	2.3	1.4
Production	12.7	7.5	14.6
Domestic use	2.4	2.7	3.0
Exports ²	8.6	5.7	5.5
Ending stocks (30 Nov.)	2.3	1.4	7.5

¹Preliminary estimates. ²Includes wheat equivalent of wheat flour.

To improve the marketing organization and the quality of Australian wool exports, the Australian Wool Industry Conference has established a nonstatutory body, the Australian Wool Marketing Corporation, to serve as the exclusive marketing agency. The announcement that the corporation would practise "supply-management" of Australian wool drew sharp objections from wool importers and it has been denied that the corporation intends to stockpile wool.

In the international sphere, Australia and New Zealand have continued to address themselves to the removal or reduction of the principal obstacles to the growth of their agricultural exports. At the same time, both governments are attempting to diversify their production and export markets. This is particularly important for the New Zealand economy, which remains heavily dependent on the production of a limited number of livestock products for export to a few highly industrialized countries (Table II-18). The Australian economy appears well on its way toward greater diversification with its rapidly rising nonagricultural exports of minerals and manufactured products, and wider geographical distribution of markets for its agricultural exports. Expansion of the irrigated area has brought the production of cotton and rice to important proportions, and the extension of "beef roads" is serving to open new range areas and to facilitate a shift from sheep to beef cattle. Long-term arrangements with Japanese importers are encouraging rapid expansion of grain sorghum production. Intensive promotional efforts are succeeding in expanding Australian agricultural exports to the Far East and North America, thereby reducing dependence on traditional European markets.

In New Zealand a National Development Conference was convened in August 1968 and again in May 1969 to review and coordinate development policy and to chart a programme for medium and longer term growth for the national economy. In contrast to the 1964 Agricultural Development Conference which had charted the country's agricultural expansion for the period 1962/63 to 1972/73, this conference concentrated on the problems and prospects for expanding export markets, rather than on those of expanding production. Export targets established for 1978/79 call for an overall increase of 92 percent from the 1967/68 level, with the increase for livestock products (74 percent) significantly smaller than those,

TABLE II-18. - OCEANIA: COMPOSITION OF AGRICULTURAL EXPORTS AND DESTINATION OF TOTAL EXPORTS

	Australia			New Zealand		
	1950/51- 1952/53	1966/67	1967/68	1950-52 ¹	1966/67	1967/68
	<i>Percent</i>					
Composition of agricultural exports						
Wheat	8	18	19	-	-	-
Wool (greasy)	54	37	36	39	22	18
Beef and veal	1	10	11	2	10	12
Mutton and lamb	1	2	3	11	19	21
Butter	2	3	3	20	17	17
Cheese	1	1	1	7	7	7
Sugar	2	5	5	-	-	-
All other	31	24	22	21	25	25
Agricultural as percentage of total exports	87	68	62	97	88	86
Destination of total exports						
United Kingdom	35	14	14	63	44	44
EEC	22	14	13	13	12	11
North America	6	14	15	14	17	17
Japan	8	20	22	1	9	9
All other	29	38	36	9	18	19

¹Calendar years.

for example, for forest products (143 percent), fishery products (178 percent), tourism (178 percent) and manufactured products (445 percent).

Programmes for the rationalization and modernization of agricultural production include a wide range of more or less traditional measures. The Australian Government has announced a comprehensive programme for the rationalization of the dairy industry, which provides special assistance to dairy producers to shift to other commodities or to nonagricultural employment. The objective is not to reduce dairy production but to improve the international competitive position of the industry through increased efficiency and lower costs. Both the Australian and New Zealand governments are continuing to subsidize the increased use of fertilizers. The Australian Government has extended the cotton bounty programme, which has

assisted the country to become self-sufficient in cotton, with a schedule of subsidy payments that will phase out the programme with the 1971 crop.

A variety of measures have also been taken to assist producers to withstand the impact of adverse developments in export markets. Following the November 1967 devaluation, the Australian Government made compensation payments to those statutory marketing authorities that incurred immediate devaluation losses, and to those rural industries that suffered "demonstrable and unavoidable losses" as a result of devaluation. Toward the end of 1967, the New Zealand Government established a loan guarantee scheme that assists sheep farmers, who faced financial difficulties because of the drop in wool prices, to secure seasonal financing in the form of short-term loans from commercial banks and financial institutions.

Latin America

The overall economic development of the region in 1968 was satisfactory. The GDP in 20 countries for which data are available is estimated to have risen by 5.5 percent in real terms, compared with 4.5 percent in 1967 and an annual rate of 4.6 percent over the period 1960-66. The increase in 1968 reflected particularly the acceleration of economic activity in Argentina, Brazil, Colombia and Mexico, but most other countries also showed significant progress. It was achieved despite the poor performance of agriculture in a number of

countries owing to unfavourable weather, particularly in parts of Argentina, Brazil, Chile, Ecuador and Peru, although the impact of the poor harvests will in some cases be felt only in 1969. In 1968 only in Ecuador, Panama, Paraguay and Peru did the rate of growth fail to equal that of the previous year.

The growth of output in the manufacturing sector made a major contribution to the higher GDP in several countries, especially in Argentina, Brazil and Mexico. In the region as a whole, industrial production is estimated

to have grown by 8 percent in 1968. This is double the rate of 1967, and in strong contrast to the year before when agricultural growth exceeded industrial growth. Total exports of the region increased in 1968 by 4.5 percent. Also, the net external resources obtained from public capital inflows continued to rise in 1968. Gross disbursements on public capital inflows increased by some 25 percent. However, the level of new loan authorizations, which fell in 1967, did not appreciably expand in 1968.

Growth was facilitated by changes in fiscal and monetary policies. As a result of tax reforms several countries, including Argentina, Chile and Colombia, have obtained appreciably higher tax receipts over the past three years. Substantial progress was also made in price stabilization efforts. In each of the above countries, as well as in Brazil, price rises were in 1968 considerably less than three or four years earlier, and in Argentina and Colombia they appeared to be almost under control.

The institutional, social and economic conditions prevailing in the agricultural sector, however, continue to hamper the overall economic growth despite some favourable recent developments. Land reform programmes are now being carried out in almost all countries of the region but, with few exceptions, their progress is slow. In spite of a rapid population shift from rural to urban areas, structural unemployment in rural areas is still high. The production of basic food crops in most countries is characterized by low yields and relatively inefficient marketing systems. In several countries, including Chile, Peru and some Central American countries, the growth of demand for food exceeds that of production, and the use of scarce foreign exchange on food imports continues to be necessary. In others, the concentration on a limited number of agricultural exports, the world market prospects for which are not favourable, reduces the sector's contribution to economic growth, and requires diversification.

The problem of foreign debt service remains an important obstacle to the economic development of the region. In recent years the three largest economies, Argentina, Brazil and Mexico, have had to earmark one fifth to one third of their export earnings for this purpose, and a group of five medium-sized economies between 10 and 20 percent. Preliminary calculations for 1968 indicate that this burden, which totalled about U.S.\$2 000 million for the region as a whole in 1967, is likely to have continued at the same level.

Agricultural production

Agricultural production in 1968 was affected by a widespread and long period of extremely dry weather, which prevailed in late 1967 and 1968 and continued in some areas even into 1969. Yields of several crops suffered, particularly in Argentina, Ecuador, Peru, Uruguay and the northern Caribbean area in 1968. Hardest hit were Chile's central and northern provinces

where a national catastrophe was declared, the area on the Pacific Coast from Guayaquil in Ecuador to northern Peru, and Uruguay. Among the countries for which FAO indices are calculated, only in Bolivia, Colombia and Panama did the output appear to have continued to increase at sustained rates (Table II-19). In a number of other countries, the growth of production slowed down below the past rates or showed no increase at all, and in six countries the output was reduced. In Argentina, the largest food producer and exporter, production is estimated to have declined by 8 percent, and the preliminary index for the region as a whole fell slightly.

Among the major commodities there were reductions ranging from 4 to 19 percent in the output of wheat, maize, sugar, bananas, beef and coffee; and only for rice and cotton were there increases of any significance. Wheat production declined by 12 percent for the region as a whole. Output fell by 22 percent in Argentina following a good harvest in 1967, and by 8 percent in Mexico. The fall in maize production was smaller at 4 percent, and again was accounted for principally by a steep fall in the Argentinian crop. Increases in rice production were widespread, and were particularly large in Brazil, the main producing country, Colombia and Cuba.

The total production of centrifugal sugar fell by 7 percent, mainly reflecting a drop by more than 1 million tons to about 5 million tons in Cuba. In a number of other countries, including Brazil, Colombia and Peru, production continued to increase. Banana production also expanded further in several Central American countries, where the area is increasing and improved public financing is being made available. The total banana production for the region fell by 4 percent, however, mainly because of a sharp reduction in Ecuador. Coffee production was down by 19 percent, primarily due to a 28 percent fall in Brazil. Cotton production continued to increase in Brazil, Mexico and Colombia but fell in Peru, where the crops were affected by the drought in the northern coastal provinces. Beef production declined moderately, as reductions in Argentina were in part offset by increases in a number of less important producing countries, including Colombia and Mexico.

First, partial indications for 1969 suggest some recovery in overall agricultural production, though the aftereffects of drought in some countries may limit its extent. In Chile, for example, the grain crops were expected to remain substantially below the 1968 level. The Argentine wheat crop, too, was likely to be further reduced from the 1968 level, because of drought in the sowing season. The country's maize, rice and sorghum crops, however, were expected to recover substantially. Brazil expected a wheat crop some 20 percent below that of 1968, and also the maize crop was likely to be smaller as lower prices had led to a reduction in area sown, and inadequate rainfall and insect damage had reduced yields in some areas.

The region's sugar production was likely to show little change. Prospects were reported good in Colombia

TABLE II-19. -- LATIN AMERICA: INDICES OF AGRICULTURAL PRODUCTION

	1966	1967	1968 ¹	Change 1967 to 1968 ¹	Annual rate of growth 1955/57-- 1965/67	Per caput agricultural production in 1968 ¹
	1952-56 average = 100			Percent		1952-56 average = 100
Production in selected countries (all products)						
Argentina	118	126	116	- 8	1.4	91
Bolivia	165	166	177	7	3.7	146
Brazil	157	163	163	-	4.0	108
Chile	124	126	129	2	1.6	93
Colombia	139	146	152	4	3.3	98
Costa Rica	166	179	184	3	5.0	106
Cuba	94	115	103	-11	0.9	77
Dominican Republic	127	136	130	- 5	1.6	79
Ecuador	207	215	212	- 2	5.3	135
Guatemala	179	198	194	- 2	5.8	126
Honduras	151	168	169	1	4.5	108
Mexico	180	186	189	2	4.2	119
Panama	168	177	184	4	4.6	120
Paraguay	130	137	138	1	2.7	95
Peru	132	134	131	- 2	2.6	88
Uruguay	92	86	86	-	- 0.2	71
Venezuela	204	218	219	-	6.4	131
Regional production						
Total:						
All products	140	148	145	- 2	2.9	
Food only	141	151	148	- 1	3.0	
Per caput:						
All products	100	102	97	- 5	0.1	
Food only	101	104	100	4	0.1	

¹ Preliminary.

and Mexico, but the output in Cuba was again expected to fall, and that in a number of other countries to remain unchanged. The recovery of coffee output may be less than anticipated, since the Brazilian crop has again been damaged by frost and drought. Cattle numbers have been showing a moderate increase. Cotton production may be larger in Argentina, Brazil, Colombia, El Salvador and Mexico, but the wool clip is expected to remain at the 1968 level.

Fishery production

Latin American countries increased their fishery operations during 1968. Peru's production rose by 5 percent to 10.6 million tons and Chile recovered from a bad slump in 1967 to produce 1.5 million tons. Catches were mostly for the production of relatively small amounts of high priced food items for export, and for large quantities of fish meal and fish oil.

In a number of countries the lack of adequately equipped fishing ports, modern fishing fleets and sufficient cold storage facilities are severe obstacles to an accelerated growth of the sector. Brazil, for example, has a coastline of about 8 000 kilometres extending from the equatorial zone well into the temperate one, yet fish production during the 1962-68 period has remained almost stationary at a level of about 400 000 tons annually. A new fishery development law enacted in 1967, however, has been an important investment stimulus and can be expected to lead to a substantial catch increase. Fisheries also offer good prospects in

Ecuador and in early 1969 the Government concluded a loan with the World Bank for a project which involves the purchase of 12 tuna purse seine fishing vessels and studies for additional harbour facilities.

Forest production

Although Latin America has the world's largest forestry potential, insufficient production necessitates imports to the value of U.S.\$300 million a year. Brazil's productive forests, for example, cover almost half of the national territory but only about 15 percent of this area is exploited, and the country imports about one third of its consumption of wood pulp and paper.

In recent years, it has been realized more and more that deficient forestry institutions hamper the development of this sector. In 1968 a number of countries restructured their forest services. Argentina created a Dirección Nacional de Recursos Naturales Renovables within the Ministry of Agriculture; Bolivia is also integrating the forest service in a Dirección de Recursos Naturales Renovables; in Colombia, the Instituto para el Desarrollo de los Recursos Naturales was established which regulates the utilization of forest resources, delineates reserves and administers areas required for water supply, soil conservation and wildlife. For the application of the forest law of 1967, the Instituto Nacional de Desarrollo y Aprovechamientos Forestales has been created in Cuba, and in Uruguay the national parks are now administered by the head of the forest service.

Better forest utilization is a major objective in the region, and some progress can be reported. In Honduras, for example, \$110 million are being invested in a forest development project in the Olancho province. In Bolivia, a forest reserve of 900 000 hectares has been established to start the integrated development of broadleaved tropical forests. In Ecuador the establishment was approved of 4 new industries, with a total investment of \$10 million, including 14 timber concessions to cover 580 000 hectares of forests.

Logging and timber transport continue to be major technical bottlenecks for forest development in Latin America. Among the attempts to overcome these problems is the construction in 1968 of a marginal highway along the western Andes which made accessible more than 500 000 hectares of forests.

Trade in agricultural products

The value of Latin American exports of agricultural products increased only fractionally in 1968 after two years of decline (Table II-20). Agricultural imports increased, however, in part because of drought-induced shortages. The expansion of trade between the countries of the Central American Common Market (CACM) continued at the relatively fast rate of recent years, but trade within the Latin American Free Trade Association (LAFTA) countries fell for the second successive year in 1968.

Earnings from cereals, one of the region's most important groups of commodities, were reduced sharply. The volume of wheat exports was up, but that of maize and sorghum was smaller, and the prices received for all cereals (except rice) were lower.

Shipments of beef and veal were reduced sharply, as exports from Argentina were affected by the temporary ban by the United Kingdom on imports of Argentine beef following an outbreak of foot-and-mouth disease in the United Kingdom, but the effect on earnings from meat was offset by larger shipments of canned meat at higher prices. The Argentine meat processing industry is now being rapidly reorganized to meet the United Kingdom's new sanitary requirements in effect from 1 October 1969. The value of sugar exports remained unchanged, increasing prices were more than offset by the smaller volume of exports from the region as a whole. Losses from lower banana prices were compensated by larger volumes exported, although not by all countries.

Earnings from coffee exports are estimated to have risen by 8 percent (both prices and quantities were higher), as most of the major importing countries in Europe and the United States increased their imports. Lower prices of wool caused a drop in the value of its exports, despite a larger volume of shipments to satisfy increased demand for consumption and stock building in the main importing countries. Shipments of cotton were also larger and, with the higher prices received, the region's earnings from exports of this commodity increased by 8 percent.

Information on Latin American imports is still too incomplete to permit a detailed examination. There are still no official data for many major importing countries, including Cuba, which in recent years has taken about 10 percent of the region's wheat imports and almost half of those of other cereals. The available figures indicate, however, that drought-induced shortages probably caused some increase in the region's grain imports in 1968. The volume of purchases of those

TABLE II-20. -- LATIN AMERICA: INDICES OF VALUE OF EXPORTS OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	Share of total agricultural exports in 1968	1966	1967	1968 ¹	Change 1967 to 1968 ¹
	Percent	1957-59 average = 100			Percent
Agricultural products . . .	100	122	118	119	1
Food and feedstuffs . .	53	142	145	141	- 3
Cereals	(10)	231	188	168	- 11
Sugar	(21)	105	126	126	--
Bananas	(7)	121	135	138	3
Meat	(8)	149	139	146	5
Beverages and tobacco					
Coffee	30	99	92	99	8
Raw materials					
Cotton	8	140	108	117	8
Wool	4	117	100	107	7
Fishery products	--	389	380	428	13
Forest products	--	136	125	141	13
Agricultural, fishery and forest products	--	127	123	126	2

¹Preliminary.

countries for which data are available increased by 5 percent, and those of maize more than tripled. The effects of the drought were particularly evident in Peru, whose wheat imports were almost 30 percent above the level of the past few years, and the Dominican Republic, where they were up by 47 percent. Uruguay's imports of maize reached almost 100 000 tons compared to less than 1 000 tons in 1966 and 1967. Prices paid for grains were somewhat lower, but not sufficiently to offset the larger purchases.

Development plans and policies

Nearly all countries of the region have by now prepared medium- or long-term development plans (see Annex table 1D), generally covering the entire economy, although a few are limited either to specific regions within the country as in the case of Brazil, or to individual sectors as in Chile. New plans or programmes were started in 1968 or early 1969 in Honduras, Trinidad and Tobago, and Venezuela.

In those countries where new plans have been drawn up, and increasingly in a number of others, agriculture is being given greater emphasis in economic policies. Investment priorities are being established with a view to accelerating its growth beyond rates achieved when rapid industrialization was of primary importance. This is evident in Chile, where investment in agriculture in 1967/68 was raised one third above the level in the two preceding years. Under the country's agricultural development plan for 1965-80, published early in 1969, the target agricultural growth rate is set at 6.3 percent a year up to 1971, and at 5.8 percent for the rest of the plan period. This implies a very large increase over the rates achieved in the past, requiring concerted efforts in many fields. While promoting the adoption of modern technology, the plan also supports labour-intensive cultivation methods in order to relieve rural underemployment, and land reform will continue to be given high priority. Other countries which are assigning growing importance to agriculture include Colombia, where the share of the sector in total government expenditure has risen steadily from 9 percent in 1963 to almost 19 percent in 1968, and Nicaragua, where over 40 percent of the total government investment planned for 1969 is for agriculture.

In both Chile and Colombia - as indeed in the majority of the countries of the region - a major objective of agricultural plans and policies is the reduction of dependence on imports of basic foodstuffs. In Chile food imports would be reduced from the current level of \$130 million to some \$20 million in 1980. In Colombia stress is placed on greater output of a number of products, including meat, wheat, rice, vegetable oils and wool. These objectives are being pursued under short-term programmes, while a long-term development plan is under preparation. Plan formulation and implementation are to become more efficient through the newly announced reorganization

of public services which reduces the number of public institutions concerned with agriculture and designates the Ministry of Agriculture as the centre for agricultural planning and policy coordination.

Food import substitution is also an important objective in Ecuador. An increase in meat production is the aim of a newly approved programme for the improved management of cattle and the importation of livestock for breeding, under which cooperating farmers will receive technical and financial assistance. Efforts to increase the degree of self-sufficiency in wheat have so far not been very successful but, with plantings of African oil palms coming into production and the domestic production of oilseeds increasing, imports of vegetable oils will continue to decline. In Peru, where food imports rose to \$145 million in 1968, the Government initiated in early 1969 programmes to stimulate the production of a number of crops, of livestock, and of fishery and forest products. To assist these efforts, USAID granted in 1969 a loan to help finance a low cost credit scheme for small- and medium-scale farmers.

Closely allied with these measures to increase agricultural self-sufficiency are others to diversify production and exports away from the traditional export crops, since the value of these has often only increased slowly and prospects are in most cases poor. Special emphasis is being given to such efforts in countries which are heavily dependent on exports of coffee, such as Brazil, Colombia, El Salvador and Guatemala. For this purpose the Coffee Diversification Fund, established in connection with the renewal of the International Coffee Agreement in 1968, is of importance. Products which are being particularly promoted for exports include beef, feed grains, oilseeds, and fruit and vegetables.

In Colombia the expansion of so-called "minor exports" is a cornerstone of current agricultural policy. With the help of the Centro Interamericano de Promoción de Exportaciones, which became fully operative in 1968, Colombia already appears to have been successful in finding new markets for such nontraditional exports as oilseed cake and animal feed. In Brazil export production of certain cereals, oilseeds and livestock products, as well as of the traditional exports, is being stimulated by various means including the removal of quantitative limits to price guarantees for products covered by the minimum price programme, and the reduction or abolition of some export duties. The country's new strategic development programme for 1968-70 envisages for the agricultural sector an annual growth of 5-6 percent.

In contrast to most other developing regions, the majority of Latin American countries possess large, sparsely populated areas potentially suitable for farming, and a number of countries are active in bringing new land under cultivation. In April 1969 Brazil, Argentina, Uruguay, Paraguay and Bolivia agreed to cooperate, under the River Plate Basin Treaty, on joint development schemes in the vast area drained by the rivers flowing into the Plate estuary. In Colombia,

70 000 families, equal to about 5 percent of the country's rural population, have been settled under the Instituto Colombiano de Reforma Agraria (INCORA) schemes between 1965 and 1968, and a further 60 000 will be settled in the next two years. Bolivia, Brazil, Ecuador and Peru are carrying out colonization projects in the Amazon basin, while Honduras, under its action plan for 1969-71, intends to undertake similar schemes in a number of areas. In 1968 Paraguay started the largest settlement programme in Latin America, planned to cover some 20 million hectares of agricultural land (including arable land, forests and pastures).

Agrarian reform continues to be a major issue in the agricultural policy of most Latin American countries. Considerable progress has been achieved in the enactment of laws and the establishment of institutions to carry out land reform programmes. The most recent is in Peru where in June 1969 the Government approved a law limiting holdings. The maximum size will be 150 hectares in coastal areas, where the main sugar estates are located, and will vary in other zones depending on the type of agriculture. The valuation of lands and equipment will be based on the values declared by the owners for tax purposes, and payments will be made partly in cash and partly in 20- or 30-year bonds. The implementation of land reform laws has on the whole been slow, although considerable success has been achieved in some countries, particularly Bolivia, Chile, Cuba, Mexico and Venezuela.

Regional economic integration

Compared with other developing regions, the Latin American countries have made substantial progress toward regional integration. Two new integration schemes in the Caribbean area were initiated in 1968, and virtually all of Latin America is now involved in the integration process.

The idea of merging LAFTA and CACM with a view to creating a Latin American Common Market by 1985 also gained strength in the course of 1968. At a meeting of the LAFTA-CACM Coordination Committee in Trinidad in early 1969, there was general agreement that the scope of the industrial complementation agreements should be expanded to allow for the participation of all countries of the region. This suggests that integrated industrial development is entering a new phase.

LAFTA encountered particular difficulties in the field of trade liberalization in 1968, when objections were raised to the inclusion of several basic products in the "common list" negotiations. In spite of great efforts by all parties concerned, the meetings were adjourned in October 1968 without reaching any agreement.

More dynamic in 1968 has been the subregional group of the Andean members of LAFTA.⁸ These countries joined together under the 1966 Declaration of

Bogotá, in order to proceed at a faster pace toward integration within the framework of LAFTA. In mid-1968, the Joint Commission of the countries concerned began the discussion of a plan for the adoption of a common development strategy aiming at harmonizing economic and social policies, coordinating development plans and providing for the joint programming of projects in the manufacturing and agricultural sectors as well as in infrastructure. In May 1969 the governments of all the countries concerned except Venezuela ratified the Andean Subregional Integration Agreement; protocol allows, however, for Venezuela to postpone its final decision until the end of 1970.

CACM reported its best trading year ever in 1968, ten times above the level of its first year, 1961. Intrazonal trade is based on the liberalization of over 98 percent of the tariff list and regional preference is achieved through a common external tariff which now covers almost all products. Further progress toward integration received, however, a severe setback in July 1969. Trade was interrupted not only between Honduras and El Salvador but within much of the area, as traffic could not use the Pan American highway. Commerce was being resumed at the time of writing between some of the countries in the area, but it remained at a standstill between Honduras and El Salvador, hitherto each other's major trade partners within CACM.

The agreement establishing the Caribbean Free Trade Association (CARIFTA), which covers almost all of the independent member countries of the British Commonwealth in the zone,⁹ became effective by the Treaty of St. John in May 1968. A gradual liberalization of tariffs and of quantitative restrictions on intraregional trade is planned, although the member countries are to retain the right to maintain their own tariffs on imports from third countries. In regard to agriculture, however, a separate protocol prohibits imports of certain agricultural products from third countries before internal supplies have been exhausted. The general orientation within CARIFTA is that the small islands will become the main food producing countries, while the more industrialized ones, e.g., Jamaica, Trinidad and Barbados, will continue to expand manufacturing. There is already a growing trade in agricultural products, especially fresh vegetables, between the smaller islands and Trinidad, while Guyana already exports about one third of its rice crop to the Caribbean. A development financing institution, the Caribbean Regional Development Bank, has been established and was expected to come into operation on 1 October 1969, with headquarters in Barbados. In addition to Caribbean contributors, the principal of which are Jamaica and Trinidad and Tobago, Canada and the United Kingdom are scheduled to subscribe to

⁹ Present membership (1969) of CARIFTA: Antigua, Dominica, Grenada, Guyana, Jamaica, Montserrat, St. Christopher Nevis-Anguilla, St. Lucia, St. Vincent, and Trinidad and Tobago.

⁸ Bolivia, Chile, Colombia, Ecuador, Peru and Venezuela.

the bank's capital, probably amounting to a total of TT\$100 million.

Within CARIFTA, the West Indian Associate Countries agreed to set up the Eastern Caribbean Common Market, which came into force on 15 July

1968. This common market, which excludes the more advanced members of CARIFTA, such as Barbados, Guyana, Jamaica and Trinidad, has adopted both a common policy for agricultural development and also a common external tariff.

Far East

Developing countries¹⁰

For the developing countries of the region, 1968 was on the whole an excellent year in terms of economic growth. Five countries – Ceylon, China (Taiwan), Republic of Korea, Malaysia and Pakistan – achieved an increase in real gross national product (GNP) of over 8 percent, and two others, the Philippines and Thailand, an increase of between 6 and 7 percent. In most countries the growth was considerably influenced by the substantial increase in agricultural output, which rose by 5 percent in the developing countries of the region combined. The relatively low growth of the Indian economy in 1968, estimated at about 4 percent or about half that in 1967, reflects partly the slight rise of the level of food-grain output in 1968/69 after the big increase of the previous year. In the Republic of Korea, where agriculture was struck by drought for the second year in succession, and in China (Taiwan) the increases in GNP were caused mainly by progress in industrialization and the export of manufactures.

The good performance of agriculture in a number of countries has also had other favourable repercussions on the economy. Food shortages were no longer considered to be critical. Price levels either remained relatively stable or the rate of inflation was dampened, as in Indonesia. The move toward self-sufficiency in food grains in some countries contributed to an improvement in their balance of payments position. In a few others a part of food imports was used not for current consumption but to increase the level of food stocks. It would also appear that in some countries the increase in incomes, particularly among the more progressive farmers, has enabled them to improve their level of living, and increase their savings and their reinvestment in agriculture. Early indications for 1969 suggest that, barring widespread unfavourable weather during the last months of the year and early 1970, food-grain production would show a further increase, though a more moderate one than in 1968.

The total value of exports from the developing countries of the region in 1968 is estimated to have reached a level some 9 percent higher than a year earlier. The value of their combined agricultural exports, however, continued to decline. Total export

earnings therefore tended to improve most in those countries where a significant proportion of exports consists of manufactures: China (Taiwan), Hong Kong, Republic of Korea and India. In countries such as Ceylon, Malaysia, Philippines and Thailand, which depend heavily on the export of primary products, the increase was significantly below the regional average, since many major commodity markets remained weak. Nevertheless this was an improvement over 1967, when the export earnings of these countries did not rise at all. Imports rose at a markedly lower rate in 1968 compared to 1967, partly as a result of the rise in food production. In India and Pakistan they actually declined from the very high levels of 1967. Consequently, the combined trade deficit of the region was U.S. \$4 540 million, compared to \$4 610 million in 1967.

Despite the fact that many Far Eastern countries compete with each other in their major exports, intraregional trade expanded. Some steps toward establishing the necessary institutions for promoting regional trade and cooperation have also been taken, such as the setting up of the Asian Coconut Community. National committees for food production and trade expansion have also been established in the member countries of the Association of South-East Asian Nations (ASEAN): Indonesia, Malaysia, Philippines, Singapore and Thailand.

Many important problems, however, remain to be solved, including those associated with the introduction of the new high-yielding cereal varieties, which are already beginning to make a discernible impact on food output in some countries. To maintain and accelerate the pace of their adoption sustained efforts are needed in a number of fields, and many technical and institutional problems need to be tackled efficiently, including some which are only beginning to emerge. Widespread use of these varieties is also likely to necessitate a review of current economic policies such as those dealing with incentives and input subsidies, as well as price policies for food grains, especially in countries which are on the verge of achieving self-sufficiency and, in some instances, have plans to emerge as exporters.

Despite the improvement in the trade situation in 1968, the balance of payments deficits generally remain large and the prospects for agricultural exports, with the exception of a few commodities, are discouraging.

¹⁰ Developments in Japan and China (Mainland) are discussed separately below.

Although some new approaches to foreign aid are emerging – such as the decision of the World Bank to quadruple its agricultural loans over the next five years, and that of the Asian Development Bank to double its loans in 1969 – on the whole the future magnitude of multilateral and bilateral aid remains uncertain. The flow of foreign aid into the region probably showed no increase in 1968, and future commitments appear to have fallen drastically. The mounting burden of foreign debts has become a major problem in a number of countries, especially India and Pakistan, where the share of grants and of loans repayable in local currency has steadily declined.

Agricultural production

As measured by the FAO indices, agricultural production in the developing countries of the Far East increased by about 5 percent, overtopping growth in 1967 (when the output in some major producing countries recovered from the very poor results of 1965 and 1966), and substantially exceeding the longer-term average rate of growth of output for the area (Table II-21). The increase in food production was even greater; in per caput terms it rose by about 3 percent, the largest annual increase since 1959 but not yet enough to regain the 1964 level.

Increases in agricultural production were geographically widespread, with 7 of the 10 developing countries for which indices are calculated showing increases of at least 4 percent. The latter group includes important food importing countries like India, Indonesia, Malaysia and Pakistan.

In line with the objectives of most development plans, efforts for agricultural progress in the region are concentrated on food grains. In 1968, the production of rice, the staple food of most of the region, increased in all developing countries except the Republic of Korea and the Republic of Viet-Nam, reaching a total of 146 million tons, about 5 percent more than in 1967, and that of wheat, produced mainly in Pakistan and India, by fully 44 percent to 24 million tons. In India the total food-grain crop (including coarse grains and pulses) in the calendar year 1968 rose by 10 percent¹¹ to a record 115 million tons.¹²

The output of most cash crops, the mainstay of exports for many countries, also generally increased in 1968. The output of tea totalled 760 000 tons, as against 745 000 tons in 1967, mainly owing to good crops in Ceylon and India. Production of rubber also expanded, particularly in Malaysia and Thailand, to 2.45 million as against 2.28 million tons in 1967. Maize

continued to gain importance as an export crop, and its output increased by about 5 percent. In addition to Thailand, Indonesia and Malaysia also intend to become significant exporters. Cotton harvests improved in Pakistan and Thailand, but the total output for the region was reduced because of a sharp fall in the size of the Indian crop. Production of jute and allied fibres dropped by over 30 percent, mainly owing to losses from floods in India and Pakistan, and production of abaca in the Philippines continued its declining trend. Output of copra remained stationary in most countries, but drought and typhoons in the Philippines lowered the regional total slightly.

At the time of writing, only an approximate idea could be had of agricultural production in 1969. The fragmentary information available indicated, however, that food-grain production in the developing countries of the Far East may show a further increase, though a more modest one than in 1968. The first information on India's rice acreage suggests that, if weather remains normal, the country's rice production may reach the record level of 1968. In the Philippines, drought was reported to have cut back rice production severely, but moderate increases were expected in a number of other countries, including Burma, Ceylon, China (Taiwan), Indonesia, Malaysia, Pakistan and Thailand. The combined wheat crop of India and Pakistan was expected to be about 2.7 million tons (12 percent more than in 1968), but their barley output was estimated to have declined by about 30 percent (1.1 million tons) and that of pulses by about 10 percent.

Among the principal cash crops, jute production in India and Pakistan was expected to recover to the high level of 1967, while rubber production may be up by as much as 17 percent, thanks to strong export demand and the coming into bearing of new high-yielding trees, particularly in West Malaysia. Tea production in the first half of the year rose by some 5 percent, and the region's coconut production was also expected to be higher.

High-yielding varieties

Good weather was an important factor in the improved rice crops in a number of countries in 1968, including Cambodia, Burma and Indonesia. In the first two countries, as well as in China (Taiwan) and Malaysia, there was also an increase in area, in the latter case through extension of double cropping. An increased area under cultivation was also important to the expansion of wheat production in India and Pakistan but in these countries, as well as Ceylon, China (Taiwan) and the Philippines, a more significant contribution to the growth of cereal output appears to have been made by the newly developed high-yielding varieties and the greater use of associated inputs. It is thus important to examine more closely the progress made in the use of these techniques.

On the whole, their impact on output has so far been less pronounced in the case of rice than of wheat. The principal reason for this difference is that rice is

¹¹In accordance with the decision of the FAO Statistics Advisory Committee, crop production is reported by FAO on a calendar year basis, with each crop assigned to the calendar year in which the bulk of it is harvested. As a result, FAO production data for individual countries may on occasion differ substantially from national data. The national data for food-grain production in India, for instance, show in 1968/69 an increase of only 3 percent.

¹²Rice included in terms of paddy; with rice included in terms of milled equivalent, the total is 95.5 million tons.

TABLE II-21. -- FAR EAST:¹ INDICES OF AGRICULTURAL PRODUCTION

	1966	1967	1968 ²	Change 1967 to 1968 ²	Annual rate of growth 1955-57 - 1965-67	Per caput agricultural production in 1968
	1952-56 average = 100			Percent		1952-56 average=100
Production in selected countries						
(all products)						
Burma	117	131	141	7	2.5	107
Ceylon	139	143	150	5	3.0	107
China (Taiwan)	163	170	174	2	4.1	111
India	121	131	137	4	1.7	100
Indonesia	123	123	128	4	1.7	93
Japan	139	157	163	4	2.5	141
Korea, Rep. of	185	168	173	3	4.5	119
Malaysia, West	156	160	178	11	3.8	116
Pakistan	130	142	148	4	2.6	99
Philippines	156	160	164	3	3.6	104
Thailand	201	170	183	8	5.6	120
Production in developing countries						
Total:						
All products	135	142	148	5	2.6	-
Food only	135	142	149	5	2.6	-
Per caput:						
All products	101	104	106	2	0.1	-
Food only	101	104	107	3	0.1	-
Regional production						
Total:						
All products	135	143	149	4	2.6	-
Food only	135	143	151	5	2.6	-
Per caput:						
All products	103	106	108	2	0.2	-
Food only	103	107	110	3	0.3	-

¹Excluding China (Mainland). ²Preliminary.

grown over a much larger area than wheat and under more varied conditions particularly in regard to water supply, and that existing high-yielding rice varieties do not give good results under monsoon conditions when much of the rice is produced. There has also been less consumer acceptance of the new rice varieties than for wheat, and farmers have therefore had less incentive to adopt them. Furthermore, high-yielding wheat varieties are more resistant to pests and diseases and a relatively larger proportion is grown in economically more advanced areas where farmers are more receptive to the new techniques.

Among individual countries, the total paddy area of China (Taiwan) is now under high-yielding varieties. The 1968 crop was a new record surpassing the plan target by over 5 percent. In other rice exporting countries, such as Burma and Cambodia, the new varieties are used only to a very limited degree, and in Thailand the high-yielding variety programme is still in its experimental stages.

Interest in the new strategy has on the whole been rather greater in food importing countries. In the Philippines the use of the new techniques extended to over 390 000 hectares in 1967/68, five times the area of the previous year and nearly 12 percent of the total

paddy area. Largely because of this the country, hitherto a net importer, not only became self-sufficient in rice in 1968 but was able to export some 40 000 tons. The area under high-yielding varieties was scheduled to reach 500 000 hectares in 1969. Recent prospects for 1969 have, however, been affected by drought, and exports have been stopped for the time being. The future rate of progress may moreover be curbed by the high prevailing prices of fertilizers and pesticides.

Significant increases in the use of high-yielding varieties and fertilizers have also been made in Ceylon, with the help of a new credit scheme. The area under improved rice seeds, which expanded from 40 percent of the paddy area sown in 1966 to some 60 percent in 1968, was to cover 66 percent in 1969. Yields in the programme areas are estimated to have reached an average of 3.9 tons per hectare as against the national average of 2.2 tons. Overall paddy output rose by 42 percent between 1963-65 and 1968, and yields by 26 percent. The future of the programme will partly depend on success in fighting pests and plant diseases.

In India the high-yielding varieties programme was started in 1966 over an area of 1.9 million hectares (about 2 percent of the total area under food grains); in

1967 it covered more than 6 million hectares. This was somewhat lower, however, than the targets: 20 percent less for paddy, and substantially less for coarse grains. The target for 1968 was 8.5 million hectares (7 percent of the total). It is as yet not possible to make an exact estimate of the contribution of the new techniques to total output, as sample yield surveys under the programme have been collected only in a very small number of districts¹³. The increases in average wheat yields in the country as a whole between 1961/62–1964/65 and 1967/68 may, however, be indicative: from 0.84 to 1.11 tons per hectare.

The problems encountered by the Indian authorities in attempting to popularize these new techniques may be of wider interest. Sample surveys indicate that the application of fertilizers has generally remained below the level recommended, partly because of their high costs and the higher degree of risk involved. Furthermore, their untimely supply owing to transport difficulties has often resulted in fertilizers remaining unused or occasionally being applied to crops outside the programme. Difficulties have also been encountered in efforts to organize plant protection measures on the large scale needed. Nor has it been easy to provide sufficient and adequately structured credit facilities to enable farmers to purchase all the required inputs and, for bigger farmers, to cover labour costs, despite the fact that commercial banks have recently shown new interest in farm credit and many have opened branches in rural areas.

The programme for wheat and rice in India was largely concentrated on irrigated or assured rainfall areas. Complaints of insufficient water supply have been mainly raised in areas planted to hybrid coarse grains. The supply of these hybrid seeds has also suffered because of drought. There has been some disappointment among farmers about the lower prices they have received for the new varieties of cereals, both because of consumer preference for local varieties and because of their need to sell the larger crops shortly after harvest, since storage capacity is limited and the Government has been reluctant to buy more than specified quotas.

In Pakistan the Government has supplied high-yielding seeds to farmers in increasing quantities. After experiments on a small scale in 1966/67, the area under improved wheat varieties was between 1 and 1.2 million hectares in 1967/68. In 1968/69, it was officially estimated to have reached between 2.0 and 2.4 million hectares, equal to over 40 percent of the total wheat area, or about three quarters of the wheat area under irrigation. In West Pakistan the area sown with IRRI rice was 4 000 hectares in 1966/67 and 40 000 hectares in 1967/68; by 1968/69 it was reported to have reached 320 000 hectares. In East Pakistan in 1967/68 IRRI rice was grown on an estimated 120 000 hectares. Altogether this amounts to only 1.3 percent of the country's total paddy area. The

¹³The most recent Government of India survey report in fact states that no generalizations should be made on this basis.

target for 1968/69 in East Pakistan was 240 000 hectares, but difficulties were foreseen owing to insufficient plant protection and extension services.

Fishery production

Fishery production also made notable strides forward in 1968, particularly in China (Taiwan) where the total catch for the first time exceeded half a million tons, and in the Philippines where the total was 10 percent larger than the previous year. Significant increases were also registered in the other major producing countries of the area (India, Indonesia, Republic of Korea and Thailand). Self-sufficiency in fishery production is the main goal of the new four-year fisheries expansion programme of the Philippines, which in 1968 imported some U.S. \$15 million worth of fishery products. Indonesia, too, is actively developing its fisheries, partly with the help of foreign finance and investment, following several years of slow growth of the sector.

Forest production

Removals of industrial wood in the Far East rose more slowly in 1968 than in the two preceding years, particularly in the main hardwood log exporting countries, the Philippines and Malaysia (Sabah). Strong demand in western Europe and North America stimulated expansion in the production of sawn hardwood, plywood and veneers in most of the major producing countries in the region. Efforts made in a number of countries, particularly Indonesia, to make fuller use of large areas of underutilized forests have yet to make a major impact on the volume of removals for the region as a whole. As a result of widespread overcutting and mismanagement, moreover, much of the increased output has probably been to the detriment of long-term economic growth. Resettlement schemes in China (Taiwan), India and the Republic of Korea have been successfully started in an attempt to reduce shifting cultivation, which is estimated to have led to the destruction of about 8 million hectares in 1968. Afforestation, strongly orientated toward industrial development, is growing in importance; some 70 000 hectares were added in 1968 to the already existing 5 million hectares of man-made forests. Although some countries, such as Malaysia, are attempting to base future forestry activities on land-use plans, in many the uncertain status of forest resources remains a major obstacle to its proper development.

Trade in agricultural products

In 1968 the export earnings from agricultural products of the developing countries of the region fell for the fifth consecutive year to their lowest level since 1958. (Table II-22).

Earnings declined for three of the region's principal exports – rice, jute, kenaf and tea – which together account for about a third of the total. The drop was particularly sharp in rice, at 19 percent. Export prices began to decline from the first quarter and by the end

TABLE II-22. FAR EAST: INDICES OF VALUE OF EXPORTS OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	Share in total agricultural exports in 1968 ¹	.1966	1967	1968 ¹	Change 1967 to 1968 ¹
	Percent	1957-59 average = 100			Percent
Agricultural products	100	106	101	99	- 2
Food and feedstuffs	42	140	126	128	2
Rice	(10)	113	106	86	- 19
Sugar	(8)	118	108	106	- 2
Oil and oilseeds	(14)	130	110	142	30
Beverages and tobacco	23	97	109	100	- 8
Coffee	(3)	128	192	169	- 12
Tea	(14)	85	91	83	- 9
Raw materials	36	86	79	78	- 1
Jute and kenaf	(6)	159	144	115	- 20
Rubber	(24)	77	68	68	- 1
Fishery products ²	-	172	164	183	12
Forest products ²	-	264	293	369	26

¹Preliminary. - ²Including Japan.

of the year had reached a figure below the average for 1967. Export volumes too declined sharply, to 1.9 million tons compared to 2.6 million tons in 1967 and an average of 4.3 million tons in 1963-65. Major rice exporters were seriously affected. In the case of Burma, earnings from this commodity fell to \$32 million in the first nine months of 1968 compared to \$61 million for the same period the previous year. This reduction is primarily a reflection of the success of some of the major food-deficit countries of the region in increasing production. The decline in earnings from tea and jute was caused mainly by lower prices. In the case of tea, the 8 percent price fall continued the trend of the past years, which results from a situation of excess supplies in world markets. In 1968, the volume of exports also declined slightly. Receipts from jute and kenaf exports were 20 percent lower: the quantity exported declined marginally, in line with production which was substantially lower due to steep falls in output in India and Pakistan. Although prices rose sharply toward the end of the year, export unit values for the year as a whole were lower than in 1967 since many sales appear to have taken place during periods when prices were lower.

The value of exports of two major commodities — sugar and rubber — remained virtually unchanged in 1968. Rubber, which accounted for 25 percent of export earnings, suffered a decline in unit value but the volume of exports rose in line with production from areas replanted with high-yielding varieties.

Some other major export commodities registered an increase in value. Particularly striking was the rise of 26 percent in the export of forest products, which have increased steadily over the last decade and now provide 20 percent of total agricultural, fishery and forest product exports compared to less than 6 percent ten years ago. If Japan is excluded, about 60 percent of the

earnings from this sector accrued to the Philippines and Malaysia, with larger shipments of sawn hardwood from Malaysia and Singapore, especially to Europe, and an increase in plywood exports from the Philippines. Imports of tropical hardwood logs for processing into plywood into the Republic of Korea and China (Taiwan) also continued to increase.

The value of oil and oilseeds exports rose by 30 percent mainly because of an increase in receipts from coconut products. The coconut shortage first felt in 1967 continued until the middle of 1968. In contrast to most other vegetable oils and oilseeds, there was a strong upward trend in prices of coconut products. Although prices have declined subsequently, average export unit values for 1968 were substantially higher than in earlier years.

These trends for the various products affected the countries of the region differently. The value of Ceylon's exports of rubber and tea, which provide about 75 percent of its total foreign exchange, declined in dollar terms from \$276 million to \$251 million and was only partially compensated by a rise in earnings from \$35 million to \$56 million from the three major coconut commodities.¹⁴ In the case of India, substantial increases from castor oil and groundnuts did not offset reduced earnings from other products, particularly tea and raw sugar, and the value of the main agricultural exports declined from \$445 million to \$428 million in 1968. On the other hand, the earnings of the Philippines from their principal agricultural exports increased in 1968 from \$418 to \$429 million (nine months), and those of Malaysia are also likely to have risen.

¹⁴Earnings in rupees increased but their dollar value declined owing to devaluation.

Although the bulk of agricultural export earnings continues to be derived from exports of a small number of traditional products, in view of the poor prospects for many of them, the emergence of a few new commodities as export products from the developing countries of the region is of some interest. The success of Thailand in exporting maize is an already well-known example. Another successful crop is bananas, exports of which in 1968 were valued at about \$50 million compared to only \$4.6 million in 1958. Other minor items whose exports are gradually increasing in importance are silk (\$19.5 million in 1968) and oranges (\$5.8 million).

The development of these products as export items has, however, so far been confined to very few countries, mainly China (Taiwan) which accounted for over 90 percent of banana exports, and the Republic of Korea which was responsible for nearly all of the silk exports. Most of the shipments go to other countries in the region, particularly Japan which absorbed virtually all of the banana exports of China (Taiwan). Silk exports from the Republic of Korea are rather more diversified, but Japan and the United States absorb the major portion; Japan, which traditionally was the principal exporter of silk, has now become a net importer of this commodity. Although they provide only a small portion of the region's total earnings, such new exports can be of considerable significance for individual countries. The example set by these countries and Thailand, therefore, may be of value to other developing countries which are planning to diversify the structure of their agricultural exports.

Both the volume and the value of the region's agricultural imports declined in 1968 by about 4 percent. In the main this decline, the first in seven years, reflected a 15 percent fall in the volume of cereals imports, which account for half of the total, following improved crops in most major deficit countries. Imports of wheat fell by 10 percent, those of rice by 6 percent, and imports of sorghum, which in 1966-67 had exceptionally comprised some 10 percent of total cereals imports, fell by almost 80 percent. Among the major importing countries, India's wheat imports were down by one quarter to 4.7 million tons, while the Philippines took 15 percent less wheat and their imports of rice were discontinued. The cereal purchases of Ceylon and Pakistan were also substantially lower. China (Taiwan) and the Republic of Korea were the only major countries to increase their cereal purchases in 1968, in line with the trend of recent years, although in the case of the latter the rise was unusually large (15 percent for rice and almost 30 percent for wheat) because of the effects of drought on production.

The reduction in agricultural imports would have been much greater had it not been for a marked expansion in imports of some other foods. Whereas in the case of cereals improvements in production have been reflected in reduced imports, this has not happened for most other major foods, and their imports expanded in 1968 in line with the rapidly rising trend

observed in the past. Those of sugar were up by 11 percent, of meat by 40 percent, and of dairy products by 10 percent. In part these increases no doubt reflect the rapid rise in real incomes in many countries over the last two years, especially in the agricultural sector. The growth of production has at the same time been held back by various factors, including the concentration of efforts on the expansion of cereal production and the time required for raising the level of production of these commodities.

Development plans and policies

In 1968 and early 1969 new plans were started in China (Taiwan), India, Indonesia and Laos, and the current plans of Malaysia and Nepal were revised. Details of the principal characteristics and magnitudes of these and other plans being implemented in the region are given in Annex table 1D.

A notable recent development in planning techniques in the Far East has been the widespread adoption of annual planning, within the framework of a longer term plan. Annual plans have been prepared by Ceylon, China (Taiwan), India, Republic of Korea, Pakistan and Thailand, and one is soon to be adopted in Laos.

The reason for the change has varied from country to country but it is often related to the status of medium-term planning. In India the practice was initiated in 1966 at the end of the third five-year plan, because the disastrous crop situation and the economic recession made it impossible to estimate the resources which might be available for the implementation of a longer term plan. In Ceylon annual plans are being formulated while the longer term plan is being prepared. In Pakistan and the Republic of Korea annual plans are formulated as a tool in the implementation of existing longer term plans. There is now general recognition among planners in the region that annual plans are as necessary as medium-term and perspective plans. The annual plan, which is usually presented with the government budget, provides an opportunity for adjusting the medium-term plan to changes in the economic situation and in available resources, and also permits the annual budget and fiscal policies to be set in a wider, development-oriented framework, and to be made consistent with other policy instruments used by planners.

Of the four new plans started in the period under review, two relate to major food importing countries: India and Indonesia. The main aim of both plans is to achieve self-sufficiency in food. As can be seen from Table II-23, the rate envisaged for the growth of food production in both countries is appreciably higher than in the past.

Since there is only limited scope for bringing additional land under cultivation, increased output in India is to be achieved through higher yields, mainly by expanding the use of nontraditional inputs. The food-grain area under high-yielding varieties is to be increased by 15.6 million hectares to reach 24 million hectares in 1973/74 and the area under plant protection

TABLE II-23. — FAR EAST: FOOD-GRAIN PRODUCTION AND IMPORTS IN INDIA AND INDONESIA

	Production		Imports	Rate of growth of production	
	1967/68	1973/74 target		Past	During plan period
	..... Million tons.....			..... Percent per year ..	
India (all food grains)	95.6	129.0	8.7	¹ 3.0	5.6
Indonesia (rice)	² 15.0	22.7	0.3	³ 2.4	6.0

¹ 1949/50-1964/65. — ² 1968. — ³ 1961, 62-1967/68.

measures by 26 million hectares to attain 80 million hectares; the consumption of chemical fertilizers (NPK in nutrient terms) by 4.6 million tons to a total of 6.6 million tons; the irrigated area by an additional 7.4 million hectares to a total of 43 million hectares; and the area under multiple cropping by an additional 9 million hectares. Institutional improvements, such as the reorganization of credit and the strengthening of the rural infrastructure, will accompany these measures.

The emphasis placed on agriculture (including irrigation and flood control) in the Indian draft plan is reflected in public investment outlays assigned to this sector, which at 22 percent receives slightly more than industries and minerals combined. If, as is reported, the states experience difficulty in raising their share of public expenditure, the growth of agriculture will be handicapped since the constitution gives the states responsibility for the agricultural sector. Some doubts have also been expressed concerning the external financing of the fourth plan. The amount of foreign aid required, net of debt servicing, has been set at half the level received during the third plan. This in turn is based on an estimated annual increase in export earnings of 7 percent. Although in the current year export earnings are expected to be 13.5 percent higher than in 1967/68, earnings in 1967/68 grew by only 4 percent, and an interministerial committee concluded recently that only a rate of 4.4 percent a year over the plan period seemed feasible.

In order to reach the production target of 22.7 million tons of paddy in Indonesia by 1973/74, it is intended to expand the area under this crop from the present 7.6 million hectares to 9.3 million hectares, primarily through rehabilitating irrigation on 900 000 hectares and extending it to another 480 000 hectares. In Java, where paddy production is concentrated, an estimated 60 percent of the irrigation works are in a state of disrepair. High-yielding rice varieties are to be grown on 4 million hectares, and the area under the various schemes for the intensification of production, supported by extension and credit facilities, is to rise from 34 percent of the paddy area in 1969/70 to 43 percent by the end of the plan.

In accordance with the priority given to agricultural production, this sector will account for 35 percent of public investment. In view of the planned investment of 1 420 000 million rupiahs over five years, which on an

annual basis is less than 10 percent of GNP, some doubts have been raised as to the possibility of achieving the planned annual rate of growth. Some concern has also been expressed as to whether local private enterprise will contribute the share assigned to it in taxes and investment. Foreign private investment appears to have been mainly attracted by the forestry sector, which is expected to become one of the country's main foreign exchange earners in the 1970s.

Increased rice production is also a major objective of Laos' five-year plan (1969/70-1973/74).¹⁵ Agriculture has generally remained stagnant during the emergency situation, and rice imports have risen steadily to an average of over 41 000 tons in recent years. The new plan therefore gives first priority to improved agricultural productivity, especially in rice, through improved irrigation.

The successes achieved by China (Taiwan) in the development of its agricultural sector have influenced the formulation of the new 1969-72 plan which is reported to give first priority to the industrial sector. However, agriculture has the important task of increasing the supply of protein foods for the domestic market. Because of the scarcity of arable land the main emphasis will be put on fisheries and on pig and poultry production. Expansion of cattle husbandry, which would have to be based on the utilization of steep slopes not adapted to crop production, is under investigation. Output of fishery and livestock products is scheduled to grow at annual rates of 12.6 and 6.5 percent, compared with only 3.1 percent for crop production. These figures should be seen in the context of the planned overall growth rate of the economy — a minimum of 7 percent and possibly, in view of the performance achieved in recent years, as much as 10 percent.

Following a midterm review of Malaysia's first plan (1966-70), total investment in the public sector has been raised by 6 percent. Agriculture and related fields continue to receive 24 percent, the highest share of public development expenditure, and the growth target for the sector remains unaltered at 5.5 percent a year. A downward revision of Nepal's current plan (1965-70) was considered necessary in late 1968, largely because foreign assistance had not been received to the extent required.

Regional cooperation

Although consultations within the framework of the various broad regional cooperation schemes — including the Asian Council of Ministers, the Association of South-East Asian Nations, and the Asian and Pacific Council — continued during the period under review, little concrete progress has been made. A new approach is being explored, however, in the form of regional commodity arrangements. In September 1969 the six major coconut producing countries of the region —

¹⁵ At the time of writing, this plan was awaiting approval by the National Assembly.

Ceylon, India, Indonesia, Malaysia, Philippines and Thailand – established and held the first meeting of the Asian Coconut Community. The community, which is to promote and coordinate all activities of the coconut industry in the region, will investigate the causes of fluctuations in the prices of coconut products and study ways for establishing uniform standards for these products and improving the efficiency of coconut processing industries. A similar, if more limited, initiative was taken by Ceylon and India, which in mid-1968 signed an agreement for closer cooperation in economic and commercial fields, more particularly in the marketing of tea. The two countries will set up a consortium of firms through which they will collaborate in blending, packaging and distributing tea for overseas markets.

Japan

The real GNP of Japan is estimated to have risen in 1968 by 14 percent, thus repeating the high growth performance of 1967, and only a slightly smaller increase was expected in 1969. The rapid growth of GNP has meant a fast increase also in personal consumption, including that of food, which rose by 12 percent in both 1967 and 1968. The consequent changes in the composition of the diet have aggravated the problems arising from the rapidly rising rice production, which currently are a major policy preoccupation in the agricultural field. Structural problems are also important, particularly the rapid shift of population from agriculture to other sectors, which is resulting in manpower shortages on farms.

Agricultural production

The 4 percent increase in agricultural output in 1968 was approximately in line with the longer term rate of growth, though very much less than the spectacular 10 percent increase recorded in 1967 (Table II-21). Assisted by good weather, the high price supports for rice resulted in a 13 percent increase in the paddy crop to 18.8 million tons in 1967, and the crop remained at this high level in 1968. In contrast, the production of most other cereals continued in 1968 to decrease or level off. After a few years of only moderate expansion the growth of livestock production has recently regained its momentum.

The Japanese catch of fish and shellfish rose by nearly one tenth to a record 8.5 million tons, and landing controls had to be instituted for certain more common types to stop prices from falling further. Domestic prices of some luxury varieties were up, however, because of international quota agreements on their catch, and a rising domestic demand for them.

In the field of forest industries there were further increases in the production of plywood, the demand for which was buoyant both at home and in North America (the main export market), and in paper and paperboard production. However, with growing pressure on scarce domestic wood resources, Japan's paper industry is

becoming increasingly dependent on imported raw materials, and imports from southeast Asia and the United States, and to a lesser extent the U.S.S.R., have risen rapidly.

Full data on agricultural production in 1969 were not available at the time of writing. The rice crop was, however, forecast to be down by 2 percent, to 18.4 million tons, and also the barley and wheat crops were smaller, the latter by 300 000 tons or 30 percent.

Farm incomes

The recent rapid growth in farm output, together with rising producers' prices (though not in 1968), has contributed to an extremely high rate of growth in farmers' incomes. In 1967 the income of an average farm household in Japan rose by 19.5 percent to the equivalent of U.S. \$2 861, surpassing the average household income of urban workers and by a further 6.3 percent in 1968. A notable characteristic of the Japanese rural economy, however, is the large share of nonagricultural earnings in the income of farm households. In 1967, they accounted for just about half of the total, and in 1968 for slightly more. The average is, however, heavily weighted by the great dependence on nonfarm incomes of households with very small holdings.

Principal problems and policies

As in many other high-income countries where farm incomes are sustained by high price supports, these policies have recently come under serious strain in Japan, and an active search for alternative policies has been initiated.

The principal instrument of the farm income policies in Japan is the Food Control Law, under which the Government buys and sells most rice at fixed prices. Between 1960 and 1968 these prices more than doubled, increasing twice as rapidly as general consumer prices and half as fast again as the average for all other farm products. Under this stimulus production of paddy has risen faster than consumption. Stocks of old crop rice rose to 2.7 million tons (husked) in October 1968 and some 5.5 million tons in October 1969, and a further increase by some 1.5 million tons or more was expected in 1969/70. Domestic disposal of old crop rice has become increasingly difficult as the consumers have become more selective in their food purchases while commercial exports, if undertaken, would involve a heavy subsidy to bring the price down to the international level. Also, the market for japonica (round grain) rice is limited. However, a small quantity has recently been shipped abroad to developing countries under special arrangements. Financially, the operation of the Food Control Law has become an increasingly heavy burden on the State, with annual losses of over U.S. \$600 million in recent years.

It has thus become increasingly clear that some major revisions are required in the Food Control Law, which was established in a situation of scarcity and is not adapted to the now ample supply situation and the

quickly changing patterns of consumer preferences. For this reason it has already been decided to allow a portion of the harvest to be marketed freely while simultaneously restricting government purchases of rice, and to convert 5 300 hectares of wet paddy to other crops with the help of subsidies paid to cooperating farmers. Such conversions would be extended to 250 000 hectares, about 8 percent of the total paddy area, over a period of three years.

Another major problem faced by Japanese agriculture is the increasing shortage of manpower. The rate of decline of the agricultural labour force has been increasing over the past decade or so, from 2.7 percent in 1955-60 to 3.7 percent in 1960-66, and recent official projections expect it to average about 4 percent over the longer term. Although the labour outflow has so far had only a limited impact on the average farm size, because most of it has consisted of younger members of households taking up nonagricultural employment but continuing to reside on the farm, an acceleration in the growth of the average size of the operating unit is expected in the future.

Trade

Agricultural products play only a minor part in Japan's exports, accounting on average for some 2 percent of the total value and consisting, aside from silk, mainly of a number of speciality products. The country is, however, a major agricultural importer and this trade has until recently increased rapidly mainly under the impetus of fast expanding imports of livestock products and wheat. In the last two years, however, the growth of agricultural imports has been reduced to only 1.3 percent in 1967 and 3.5 percent in 1968, despite a further increase in raw material imports. In the main this is because of a steep fall in imports of dairy products and rice. The latter fell by 37 percent in 1967 and 47 percent in 1968 as domestic production rose and stocks accumulated. Japan maintained its leading position in world fishery trade, exporting products to the record value of \$350 million, or almost 8 percent more than in 1967.

As regards trade in forest products, the principal feature was the slowing down of log imports, especially those of tropical origin, following the accumulation of stocks in 1967. Imports of coniferous logs from the United States, however, increased again by a quarter, and those of sawn softwood and pulpwood chips also rose. Steps were taken, however, to import chips also from other areas, including Malaysia and Australia.

A comparatively large portion of Japan's trade is with developing countries in Asia — 28 percent of exports and 15 percent of imports in 1968. The excess of Japan's exports to these countries over its imports from them is, however, one of the country's major trade problems (see Table II-24) and a solution has been made more difficult as Japan has moved toward self-sufficiency in rice. One approach being pursued is that of helping the developing countries of the region to increase their output of processed agricultural

TABLE II-24. — FAR EAST: JAPAN'S TRADE WITH DEVELOPING COUNTRIES IN ASIA, 1964-68

	1964	1965	1966	1967	1968
	..... 1 000 million U.S. dollars				
Exports	1.7	2.2	2.6	2.9	3.6
Imports	1.3	1.4	1.6	1.8	2.0
of which:	..... Percent				
agricultural primary products	30	35	38	22	15
	..... 1 000 million U.S. dollars				
Surplus of exports over imports	0.5	0.8	1.0	1.1	1.6

products and light manufactured goods for export to Japan.

China (Mainland)

The official review of agricultural production in 1968,¹⁶ although reporting an excellent crop, made no claims for an increase in total output. Available provincial reports, fewer in number than in the past, indicate that rainfall was above normal in the south and below normal in the north. Mainly owing to losses in early rice, winter wheat and potatoes, total food-grain production (including the grain equivalent of potatoes and sweet potatoes) is generally believed to be somewhat below the exceptional 1967 crop. No major food shortages have been reported, however, and FAO estimates that food-grain production may have declined from 214 million tons in 1967 to some 212 million tons in 1968.¹⁷ No significant changes in commercial crops have been reported. General increases in herds are claimed for the pastoral regions. Pig-keeping on private plots continued to be officially encouraged and is likely to have progressed in view of the good feed base available from the 1967 crop.

In the official review the good harvest was mainly attributed to increased multiple cropping, large-scale application of weedkillers and the use of mechanical rice transplanters. No mention was made of progress in fertilizer application and water control, which may have suffered from the economic and administrative dislocations caused by the cultural revolution, especially in the first half of the year.

Steps were announced in the second half of 1968 to reduce or abolish private plots, but so far they do not seem to have had much effect. Moves were made in 1968 to enlarge collectives through mergers and to give the production brigades (the middle-sized unit in the commune) greater responsibilities in production and management.

Total exports and imports¹⁸ in 1967 and 1968 declined as against the five preceding years, but exports

¹⁶New China News Agency, 3 December 1968.

¹⁷The FAO method of estimating these data is explained in *The state of food and agriculture 1968*, p. 14.

¹⁸Data compiled from available trade statistics of trading partners.

of major agricultural commodities (rice, soybeans and other oilseeds, livestock and livestock products, fruit and vegetables) have increased markedly since 1962. Their value in 1967 and 1968 has exceeded the cost of wheat imports. Rice exports declined slightly in 1968, from 1.2 to 1.0 million tons, mainly owing to reduced

demand in Far Eastern markets. Total grain imports in 1967 and 1968 – all of it wheat – were 4.2 and 4.4 million tons respectively, as against an annual average of 6.3 million tons in 1964-66. Known contracts for delivery in 1969 indicate wheat imports of at least 5.2 million tons.

Near East

Although the priorities in resource use in the region continued to be influenced by the unstable political situation, substantial economic progress was registered in a number of countries. In Iraq, Iran and Israel the real gross domestic product (GDP) is preliminarily estimated to have risen by 10 percent or more, and there were also substantial gains in Cyprus, Syria and Turkey. The region's oil revenue, which for certain nations constitutes the principal source of finance for agricultural development, generally continued to increase though in some countries at a declining rate. Earnings from agricultural exports were some 5 percent higher, and although imports were slightly larger in volume their value was lower, and some countries were able to substantially reduce their imports of cereals.

The contribution of agriculture to economic growth varied widely as between countries, depending mainly on the impact of weather on crops. A potentially encouraging feature was the progress made in a number of countries with the adoption of high-yielding cereal varieties and the associated improvements in inputs and cultivation techniques, although so far their impact remains limited. In the longer term, moreover, the main obstacle to their adoption, and to agricultural development in general in most of the region, is aridity. Investment on a large scale is required if this obstacle is to be overcome.

Agricultural production

In the region as a whole, agricultural production in 1968 increased by only about 2 percent. This was the smallest increase in 7 years, and compares with an expansion by 5 percent in the preceding year, and a 10-year average rate of growth of 3.3 percent.

Agricultural production in individual countries of the region tends, however, to fluctuate widely in response to variations in rainfall, and changes in the regional total have therefore even less significance than elsewhere. In 1968 the small increase in the total level of output was the composite result of changes in individual countries, ranging from increases of over

10 percent in Iran and Iraq to decreases of 8 percent in Syria and the Sudan (Table II-25).

In terms of commodities, the small overall increase was the result mainly of a fall in grain production and an increase in the output of cotton and livestock products. Vegetable production also continued its steady upward trend of many years. Both wheat and rice reached record levels, at 21 and 4.4 million tons respectively, after three successive years of increase. Large crops of wheat were harvested in all major producing countries except Syria and Jordan, while record rice crops were obtained in the United Arab Republic. There was, however, a fall in the output of coarse grains, particularly barley in Turkey and sorghum in the Sudan, and the total grain crop was thus below that of 1967. Livestock production, which has increased at a slow rate in the past, continued this trend in 1968.

The production of cotton, the most important nonfood crop of the region, rose by 5 percent and approximated the previous record of 1965. Most individual countries had good crops except for the United Arab Republic, where there has been a steady decline in area and output over the past four years as a result of the low profitability of cotton in relation to other crops, especially rice. By means of increases in the producer price and other incentive measures, the Government is encouraging farmers to expand the area under cotton once more.

First, partial indications for 1969 suggest some improvement in the growth of agricultural production. Good grain crops were harvested in Cyprus, Iran, the Sudan, Syria and Turkey. Wheat production in the region is expected to increase by some 14 percent and that of barley by 12 percent, despite smaller crops in Iraq and the Sudan. No overall estimates can be made as yet of cotton production, but the crops in Iran, Israel, the Sudan and Syria were reported to be good, while in the United Arab Republic the increase in cotton prices may have encouraged farmers to plant more. The area under sugar beet in Turkey was reduced in 1969. Olive production was reduced drastically in Libya by bad weather, to only about one fifth of the 1968 crop.

TABLE II-25. NEAR EAST: INDICES OF AGRICULTURAL PRODUCTION

	1966	1967	1968 ¹	Change 1967 to 1968 ¹	Annual rate of growth 1955/57-1965/67	Per caput agricultural production in 1968 ¹
	1952-56 average = 100			Percent		1952-56 average = 100...
Production in selected countries (all products)						
Afghanistan	126	132	132	-	2.0	104
Cyprus	175	189	179	- 5	6.2	150
Iran	147	159	177	11	3.2	118
Iraq	131	138	161	16	2.4	102
Israel	255	297	309	4	8.4	192
Libya	182	209	203	- 3	5.1	124
Sudan, The	165	193	178	- 8	3.8	120
Syria	115	146	134	- 8	2.2	86
Turkey	158	161	164	2	3.9	114
United Arab Republic	144	140	147	5	2.8	104
Regional production						
Total:						
All products	149	155	158	2	3.3	
Food only	145	153	155	1	3.0	
Per caput:						
All products	110	112	111	- 1	0.7	
Food only	107	110	108	- 1	0.4	

¹Preliminary.

High-yielding varieties

With few exceptions, crop production in the countries of the Near East is dominated by cereals, which occupy about 70 percent of the total harvested area in the region and account in most cases for 40-50 percent of the gross agricultural output. Over the past 15 years or so, the region's cereal production has risen at an average rate of only some 2 percent a year, though showing wide annual fluctuations. Virtually all of the increase has been due to an expansion of area cultivated: between 1950 and 1965 the area under wheat and barley, the main cereals, expanded by about 50 percent while their combined yield per hectare rose by less than 7 percent. The overall increase has been insufficient to meet the rapidly growing demand. Total imports of cereals into the region therefore rose from an average of 2.4 million tons in 1955-57 to 5.1 million in 1965-67, and to almost 6 million tons in 1968 when the value of these imports amounted to U.S.\$433 million. Although a significant portion of the cereal imports has been available on concessional terms, it has nevertheless constituted a strain on the foreign exchange resources of those Near Eastern countries which do not export oil.

In future less reliance can be placed on further expansion of the arable area to meet growing demand; cultivation is increasingly pressing against the margins of aridity, while a shift from other crops to cereals goes against the efforts of most countries in the region to diversify their agricultural output. The key to increased cereal production in the Near East thus lies in raising yields. This need was realized early and led to the initiation of coordinated yield trials in 1961/62 under the FAO Near East Wheat and Barley Improvement and Production Project. These trials have resulted in the identification of some of the high-yielding Mexican

wheat varieties which are well adapted to the environmental conditions of the region.

The introduction of these high-yielding varieties at farm level is only getting under way and, in some countries such as Lebanon and Syria, it is only at an experimental stage. Except in the United Arab Republic no large-scale seed production of these varieties has started. A general shortage of other inputs, particularly fertilizers, and of experienced extension personnel has prevented their use on a large scale. Nor have adequate economic incentives been provided to farmers to raise productivity. No minimum level of price assurance to the farmers is provided, for example, in Afghanistan, Iraq and the Sudan. Fertilizers are subsidized in Afghanistan, and also in Iran for farmers participating in the package programmes, but credit and marketing facilities so far remain generally inadequate.

Despite these handicaps, significant beginnings in the use of high-yielding wheat varieties have been made in a number of countries, and in some the new techniques have been adopted to an extent where they could be expected to make a discernible contribution to output. In Afghanistan seed production started in 1966 from imported Mexican and Mexipak varieties. In 1967/68 about 20 000 hectares were planted with these varieties, and the area was expected to increase to 100 000 hectares, or about 4 percent of the total wheat area, in 1968/69. Iran imported about 1 500 tons of seed of Mexican variety in 1968 and about 40 000 hectares (0.8 percent) were expected to be planted under these varieties in the 1968/69 season. An impact programme for wheat, by which a package of supplies (improved seed, fertilizers, pesticides, machinery and implements) and services (extension, credit and marketing) is made available to farmers, is also planned in this country. In Iraq local multiplication of Mexican seed was supplemented by imports of 800 tons of Mexipak seed

from Pakistan, for use on 10 000 hectares in the 1968/69 season.

More significant progress has been made in Turkey, where a range of Mexican dwarf varieties has been introduced since 1966 in the high rainfall areas (600-1 200 millimetres) of the coastal region and parts of the intermediate rainfall area of the Anatolian plateau. From a modest start of about 600 hectares in 1966/67 planted with 60 tons of imported seed, the area expanded in 1967/68 to 170 000 hectares. For the 1968/69 season the Government procured some 60 000 tons of seed for distribution and, if farmer-owned or traded seed of high-yielding varieties (especially of Super X) is also taken into account, the area in the 1968/69 season may not have been far below 1 million hectares, about 12 percent of the total wheat area. Despite exceptionally unfavourable weather and a serious attack of rust in 1969, yields of Mexican varieties are still expected to be higher than those of local varieties. Good progress has also been made in the United Arab Republic where a new indigenous wheat variety, Giza 155, which is rust resistant and comparable in yield to Mexican varieties, was released in 1967/68. It was proposed to cover about 63 000 hectares (about 10 percent of the total wheat area) with this variety in 1968/69. Rice yields in the United Arab Republic are already very high.

A major longer term constraint on the wider adoption of high-yielding varieties in the region is aridity. The irrigated area constitutes roughly 30 percent of the arable area, but a substantial portion of it is under other crops such as cotton. The higher rainfall areas (with about 500 millimetres per year) where the new varieties can be safely introduced without irrigation are limited. In Iraq, Iran and Turkey in particular a large part of the wheat area is subject to

unreliable rainfall. Another factor limiting the expansion of the area under Mexican varieties in Afghanistan and Turkey is the severe cold in upland areas which necessitates frost resistant varieties. Nevertheless, there is considerable potential for increased cereal output in the region before a ceiling imposed by such limiting factors is reached.

Trade in agricultural products

The volume of agricultural exports in 1968 fell fractionally, but because of relatively good prices for the major items — rice and cotton, which together provide over 60 percent of the region's export earnings from this sector — there was a substantial increase in value (Table II-26). The volume of cotton exports is estimated to have been slightly lower, primarily because of reduced shipments from Syria and the United Arab Republic. There were larger exports of extra-long staples from the Sudan. Prices of this type of cotton were particularly good despite the relatively small increase in consumption, reflecting the reduction of producer stocks.

Exports of fruits expanded further in 1968 and are now about 85 percent higher than ten years ago. There were increases in shipments from all the major exporting countries, Israel, Cyprus, Lebanon and Turkey.

Rice exports in 1968 (mostly from the United Arab Republic) reached a record level of nearly 600 000 tons, 30 percent more than in 1967, and the value rose by about half. Shipments to the eastern European countries, at about 130 000 tons, were more than twice the size of the previous year and together with those to the U.S.S.R. comprised nearly 50 percent of the total rice exports from the region. Among other major

TABLE II-26. NEAR EAST: INDICES OF VALUE OF EXPORTS OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	Share of total agricultural exports in 1968	1966	1967	1968 ¹	Change 1967 to 1968 ¹
	Percent	1957-59 average = 100			Percent
Agricultural products	100	128	125	131	5
Food and feedstuffs	37	146	150	164	10
Rice	(8)	184	252	379	50
Fruits	(13)	157	170	170	-
Vegetables	(3)	170	194	174	10
Beverages and tobacco					
Tobacco	8	99	112	92	-18
Raw materials					
Cotton	52	129	118	125	6
Fishery products	-	167	186	179	-4
Forest products	-	294	323	356	10
Agricultural, fishery and forest products		129	127	131	3

¹Preliminary.

products, there was a substantial decline in the exports of tobacco (mainly from Turkey), largely because of the weak international demand for oriental leaf, and the strong competition from other exporting countries.

The volume of imports into the region is estimated to have risen by about 2 percent in 1968, but because of declining prices for virtually all of the major imports, their value was reduced. There were sharp increases in imports of most foods and feedstuffs, which represent more than three quarters of the total value of agricultural imports, except sugar, which fell for the third year in a row. The volume of cereal imports was 10 percent higher than in 1967, mainly because of larger purchases of wheat by many of the principal deficit countries, including Iran, Iraq, Israel and Syria. An encouraging feature, however, was the ability of some other countries to reduce their cereal imports. The United Arab Republic's imports of wheat and maize, which had been increasing steadily during the past few years, were cut by 15 and 35 percent, respectively; and Turkey imported no wheat at all in 1968, compared with about 700 000 tons a year only 5 to 6 years ago. Imports of animals and animal products and of most raw materials expanded in line with the rapidly rising trend, although in the case of the latter the increase was due mainly to a 20 percent rise in rubber.

Development plans

New plans were approved or initiated in 1968 and 1969 in Iran, Iraq, Libya and Somalia (Annex table ID). A major reorganization in the planning structure of Syria was also effected. Afghanistan's third five-year plan was revised downward by 25 percent in November 1968 in view of difficulties experienced in its implementation. Although this necessitated the dropping of a number of projects, the basic aims and priorities of the plan remain unchanged, including the emphasis on irrigation.

Thanks to the anticipated rise in oil revenues it has been possible to raise the total public sector allocation in Libya's second five-year plan (1969/70-1973/74). As in the first plan, the major portion of the investment (56 percent) is earmarked for the development of infrastructure. The second plan marks, however, a gradual shift in emphasis from improvement of the physical infrastructure to development of productive activities in agriculture and industry. The plan aims at an average annual growth rate of about 6 percent in the production of field crops and vegetables, but imports of most agricultural commodities are nevertheless expected to increase substantially during the plan period. A distinct feature of the Libyan plan is the heavy reliance placed on the use of input subsidies as a means of encouraging agricultural production. These are to be given for agricultural machinery, chemical fertilizers, and insecticides and pesticides as well as for the drilling of wells and construction of cisterns. Because of the

rapid growth of nonfarm employment, it is estimated that agricultural labour will decline from 143 000 persons in 1968 to 140 000 in 1973.

In Iran the increase in the annual rate of growth of agricultural production from the 3.4 percent achieved during the third plan period to the 5 percent envisaged under the fourth plan (1968/69-1972/73) is to be brought about mainly through higher yields resulting from a substantial increase in inputs. Thus fertilizer consumption is to be more than doubled, from about 72 000 tons (in terms of nutrients) in 1967/68 to 158 000 tons in 1972/73; the area under irrigation is to increase by 400 000 hectares; supplies of improved seed will be expanded to cover 300 000 hectares of wheat and barley; and the number of tractors in operation is to grow by about 40 percent to 24 000. The plan aims at self-sufficiency in wheat and sugar. Foreign aid requirements for the agricultural sector during the plan period are put at U.S. \$145 million, mainly for irrigation.

Among the various institutional means of reaching the agricultural growth objectives under the plan, of particular interest would seem to be the encouragement given to large-scale farming. One hundred joint stock farming companies, with small farmers as shareholders and covering a total area of 100 000 hectares, are being established during the plan period on an experimental basis. The creation of large-scale farming units and agro-businesses is also proposed to develop and farm newly irrigated lands. An agricultural development fund was established in 1968, with an initial capital of 1 000 million rials, to assist private investment in large-scale commercial farming and agro-allied industries, by participating in equity capital and advancing long-term loans.

In Somalia a short-term development programme (1968-70) has been formulated to consolidate the work initiated under the first five-year plan (1963-67). It is confined to the public sector and lays emphasis on the completion of on-going projects and on the mobilization of more domestic resources for development. Of the total financial outlay about 70 percent is allocated to basic infrastructure, transport and communications, and water supply schemes, and 15 percent to agriculture. The principal aims in the agricultural sector include the increase of food production to attain self-sufficiency; the diversification of farm output through the introduction of new crops such as cotton, oilseeds and citrus fruit; and the rationalization of the cost structure of banana cultivation to make it competitive in international markets. Integrated development of the Juba valley, which has the greatest development potential in the country, is proposed to be undertaken with the assistance of an international consortium. The European Economic Community will assist in the establishment of two seed farms as part of the crop diversification programme, and in the implementation of an integrated pilot project for livestock development on an area of approximately 60 000 square kilometres. In the industrial sector, emphasis is placed on the completion

and operation of the state-owned fish, meat and milk processing plants.

The structure of the planning machinery in Syria was reorganized in June 1968. A Supreme Planning Board was established, headed by the Prime Minister and with ten ministers and the governor of the Central Bank as members. Its function is to establish the goals for economic and social development, coordinate and follow up the plan implementation, and approve long-term, medium-term and annual plans. The Ministry of Planning has been replaced by a State Planning Commission which is to be the technical secretariat of the Supreme Planning Board. Planning departments in ministries concerned with economic and social development are to be formed or strengthened. A major weakness, however, remains the shortage of qualified planners.

Investment in agriculture

As is evident from the above review and Annex table ID, there is now a greatly increased emphasis on agriculture in the development plans of most countries in the region. With the exception of Libya, in none of the countries is the share of agriculture in public investment less than 15 percent; it is highest in Jordan (37 percent), followed by Afghanistan (29 percent), the Sudan and Syria (both 27 percent). Even in the oil-exporting countries, such as Iran, Iraq and Libya, where the share of agriculture in GDP is relatively low, the share of agricultural investment is in the range of 13 to 23 percent. This presumably reflects growing recognition of the importance of agricultural development in sustaining the development of the other sectors and in diversifying the economy. The latter consideration is particularly important in Libya.

In line with the planned acceleration in the rate of growth in Iran, government development expenditure for agriculture under the fourth development plan is to be 118 000 million rials, two and a half times that under the third plan.

Although little information is available as to the pattern of public investment in agriculture, the development plans of some countries do give a broad indication of how such investment is likely to be made in future (Table II-27). Since lack of rainfall constitutes

one of the major development problems of the area, investment in irrigation, drainage and land reclamation is given particular emphasis. The additional area expected to come under irrigation in Turkey is about 54 000 hectares. Since large-scale irrigation and reclamation projects have a long gestation period and involve heavy investment, a large part of it in the form of foreign exchange, in the Turkish plan priority is given to development works at the farm level. In Iran the major emphasis is on surface water projects (80 percent of the total allocation for water development), mainly for the completion of projects carried over from the third plan. The apparent investment in development services or unconventional inputs such as agricultural research, extension and education remains relatively small in most of these countries, but in part this undoubtedly reflects the low capital intensity of such services, which are mainly financed through the current accounts of government budgets.

Although the tendency is for the public sector to assume responsibility for a major share of investment in agriculture, the private sector is also expected to play a significant part. This is particularly so in Iran, where about 35 percent of the total investment in agriculture is expected to come from the private sector, in Syria (32 percent), in the Sudan (25 percent), and in Jordan (23 percent).

Regional economic integration

Little progress was made in 1968 in economic integration of the region. When the Sudan and Yemen joined in 1968, membership of the Arab Common Market (ACM) rose to seven.¹⁹ The implementation of trade liberalization measures within the area, initiated with the launching of ACM in January 1965, has also continued. By 1969 all tariffs and quantitative restrictions on agricultural products and other natural resources were completely abolished as were tariffs on a number of industrial items. Tariff reductions on other industrial commodities ranged between 60 and 85 percent; complete liberalization is expected to take place in 1971.

¹⁹The other members are Iraq, Jordan, Kuwait, Syria and the United Arab Republic.

TABLE II-27. NEAR EAST: DISTRIBUTION OF PUBLIC INVESTMENT IN AGRICULTURE IN SELECTED COUNTRIES

	Plan period	Infra-structure ¹	Directly productive activity				Research, extension and education	Institutional improvements ²
			Crops	Livestock	Fisheries	Forestry		
<i>Percent</i>								
Iran	1968/69-1972/73	46	32.3	4.8	—	1	3	20
Libya	1969/70-1973/74	52.9	6.14	5	—	7	2	74.2
Somalia	1968-70	3	30	45	5	3	7	8
Turkey	1968-72	54	23	0.2	3	10	5	4

¹Irrigation, drainage and land reclamation. — ²Marketing, storage, credit cooperative and land reform. — ³Includes soil conservation and the cost of setting up large agriculture units. — ⁴Includes a small amount for fisheries. — ⁵Agricultural roads. — ⁶Government subsidies on inputs. — ⁷Includes agricultural settlement.

Despite these measures, however, the trade impact of ACM during its first four years has been rather modest. Up to 1967, the latest year for which data on trade among the member countries are available, such exchanges had shown virtually no expansion, and the share of intra-ACM trade in the total commerce of several member countries, including Jordan, Syria and Kuwait, had therefore shrunk. This generally disappointing progress reflects, aside from the initially limited range of goods traded among the countries of ACM, the tendency to exclude from tariff reductions a number of the more significant items. Attempts are, however, being made at the moment to cancel these exemptions, which have already been reduced from over 100 to 16 in number.

Progress in other areas of integration between ACM countries has also been limited. Only Kuwait has instituted free movement of capital, but most of its

capital exports have been directed to countries outside the area. No common external tariff has yet been agreed upon, nor have any major joint enterprises been established. Agreements creating an Arab Payments Union and an Arab Bank for Social and Economic Development have, however, been concluded. The convention establishing the bank has so far been signed by 11 of the 14 members of the Arab League, and more than 50 percent of the capital of 100 million Kuwait dinars has already been subscribed.

The Regional Cooperation for Development Organization, composed of Iran, Pakistan and Turkey, has been making satisfactory progress in the field of joint industrial enterprises. Eight such projects have already gone into production and nine others are in various stages of implementation. The three countries also concluded an agreement late in 1968 aimed at increasing their intraregional trade.

Africa

The past year has again demonstrated how vulnerable agriculture in the region is to the major hazards of weather, export markets, and pests and diseases. Although agricultural production in the region as a whole just about maintained the 1967 level, there were wide variations as between countries. Due to severe drought in southern Africa and to both floods and drought on the west coast, cereal crops in these areas were much reduced from the high levels of the previous season. In east Africa, on the other hand, food crop production was above average, and the Maghreb countries were favoured with excellent cereal yields. Output of the major export crops was comparatively stable, except for cocoa which showed a drop of about 10 percent. Overall, the production in the developing countries of the region is estimated to have risen by some 3 percent, but in per caput terms there was little change; food production per head remained lower than it had been 15 years ago.

Imports of agricultural products nevertheless declined once more in 1968, both because of longer term endeavours in a number of countries to be more self-sufficient in food, and — perhaps even more important in the short run — the need to conserve foreign exchange. Agricultural export earnings recovered substantially, but have not shown any persistent improvement over the past several years.

The importance of livestock and the increased recognition of its potential contribution to the economy of many African countries are shown in new programmes to expand livestock production. In east Africa, large-scale projects are getting under way in a

number of countries, and commercial milk production to supply urban centres is also developing quite rapidly.

In view of the limitations of export markets and the desire to promote their internal economy and improve nutrition standards, countries in the region are giving increasing attention to expanding internal markets, particularly for domestic food crops, and animal and fish products. At the same time, the establishment in several countries of agricultural processing industries (including forest industries) is resulting in savings on imports and, to a lesser degree, increased earnings from exports.

Other evidence of economic diversification includes the increasing exploitation of other natural resources, the most recent being bauxite in Guinea and diamonds in Botswana. The increasing contribution to economic growth from oil, minerals, fertilizers and diamonds, and such major hydroelectric schemes as Volta and Kainji, are providing an expanded market for domestic agricultural produce. For Kenya, in particular, the growth of the tourist industry is making up for the absence of exploitable minerals; after agriculture, it is the country's second largest foreign exchange earner.

Overall economic growth in Africa²⁰ between 1967 and 1968 is estimated at 4.2 percent. This is somewhat more than the average rate for the decade, but less than the growth shown in 1968 by most other developing

²⁰ Calculation by the United Nations, based on information for Ethiopia, Ghana, Ivory Coast, Kenya, Morocco, Nigeria, Rhodesia, the Sudan, Tanzania, Tunisia and Uganda.

regions. Morocco achieved a 10 percent increase in real gross domestic product, largely due to the good results of the agricultural sector. A similar increase was achieved by both Zambia, attributed in the main to buoyant copper exports, and by Ivory Coast, where also in the preceding years the rate of economic growth has been high.

Agricultural production

Preliminary estimates show total agricultural production to have remained at about the same level as in 1967, though still well above the depressed level of output in 1965 and 1966 (Table II-28). The results varied widely, however, as between countries, mainly in response to weather. The regional total was heavily influenced by the 15 percent fall in production in South Africa. The combined production of the developing countries of the region in fact increased by 3 percent. In the Maghreb countries were gathered very good harvests, particularly of wheat, barley, olives and grapes; in Morocco total agricultural output rose by two fifths. A more modest expansion of around 5-7 percent took place in Kenya, Tanzania and Uganda, despite a smaller cotton crop in the two latter countries. The effect of these increases on the combined output of all the developing countries of the region was, however, largely offset by a decrease of about a tenth in the west African countries of Ghana, Niger and Senegal, as well as in Rhodesia.

Among the major crops, wheat and barley production is estimated to have increased by 63 percent, with higher yields on a larger planted area in all the main producing countries; in Morocco wheat production more than doubled. Output of maize, sorghum and millet, on the other hand, fell substantially with the South African maize crop down by 4 million tons (45 percent). Rice production was also down, particularly in Madagascar (20 percent). Olive oil production in north Africa increased by an estimated 50 percent.

Among the region's major export crops, groundnut production was down by about 11 percent, with decreases in most countries, except Nigeria where production recovered half way to the record 1966 crop. A fall of about 10 percent in the Ivory Coast coffee crop was about balanced by modest increases in Ethiopia, Kenya, Tanzania and Uganda.

Livestock production, though important in many parts of the region, is not susceptible to precise assessment. Estimates based on partial indicators suggest, however, a continuing upward trend at the past annual rate of 1.5-2 percent, with poultry meat showing a substantially faster rate of about 7 percent. The majority of African countries are successfully establishing modern commercial poultry production based on exotic breeds and hybrids to supply their urban markets. Efforts to develop Africa's large cattle potential have also been intensified over the past year. While disease remains a major obstacle to development, national efforts are being supported by regional disease

TABLE II-28. - AFRICA: INDICES OF AGRICULTURAL PRODUCTION

	1966	1967	1968 ¹	Change 1967 to 1968 ¹	Annual rate of growth 1955-57 - 1965-67	Per caput agricultural production in 1968 ¹
	..... 1952-56 average = 100 .....			..... Percent .....		..... 1952-56 average = 100
Production in selected countries						
(all products)						
Algeria	69	81	92	13	- 2.2	67
Ethiopia	146	152	153	1	3.0	121
Morocco	106	119	169	43	2.6	114
South Africa	145	183	155	- 15	3.5	111
Tunisia	98	102	118	16	0.7	98
Production in developing countries²						
Total:						
All products	134	138	142	3	2.6	
Food only	128	132	136	3	2.2	
Per caput:						
All products	100	101	101	-	0.1	
Food only	96	96	97	1	- 0.3	
Regional production						
Total:						
All products	135	143	143	-	2.7	
Food only	131	139	139	-	2.4	
Per caput:						
All products	101	104	102	- 2	0.2	
Food only	98	101	99	- 2	0.1	

¹ Preliminary. - ² Excluding South Africa.

control programmes, notably the west African rinderpest campaign, which has now been extended in its fourth phase to east Africa. Major beef production schemes have been initiated in several countries including Ethiopia, Kenya, Madagascar, Tanzania and Uganda. In addition to increased forage production, mainly by means of improved range land management, surplus maize resulting from the increasing use of hybrid varieties is enabling systems of intensive fattening to be introduced in some countries. While progress is being made in improving the quality of beef herds through selective breeding, notably the use of Boran stock in several east African countries, use is also being made of exotic breeds. A thousand Herefords have been imported by Uganda to provide the foundation stock for the national beef herd. The numbers of sheep and goats, which provide about a quarter of Africa's meat supply, generally continued to increase.

Effective milk production schemes to supply urban markets have been established in a number of countries. The Kenya Cooperative Creamery scheme in particular has shown that with such organization the small-scale African farmers have been able to replace those European farmers who have given up dairy farming. Exotic breeds of dairy cattle have been introduced and tested in a number of countries, notably Friesians in Nigeria. Under appropriate management, they are demonstrating their commercial suitability.

Only fragmentary information is available on the 1969 crops. Output was generally expected to recover in a number of countries which suffered from bad weather in 1968, notably in the sahelian zone of west Africa. In the Maghreb countries, on the other hand, only average crops were expected to succeed the excellent output of the year before. The total wheat crop of the region is tentatively estimated to have fallen by over 10 percent, and that of barley by about 20 percent. Among the major export crops, tea production was expected to increase in most producing countries, and a recovery in coffee production was anticipated in Ivory Coast. A large output of palm oil and palm kernels was also anticipated, with the resumption of the flow of supplies from Eastern Nigeria and a continuation of the upward trend in production in other countries.

Fishery production

A substantial increase over 1967 was achieved largely as a result of record catches for the South African fish-meal and fish-oil industry, which ranks with Peru, Norway and Iceland as a leading world supplier of these products. In Morocco, where fish landings and exports have been on the decline, a new administrative body, the Office national des pêches, was set up in March 1969 to coordinate efforts to reduce cost through the adjustment of fishing capacity to processing facilities as well as the development of export markets. Ghana, which has also suffered a temporary setback, is now

concentrating fishing operations in near-shore waters while reducing her rather ambitious deep sea trawling operations. Fishing development programmes being undertaken by east African countries focus on the modernization of fishing equipment and the improvement of marketing facilities in inland lake areas.

Forest production

No precise data are available on forest production but it is estimated that there were small increases in the production of both fuelwood and industrial roundwood, although the share of the latter in total removals remained quite small. Ivory Coast and Ghana accounted for a substantial part of the estimated increase in removals of broadleaved logs. West Africa experienced the most severe rainy season for a decade in mid-1968, which seriously disrupted logging and harvesting operations. But for this, removals might well have been higher in view of the active demand for tropical hardwood from overseas. Production of sawn hardwood also rose, particularly in Ghana and Ivory Coast.

The growth of log production in the region recovered in 1969, as the interruption of logging operations by the wet season was less severe than usual. Export possibilities were restricted, however, by the limited storage capacity, and this, together with the continuing strong demand for tropical wood, especially in Europe, tended to increase prices.

Trade in agricultural products

The value of exports of agricultural products showed a welcome increase of around 10 percent in 1968 (Table II-29). Over the past five years, however, the region's agricultural export earnings have stagnated, and are still somewhat below the level reached in 1964, while the region's total exports have been rising at a rate of about 5 percent annually. It is noteworthy, however, that in 1968 the greater part of the increase in total export earnings was contributed by agriculture, forestry and fisheries.

Most of the major agricultural export products showed increases both in volume and value. Notable exceptions were groundnut oil, where lower export prices more than offset the larger shipments primarily from Nigeria to the United Kingdom, and palm kernel oil. The volume of cocoa exports was at its lowest for seven years but, with prices up substantially, export earnings from this commodity were considerably larger than in 1967.

The upward trend in earnings from coffee exports was maintained. The quantity reached a new record at nearly 995 000 tons, and prices were higher than in 1967. Citrus fruit exports, mainly oranges from Algeria and Morocco, were higher and together with a sharp increase in prices raised export earnings substantially. Palm kernel exports continued at about half of the level reached before the outbreak of the civil war in Nigeria,

TABLE II-29. AFRICA: INDICES OF VALUE OF EXPORTS OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	Share of total agricultural exports in 1968	1966	1967	1968 ¹	Change 1967 to 1968 ¹
	Percent	1957-59 average = 100			Percent
Agricultural products ²	100	113	106	116	10
Food and feedstuffs	36	120	104	114	10
Cereals	(2)	58	75	79	6
Sugar	(4)	125	118	110	- 7
Citrus fruit	(4)	147	143	170	19
Oilseeds and oils	(17)	111	86	94	10
Beverages and tobacco					
Coffee	25	158	146	168	15
Cocoa	19	94	122	141	16
Tea	3	232	218	237	8
Raw materials					
Cotton	7	105	110	114	4
Rubber	2	105	82	85	3
Fishery products	-	133	130	146	12
Forest products ³		203	201	227	13

¹Preliminary. - ²Excluding South Africa. - ³Including South Africa.

and the export unit value increased by about one third; similarly palm oil exports remained depressed and prices were 9 percent lower, though the almost total lack of Nigerian exports was substantially offset by a marked expansion in exports from the Democratic Republic of the Congo.

Some countries obtained notable increases in earnings from exports of these agricultural products. Tunisia, the major exporter of olive oil, increased shipments by 50 percent. Both Senegal and Nigeria expanded groundnut exports by 20-30 percent while Nigeria also increased groundnut oil exports by 54 percent. Exports of coffee by Ivory Coast increased by about 40 percent to a new record level, and of cocoa by 15 percent. Cocoa exports from Ghana remained at the 1967 level but, as noted above, the higher export unit values more than compensated for the smaller volume. Cotton exports from Nigeria and Uganda were smaller, but shipments from Chad and Tanzania were larger. Tea exports, the earnings from which have doubled over the last decade, continued the upward trend. Shipments increased by about 14 percent in 1968, more than making up for the 5 percent fall in prices.

The commodity composition of the region's agricultural exports remains narrow. In 1968 two products, coffee and cocoa, contributed 44 percent of the total value of this trade; vegetable oils and oilseeds and cotton accounted for a further quarter of the total. Little change has taken place over the past 10 years or so in the region's dependence on this limited range of exports; in fact, there has been a further intensification of the dependence on coffee and cocoa, which in 1960 accounted for only 30 percent of the total.

The regions' export earnings from fishery products increased by 12 percent in 1968. Shipments from

Morocco reached record levels, although earnings were somewhat smaller than in 1966.

Despite disruptions to production due to the rainy season, and a shortage of freight space, African exports of hardwood logs are estimated to have risen by some 12 percent in 1968, primarily because of increased European purchases stimulated by a low stock position and an upturn in economic activity. Exports of sawn hardwood rose even faster, especially from Ghana and Ivory Coast, and the former regained its position as the leading exporter of sawn hardwood to Europe.

The region's main imports of agricultural products comprise wheat and wheat flour, rice and sugar. Thanks to the favourable season in the Maghreb, Algeria, Morocco and Tunisia were able to reduce significantly their imports of wheat and flour. Although several countries have endeavoured to restrict imports of cereals to save foreign exchange, the upward trend for the region as a whole has continued, with substantially greater imports of rice by Ghana, Ivory Coast and Senegal.

Desert locust control

The desert locust is traditionally a major threat to crop production in an area covering more than 40 countries in Africa and Asia, from Senegal in the west and Tanzania in the south, to India and Pakistan in the east and Turkey in the north. Following a five-year recessionary period, reports of locust population build-ups started arriving again from both sides of the Red Sea in late 1967, posing the renewed threat of a major plague. By April 1968, breeding was observed in widely scattered areas and subsequently swarms were reported from all the major breeding areas. Thanks to

good progress in locust control, however, it was possible to take prompt, vigorous and coordinated measures to contain the attacks, and damage has so far been relatively small.

Over several years, research and survey programmes have enabled a comprehensive body of knowledge to be built up on the breeding areas and on the associated ecological and meteorological conditions which favour locust breeding and migration. At the same time, a greatly improved forecasting and reporting system has been established which gives special coverage to the identified danger areas. Spraying techniques using concentrated insecticides of far greater effectiveness have been developed, emergency plans worked out, personnel trained, and equipment and insecticides brought into position in readiness to tackle any locust infestations which may occur. Consequently, when the danger appeared in 1968 it was met by a general state of preparedness at both national and international levels. International coordinating arrangements for the entire region were undertaken by the FAO Desert Locust Control Committee, with field actions concentrated through five subregional groups.

Aside from international support for national efforts in the 1968 antilocus campaigns, assistance was also provided by various bilateral sources. Particularly noteworthy was the assistance given by countries to their neighbours, including aircraft for spraying made available by Iran for Pakistan and by Ethiopia for the Sudan, and insecticides sent by Kuwait and Pakistan to Saudi Arabia.

The experience of 1968/69, when the threat of vast crop losses was largely avoided, is encouraging. For the first time in the long history of locust plagues it was possible, through the full use of modern technology and through international cooperation, to defeat this age-old enemy. Although the cost was considerable, it was only a small fraction of the losses which would have been suffered had adequate and timely action not been taken. The maintenance of continuing vigilance and preparedness is essential to ensure that the inevitable future attacks will be dealt with equally effectively.

Technological progress

The speeding up of technical progress in agriculture is fairly widely discernible, although at different levels depending on the general status of farming. In a number of countries an important aspect is the greater use being made of animal traction equipment and improved hand tools. Senegal now manufactures animal-drawn equipment which it also exports to neighbouring countries, and Kenya, Malawi and Uganda also make improved tools and farm equipment. There is also evidence of increased use of power-driven machines, especially in Tanzania and Tunisia, and to a lesser extent in Uganda and Zambia. In Ethiopia extensive mechanized dry farming has developed rapidly.

The most numerous machines are tractors (estimated numbers in use in the region – excluding South Africa – increased between 1966 and 1967 from 108 000 to 114 000) but harvesters are also being used in east and north Africa. Because of the nonadaptability of some tractors, poor management and lack of servicing personnel, however, tractor use has proved very uneconomic in some countries. In Sierra Leone, for example, it has been found necessary to review plans for their increased use, and in Ghana the entire programme for tractor use and for state corporation farming is being reorganized.

Available figures indicate that fertilizer usage in the region (excluding South Africa) increased in 1967/68 by about 17 percent to 480 000 tons. The increases have been substantial in Kenya, Morocco and Senegal. Morocco's Opération engrais is estimated to have been responsible for over 30 percent of the total record wheat crop in 1968. Most of the fertilizers are, however, still applied to export crops, especially tobacco, cotton and groundnuts, which have higher unit values.

The use of high-yielding cereal varieties together with fertilizers and other more advanced farming practices is still at an experimental and trial stage in most developing countries of the region. The principal exception is Kenya, where the cultivation of hybrid maize on about 10 percent of the total maize area has resulted in very large increases in marketed production. The potential of the new rice hybrids has been demonstrated in Cameroon and Madagascar, and of improved groundnut varieties in Senegal and Uganda. Much wider use is being made of improved cotton seed varieties, particularly in Cameroon, the Central African Republic and Uganda, where practically all cotton areas are planted with improved seeds, and also in Dahomey and Nigeria.

Insect control by spraying cotton has become standard practice in most countries. A recent example is the successful development of cotton production achieved in Zambia with the help of organized spraying campaigns. Some success has been achieved in Kenya in controlling coffee berry disease through intensive chemical spraying, though at a very heavy additional production cost.

Development plans and policies

In 1968 and early 1969 nine countries in the region initiated new development plans. Nineteen countries have on-going plans, while three others are formulating their first plans to commence in 1970. The principal characteristics of the current plans are presented in Annex table 1D.

A general feature of planning in the region today is the attention being given to the plan review, both through the annual national budget and by means of revision, extension and evaluation at the time of formulating the next plan. Seven countries – Algeria, Congo (Brazzaville), Kenya, Madagascar, Malawi,

Senegal and Togo – are reported to be preparing their next plans which should become effective from 1969 or 1970. Revisions and the content of the new plans are indicative of some of the needs and limitations of agricultural development in the region.

The share of agriculture in total planned investment outlay usually ranges between 15 and 30 percent of the total. High priority is given to improving self-sufficiency in food – particularly of maize in east African countries, rice in west Africa, and sugar in many countries throughout the region. Diversification of the agricultural export base is also given attention. A number of countries have developed airfreighted sales of out-of-season fruits and vegetables to European markets. In Ethiopia a new venture is the production of capsicums for the extraction of essential oils, while pineapple production for canning in Ivory Coast is a fast growing industry.

The greater part of investment outlay in most countries, however, continues to be directed to other sectors, including infrastructure (particularly transport), mineral exploitation, power and industrial development. It should be noted that improvements in some of these sectors are of great significance for agricultural and forestry development. This is the case with the improvement of transport systems. Major activities in this sector are being undertaken in Ethiopia, where 10.3 percent of the total planned investment in the third five-year plan is devoted to this, including in particular a E\$ 67.5 million IBRD-financed highway programme. Gabon has increased its infrastructural investment outlay by 58 percent, mainly on road works to stimulate forestry development, for which the International Bank for Reconstruction and Development has loaned CFA F400 million. Ghana's plan includes a 160 kilometre long road project which is aimed at facilitating the transport of livestock and other agricultural products from Hamile to Brong-Ahafo. Kenya, Tanzania and Zambia are at the moment implementing investment programmes related to arterial transport development. Equally important for agriculture are dam construction and irrigation works, as in northern Ghana where four dams are being constructed. Major schemes are also getting under way in Ethiopia's Awash valley and the Rharb plain in Morocco.

Agriculture is also closely involved in the plans for industrial development of most countries of the region. One of the major objectives in Mauritania's four-year plan (1968-71) is the development of local industries based on the rural sector. Soluble coffee produced in Ivory Coast is finding a market in several African countries. In Ethiopia domestic cotton production is expanding rapidly to meet the needs of the textile factories. Utilization of timber resources for processing into pulp, paper, plywood and chipboard is increasing as a result of the establishment of new factories in Ethiopia, Ghana, Kenya, Malawi and Uganda. Other examples include the development of the fertilizer industry in Algeria (phosphate and nitrogenous fertilizers) and Togo (phosphates), and the expansion of

agricultural processing industries in Kenya, Ivory Coast, Tanzania and Uganda. Recent agro-industrial surveys and feasibility studies in Ethiopia are further examples of emphasis being laid on industrial development. Under the country's third five-year plan, the manufacturing sector is projected to grow at an annual rate of 15 percent, with emphasis on agro-industrial projects such as food processing and manufacturing.

The social and institutional aspects of development are given prominence in most national plans, with particular concern for the improvement of rural incomes and employment. In Tanzania the guiding philosophy is the Arusha Declaration which stresses "realism" in planning and the continued mobilization and participation of society as a whole for the promotion of progress. In Tunisia emphasis is placed on improving the management of enterprises including agricultural cooperatives and their increased productivity. A particularly noteworthy feature of many of the plans now being implemented is the emphasis given to farmer training as a means of introducing modern farming practices.

Problems of forestry development

Forests constitute one of the principal natural resources of many African countries, and demand for their products is growing rapidly. Much attention is therefore being given to this sector, and to the solution of its principal development problems.

One of these important problems is shifting cultivation, which is estimated to destroy some 8 million hectares of forest cover annually, particularly in the high forest along the coast of the Gulf of Guinea and in central Africa. Unfortunately, as yet progress continues to be slow in the preparation and implementation of land-use plans based on viable crop rotations and farming systems.

In a number of countries efforts are being made to increase the degree of domestic processing of forest products as a means of increasing export earnings, and to expand the share of domestic operators in the industry. In Gabon this is being achieved by reserving the most accessible forests for the country's own nationals and by making funds available to them for the establishment of processing industries. Additional benefits expected from this policy include the exploitation of a greater number of species, and the establishment of local auxiliary industries and activities.

Major attention is being given in a number of countries to the opening up of new areas through the construction of roads and harbours such as the forest road programme in Gabon already mentioned. Other major schemes include the construction of 100 kilometres of roads in Congo (Brazzaville) to open up an area of 600 000 hectares for exploitation by 1970; and a road and harbour construction programme in Ivory Coast which, while giving many indirect benefits to the country, is expected to repay its cost from increased forest exploitation alone.

Afforestation activities have also increased considerably, reaching an annual rate of some 80 000 hectares. The Maghreb countries are particularly active in this field, accounting for more than two fifths of the annual regional total.

The development of wildlife and national parks, which is already making a decisive contribution to the foreign exchange earnings of a number of countries through tourism, also continues actively. New parks have been established recently in, for example, Ethiopia, Kenya and Sierra Leone, and laws relating to them were promulgated in many countries. Following the success of the College of African Wildlife Management in Tanzania, the establishment of a similar institute is now under consideration for the French-speaking countries of the region.

Regional economic cooperation

The countries of the region continue to be actively interested in subregional economic cooperation. Some concrete progress was registered, particularly in the collective negotiations for associate membership of the European Economic Community and in a variety of bilateral trade agreements between neighbouring countries.

The continued search for more permanent subregional patterns has also been evident. One of the groups, the Union des Etats de l'Afrique centrale (UEAC), formed early in 1968 and consisting of the Democratic Republic of the Congo, Chad and the Central African Republic, became inactive following the withdrawal of the last-mentioned country at the end of 1968. Membership of the East African Community (Kenya, Tanzania and Uganda) has so far remained unchanged, but five other African states (Burundi, Ethiopia, Malawi, Somalia and Zambia) have expressed interest in joining EAC, while meetings have been held at both ministerial and head-of-state level in an endeavour to extend the whole field of economic cooperation in eastern Africa. In western Africa the heads of state, gathered at Monrovia in April 1968, established a West African Regional Group to promote all aspects of cultural, social and economic cooperation with the ultimate aim of establishing a west African common market. Its 13 country membership covers the entire subregion with the exception of Guinea, but partially overlaps the other two major African economic

groups, the Organisation communale africaine et malgache (OCAM)²¹ and the Union douanière et économique d'Afrique centrale (UDEAC).²²

Cooperation in surveying the resources of the major river basins is a well-established feature; for example there are the river basins commissions of Chad (four states), Niger (nine states), and Senegal (four states), and one is also proposed for Gambia (three states). Regular consultations are also held between states having riparian interests in the River Nile; while hydrometeorological studies of Lake Victoria and a research project to improve exploitation of the lake's fishing potential are being undertaken on behalf of states with riparian interests there. In addition to promoting cooperation in these major international water resources, the association of riparian interests will be concerned ultimately with the equitable allocation of water supplies.

Two new agreements have been signed between African countries and the EEC, namely the renewed Convention of Association between the EEC and the Associated African and Malagasy States (Yaoundé Convention), and the Arusha Convention between EEC and the three East African Common Market countries. Under the former, the African member countries will be provided with financial assistance to the value of U.S.\$ 918 million, of which U.S.\$ 748 million will be grants and U.S.\$ 170 million "soft" loans by the European Development Fund and the European Investment Bank. A special fund of U.S.\$ 65 million has been set up to provide emergency assistance to countries which have been hit by severe falls in world prices of their export products or by natural calamities. Under the Arusha Convention, signed in late September, the EEC will suspend duties and quantitative restrictions on most imports from Kenya, Tanzania and Uganda, with the exception of coffee, canned pineapples and cloves, for which duty free quotas are specified. The three east African countries, in return, will grant tariff concessions ranging from 2 to 9 percent on 58 products imported from EEC countries. Both agreements will become operative as soon as they are ratified by the countries concerned, and will expire at the end of January 1975.

²¹Cameroon, Central African Republic, Chad, Congo (Brazzaville), the Democratic Republic of the Congo, Dahomey, Gabon, Ivory Coast, Malagasy Republic, Mauritius, Niger, Rwanda, Senegal, Togo, Upper Volta.

²²Cameroon, Gabon, Congo (Brazzaville); Chad and the Central African Republic have withdrawn membership.

Chapter III. - AGRICULTURAL MARKETING IMPROVEMENT PROGRAMMES: SOME LESSONS FROM RECENT EXPERIENCE

In a primitive economy agricultural marketing is mostly a simple affair requiring a minimum of organization and capital equipment. When most of the population grows its own food and provides its household needs from local materials, marketing is largely confined to the local exchange of farm surpluses, with only a very limited longer range trade in special foodstuffs and manufactured goods.

As a subsistence economy progresses toward a monetary economy, the whole scope and pattern of marketing functions have to be transformed. Development means increasing specialization and intensification in the production of goods and services so that more and more goods have to be moved between one group of producers and another. The most obvious feature of this development is that an increasing proportion of the population is concentrated in cities, employed in nonagricultural production and dependent on marketing channels for its food. In addition there is a growing commerce between one agricultural area and another as farmers increasingly give up their self-sufficiency in food in favour of specialized production. Meanwhile agricultural exports to earn foreign exchange are normally stimulated so that marketing organization has to develop also in that direction. Under each of these influences, the quantities of crops and livestock products to be handled will multiply and the distances over which they are marketed will increase.

At the same time, as consumer incomes rise, demand will become more discriminating and wider variety and higher quality will be sought, particularly by expanding groups of higher income consumers in urban areas. The complexity and scale of operations are particularly increased by the expansion of processing industries to meet the demand for new forms of products and allow marketing over wider areas. At a later stage, competitive promotion of sales through merchandising, advertising and special services also assumes an increasing importance.

Moreover, once agricultural development gathers momentum toward greater intensity of production, the converse marketing processes of supplying the inputs needed for modern production of crops and livestock also assume a growing importance. This involves not only the distribution of fertilizers, chemicals, machinery and equipment but also the provision of improved seeds, seedlings, animal feedstuffs and breeding stock.

Consequently, the share of economic resources devoted to the various aspects of agricultural marketing inevitably grows in relative size and importance as development proceeds and more and more functions and services are needed for the handling of agricultural produce and inputs. The channels between producers and consumers must be continuously developed and broadened, otherwise production will obviously be constrained. Moreover, an effective marketing sector does not merely link sellers and buyers and react to the current situation of supply and demand. It has a dynamic role in stimulating output and consumption, the essentials of economic development. On the one hand, it creates and activates new demands by improving and transforming farm products and by seeking and stimulating new customers and new needs. On the other hand, it guides farmers to new production opportunities and encourages innovation and improvement in response to demand and prices. Its dynamic functions are thus of primary importance in promoting economic activity and for this reason it has been described as "the most important 'multiplier' of economic development."¹

In practice, however, the difficulties and complexities of these processes and their significance in economic progress have often been underrated, probably at heavy cost to economic development. Attention in national planning and investment effort has too often been focused excessively on production, under the apparent assumption that, once crops were produced and roads and railways built, the development of markets and the means of serving them would be a relatively straightforward matter. Therefore FAO has always found it necessary to stress the importance of marketing improvements as an integral part of agricultural development, and a significant part of the Organization's efforts has been directed toward the greater efficiency of marketing and the planned evolution of facilities, services and organization to cope with modern needs.

It is obviously impossible to deal here with all the topics involved in marketing improvement programmes or to draw firm conclusions applicable to all countries. The method chosen is to begin with a discussion of the

¹P.F. Drucker, Marketing and economic development, *Journal of Marketing* 22(1), 1958, p. 252-259.

general relationship of agricultural marketing and economic development and then to proceed to examine in some depth two aspects of marketing improvement which, in FAO's experience, are of particular importance to most developing countries: the relation of marketing to the planning and implementation of agricultural price policies, and the relative role of private enterprise and public bodies in marketing. The main theme of this discussion is that marketing improvement programmes should make optimum use of

existing resources of capital, management and organization, and that the role assigned to public bodies, cooperatives and private enterprise should be determined in this light. However, increasing public support is indispensable in providing basic services, facilities and incentives to promote the growth and functioning of modern enterprises and methods, and the final section comments on the essential role of governments in creating the necessary conditions for marketing development.

Marketing and economic development

Growth of expenditure on marketing

In discussing marketing and its improvement, the concern here is with all stages in the movement of farm produce from the point of production until it is either exported or purchased by the domestic consumer, and also with the supply of farm inputs. The scope of the discussion therefore includes producers' sales, packing, transport, storage, quality control, processing, distribution through wholesale and retail channels, and final consumer purchases. The cost of these marketing services varies from product to product, depending on such factors as the degree of processing and costs of transport and storage. When only local transport is involved, normal marketing margins for individual staple crops in developing countries may be quite low; but, taking all agricultural commodities and all marketing functions together, the total marketing bill is likely to be at least as much as the primary producer's price. This was recently found to be the case in estimates derived for several Latin American countries, and published statistics for Spain show that, in 1964, marketing costs accounted on average for 51 percent of the consumer price of foodstuffs.²

Empirical evidence shows, moreover, that national economic development is associated with a continuous increase in the importance of domestic marketing expenditure in relation to farm production cost. In the early stages, this inevitably follows from the shift away from subsistence farming toward production for sale. Later it is associated with a progressive increase in the services provided by the marketing sector, especially through processing or conditioning, quality improvement, packing, presentation and wider distribution. To some extent the cost of extra services and processes is offset by improved transport, storage, handling and general efficiency but, as the average consumer becomes wealthier, he is prepared to spend more on higher qualities and extra convenience. The size of the human stomach is limited but the appetite for extra services appears to be insatiable.

² Agricultura y desarrollo (Coloquios desarrollados con motivo del seminario organizado por la Asociación Nacional de Ingenieros Agrónomos), May 1967, Madrid, p. 155.

On the whole, it is the extension of services rather than the increase in unit costs which accounts for the progressive increase in marketing margins. But there is also some evidence that a contributory cause, particularly in the later stages of economic development, is the slower increase in labour productivity in marketing operations than in agriculture. It is true that there can be radical changes in marketing organization and techniques which bring rapid increases in productivity: the development of supermarket chains and self-service methods is an important case. On the whole, however, there tends to be less scope for major technical innovations and for economies of scale in marketing than in production. To take the example of Spain again, it is estimated that, from 1955 to 1962, the mean annual increase in labour productivity was 4.7 percent in agriculture compared with 2.41 percent in commerce and 2.45 percent in transport and communications, the sector within which agricultural marketing mainly falls.³ In the United States it was estimated that, between 1929 and 1963, output per man-hour increased in agriculture by an annual average of 3.8 percent and in food distribution by an annual average of 2.6 percent.⁴ The overall effects of these two sets of factors — extended services and productivity differences — on the relative size of marketing margins are illustrated by the data for the United States shown in Table III-1.

Meaning of marketing efficiency

It may be useful at this point to comment on the concept of efficiency in marketing. Efficiency in the physical handling of a product is a matter of procedure, technique and scale of operations. For example, a modern silo with driers and elevators may almost eliminate physical wastage and handle large quantities of grain rapidly and thus be technically efficient; but if it is expensive to operate, it may be preferable in terms

³Source: L. Castro Rodríguez, Problemas actuales del mercado agrario, *Revista de Estudios Agro-Sociales* (51), Mar.-June 1965, p. 15.

⁴See Hazen F. Gale and Thomas R. Van Horn, Labour productivity in food distribution. *Marketing and Transportation Situation*, Feb. 1968, p. 12-20.

TABLE III-1. - UNITED STATES: CONSUMER EXPENDITURE ON FOODS ORIGINATING ON DOMESTIC FARMS, FARM VALUE, AND MARKETING BILL AND ITS COMPONENTS, 1947, 1954, 1958 AND 1963

	1947	1954	1958	1963
..... 1 000 million U.S.\$				
Consumer expenditures:				
of which	41.9	51.1	61.0	71.5
..... Percent				
Farm value	46.1	36.8	35.3	31.7
Total marketing bill	53.9	63.2	64.7	68.3
Composition of total marketing bill				
Assembly	5.7	4.9	3.8	3.5
Processor	35.8	38.1	40.0	38.8
Transportation	5.3	5.3	4.8	4.3
Wholesaler	9.8	7.3	9.4	9.0
Retailer	22.2	22.0	22.0	23.5
Eating places	21.2	20.4	20.0	20.9

Source: Adapted from *Marketing and Transportation Situation*, Aug. 1966, Table 6, p. 13.

of final costs to use simpler and cheaper equipment and sustain some losses of grain. The latter option is then more economically efficient. Clearly in marketing improvement programmes the final criterion for change ought to be economic efficiency. This is maximized when goods are moved from producers to consumers at the lowest possible cost consistent with the provision of the services that the producer and the consumer demand. The latter condition is important since it means that an increase in marketing efficiency does not necessarily involve a reduction in overall costs: it often means an improvement in final product quality or services at a less than proportionate increase in costs.

It would, however, be unrealistic to expect marketing policies, especially in developing countries, to be determined and pursued with single-minded attention to the criterion of economic efficiency in marketing terms alone, and it is proper that national planning in this field as in others should take account of social as well as economic costs and benefits. For example, when there is already serious underemployment, public authorities may be reluctant to introduce improved crop handling methods based on mechanized equipment if this would displace large numbers of labourers. Again, it may be considered desirable on social as well as general economic grounds to maintain a railway line and to promote the transport by rail of commodities which, in terms of direct costs to the carriers, might be more cheaply marketed by road. Or again, it may be decided to promote cooperative methods of marketing even in situations where they may not be commercially competitive with private enterprise. Moreover, as will be emphasized later, new marketing organizations often have other economic aims such as revenue collection, foreign exchange control or the implementation of price policies. To require marketing arrangements to support other economic, social and political purposes in these ways may be perfectly rational, especially in developing countries where the means for policy implementation

tend to be somewhat more restricted than in developed countries. At the same time, it is important to recognize that the marketing cost then includes a subsidy to other sectors, and planning should always seek to identify and evaluate this so that the main concept of true marketing efficiency is not lost.

Pressure for marketing improvements

It would be quite unrealistic to attempt here an overall review of the main shortcomings of existing marketing arrangements in the developing world. The problems and opportunities confronting a relatively urbanized country in Latin America and a savanna zone country in central Africa clearly call for very different approaches. Nevertheless, it is possible to distinguish at least five main areas in which the pressure for marketing improvements particularly arises in most of the developing world.

Supplying urban markets

The continuing migration of population from the countryside to the towns is a conspicuous feature in practically all developing countries. As Table III-2 shows, nonagricultural population is expected to continue to grow overall between two and three times as fast as agricultural population. In some cases, the development of individual cities has been spectacular; for example, the population of Kinshasa in the Democratic Republic of the Congo has grown from an estimated 300 000 in 1960 to about 1 million in 1968.

The growth of cities is the foremost factor in changing the traditional patterns of agricultural marketing. Crops have to be assembled and moved in unprecedented volume from wider and wider areas to serve the concentrated mass market. Moreover, city populations normally include the highest income groups in a country and therefore also provide a growing market for a wider variety of quality foods and luxuries, and a demand for more elaborate sales services. These circumstances can provide a powerful stimulus for the evolution of new marketing methods and forms of organization. Small-scale traders with a minimum of capital equipment and facilities are coping to a remarkable extent with the changing situation in

TABLE III-2. - PROJECTED POPULATION GROWTH RATES AND SHARES OF AGRICULTURAL AND NONAGRICULTURAL POPULATION, 1962-85

	Population growth			Share of nonagricultural population in total	
	Total	Agricultural	Nonagricultural	1962	1985 (projected)
..... Percent					
Africa	2.5	1.8	4.8	18	30
South America	2.7	1.6	3.5	56	66
Near East	2.7	1.1	5.0	33	54
Asia and Far East	2.5	1.8	3.8	30	40

Source: FAO Indicative World Plan for Agricultural Development to 1975 and 1985, Provisional regional studies.

many large cities, but it becomes increasingly necessary to support and supplement the services which they provide by introducing larger scale facilities and organizations adapted to the modern requirements of intensive marketing.

The need is most important in the marketing of perishables, especially fresh meat and milk, and to a lesser extent eggs, fruit and vegetables, since the assembly and distribution of these products on a large scale demand high-speed operations and special equipment and facilities. Heavy capital investments are often involved and central market premises may be needed as well as special stores and refrigerating units. Dairy products and meat require processing plants and equipment suitably integrated with an organization for quick and hygienic distribution. Sometimes effective modernization in these fields is quite beyond the unaided powers of the existing private ventures, while local circumstances may not favour the entry of new organizations which could furnish the necessary capital and enterprise. Major improvements must then depend on the initiative of public authorities in providing essential facilities and in encouraging the formation of modern enterprises.

Export marketing

Most developing countries are striving to promote agricultural exports, not only of their traditional products, but also of new commodities and of processed items. For the long-established export lines, marketing arrangements are usually already fairly well organized. This is a field which has long attracted capital and enterprise, both local and foreign, and the exporters are usually handling standard commodities such as sugar, rice or vegetable oils and oilseeds destined for large international markets. In some leading cases, especially in Africa and Asia, public boards and agencies are now involved in this trade, exercising central control over organization and fixing the prices paid for production and marketing services. There are also many cases where specialized marketing, often integrated with production and processing, is highly organized under the control of an international company. Exports of bananas, canned fruit and meat products are usually managed in this way.

In conditions where export marketing through large-scale private enterprise is either impossible or inappropriate, there are complex problems in promoting new exports under the fiercely competitive conditions now existing in international markets. This is especially true for the export of perishable products where success calls for a high degree of organization and control over all stages of the marketing process. For instance, those northeast African countries which have a surplus production of mutton and beef have a potentially valuable market in the countries of the Near East, but they have so far been unable to overcome sufficiently the problems of quality control and marketing organization to compete on adequate terms with suppliers in New Zealand and Australia. New opportunities for entering distant markets for high-value

perishable products are emerging as air transport services become cheaper and more widespread. The handicap of distance from consumers becomes less important and successful competition then depends rather on organization and enterprise in marketing. Suppliers in California, Florida and Israel have already been prominent in exploiting these new opportunities and good progress is being made in certain developing countries such as Kenya whose exports of high quality strawberries and other items by air to London have for several years exceeded an annual value of U.S.\$ 1 million. Other developing countries, such as Madagascar and several in continental Africa, have specially favourable conditions for producing tropical fruit, vegetables and flowers for sale in Europe and, provided they can build up an efficient marketing organization, they too may develop substantial new business.

Marketing problems of processing industries

It is logical that most of the developing countries should attach great importance to the promotion of agricultural processing industries. Processing for export can increase foreign exchange earnings, while processing for the home market allows import substitution and so saves foreign exchange. Employment and incomes are created, agricultural production is stimulated, and the processing plant itself forms a core of activity around which other economic activities and services will develop. Consequently there is great pressure to increase the local supply of processed products for the domestic market, to process more of the conventional export crops before sending them out of the country, and to develop new exports in processed or manufactured forms.

The potential advantages of processing agricultural products for export as consumer goods are particularly attractive, but competition on world markets is keen and entry for new enterprises is extremely difficult, especially for canned or packaged food products which are usually differentiated and sold under brand names. It is no coincidence that those developing countries which are prominent as exporters in this field normally make use of the marketing organizations and brand names of leading international canning companies.

A number of countries have pursued the more modest aim of building canning industries to serve their own domestic markets but, here too, lack of efficient marketing has frequently proved a fatal weakness. High distribution costs, poor quality products, inferior presentation and lack of sales promotion have restricted progress, even when a ready market existed and the local industry was helped by tariff protection to face the competition from imports. In other cases the failure has been in economic and marketing research and planning, as well as in operational marketing, since products have been launched on the unwarranted assumption that they could themselves promote adequate markets. The inadequacy of raw material supplies and inefficient arrangements for buying and assembling have also been familiar causes of the downfall of processing projects. To sustain an industrial

processing plant, supplies of primary produce from the farms must be standardized, regular and reliable in both quantity and price, and this cannot be assured without special organization and experience.⁵

For several major crops, such as rice, oil palm fruit or fibres, processing is a necessary part of the local marketing sequence. As long as arrangements for buying these crops from the farm and transporting them to markets remain fragmented, it is impracticable to introduce improved processing methods which require well-organized supplies and regular throughput. In west Africa, for instance, a large part of the production of palm oil is processed by primitive methods which extract only 40 to 65 percent of the total oil content of the palm fruit. The modern hydraulic hand press can extract over 90 percent while large-scale mills obtain up to 98 percent and also yield a higher quality oil. However, profitable openings for the use of such equipment are greatly restricted by difficulties in organizing the collection and transport of palm fruit. In many parts of the world major foodstuffs are processed on a household basis by traditional methods which involve considerable drudgery and are technically far less efficient than modern mechanical methods.

It has to be recognized that the pressure is not always in favour of mechanical and commercial methods of processing. For example, the Government of India has been concerned on social, employment and nutritional grounds that the household processing of rice should be sustained. In some parts of the world, processes such as the extraction of palm kernels for sale are traditionally part of the household work of women who are reluctant to give up what may be their only means of earning a little cash. However, development must ultimately involve the increased use of modern methods, and some centralization and major improvements in marketing are then essential to make the commercially processed product available to increased numbers of consumers at acceptable prices. A significant project is now in progress in Niger to develop the commercial production of millet flour in place of the traditional pestle-and-mortar method.⁶ It has been proved that the new mill has clear advantages in technical efficiency and in the cleanliness of its products. The central question now is whether the products can be distributed at sufficiently low prices to win a substantial market and this will depend on the successful creation of new distribution and sales channels.

The development of commercial processing of foodstuffs is also significant for the improvement of the nutritional quality of diets since it offers a means of quality control or enrichment by additives. In Israel, when the national diet was deficient in protein, it was

made obligatory for the baking industry to add a small percentage of soybean flour in bread making. There are important areas in the developing world where the authorities are interested in similar kinds of measures to help correct protein and vitamin deficiencies.⁷ Clearly such programmes of food enrichment can be greatly facilitated if lower income consumers are supplied with at least a part of their staple foods through commercial processing plants.

Better marketing as an aid to increasing farm output

Every improvement in marketing efficiency under a competitive system is a potential benefit to producers, either through reducing marketing margins and allowing higher net farm prices, or through stimulating extra consumption and increasing effective demand for the farmers' output. As already discussed and illustrated in Table III-1, the primary producer often receives for his commodities less than half of the price paid by the final consumer. Even modest improvements in the marketing channels leading to more effective competition, less deterioration in quality, more economical handling and transport can then significantly increase producer prices and stimulate production development. In other circumstances, it is rather a question of extending the marketing organization to new areas; even fair guaranteed prices will not attract the farmer unless they are offered regularly at some accessible point.

In a number of countries, marketing improvement must begin by facing the problem of chronic producer indebtedness. The moneylenders in rural areas are usually local traders, providing credit in the preharvest months against the security of the farmer's growing crops. In some circumstances, this represents a valuable service but in other cases the role of the trader-moneylenders is less defensible: their local monopoly position and their right to take over crops in settlement of debts may result in harsh terms for the producer. In Iran merchants and commission agents are the principal source of production and subsistence credit for numerous small-scale farmers and the extent to which individual trader-creditors are able to dominate their clients is regarded as one of the major problems of agricultural development in that country. In an area study in Iran almost all vegetable growers were found to have accepted advances and pledged their crops, and it was estimated that owing to their weak bargaining position they received only approximately 12 percent of the retail value of their produce. In such a situation the farmer is likely to lose all initiative in the sale of his crop and all hope of favourable prices; he despairs of improving his lot by greater effort and remains close to the subsistence level. This can be

⁵ See H.J. Mittendorf, Marketing aspects in planning agricultural processing industries, *Monthly Bulletin of Agricultural Economics and Statistics*, (FAO), 17 (4), 1968, p. 1-8.

⁶ United Nations Special Fund Project No. 319, Feasibility Study for the Industrial Development of Millet, with headquarters at Zinder in Niger.

⁷ Increasing attention is being given to the possibilities of enriching basic foodstuffs with lysine and other amino acids on a commercial scale. See U. Kracht, *Economic aspects of the supplementation of cereals with lysine*, mimeographed by FAO for presentation to the *Ad Hoc* Group on Amino-Acid Fortification, Rome, May 1969.

disastrous in economic as well as social terms, since it prevents the accumulation of farmers' savings and the productive investments that are so necessary to rural development.

Particularly in some parts of Asia, producers are so tied by their indebtedness that new systems of primary marketing to restore their initiative and incentives have been considered indispensable to real progress. The problem is formidable and it is widely believed that the most suitable approach to it is usually the long-term policy of sponsoring cooperative organization among the farmers so that they ultimately take over some of the functions of assembling produce for market and increase their market power in relation to the buyers. At the same time alternative sources of production credit may have to be developed, otherwise the dominance of the money-lending traders can never be challenged. Funds on the necessary scale can only be made available with government assistance, and only governments can have the authority and promote the organization needed to tackle these huge and hitherto intractable problems.

Supplies of production requisites

Once the intensification of farm production begins, producers must also rely increasingly on the marketing sector for the supply of production requisites. The problems of providing fertilizers, improved seeds and other materials and equipment to producers in remote areas are particularly acute in many cases because the need for these goods is increasing rapidly and the traditional marketing channels are usually not adapted to handling them.

The massive inputs of fertilizer envisaged under national agricultural development plans, especially in connexion with high-yielding varieties of cereals, will in many cases involve a five or tenfold increase in the quantities to be stored, packed and distributed. This demands a rapid development in the marketing arrangements and at the same time it is highly desirable that distributors should be able to provide farmers with the kind of technical advice that is already an accepted service in the more developed countries.

Specialized services are also involved in the distribution and sale of agricultural machines and modern equipment. The elaborate organizations of accredited manufacturers' agencies with technically trained salesmen, spare parts depots, performance guarantees and after sales services, which are considered indispensable in developed countries, exist only in rudimentary form in many developing countries and already need to be greatly expanded and improved to match current progress in farming techniques. Comparable developments are also needed for the marketing of seeds and seedlings where improved high-yielding varieties are coming into general use. Instead of conserving their own planting materials, producers will make increasing use of hybrid and

synthetic varieties from research and breeding centres, provided there are the necessary means for reliable distribution at fair prices. In many areas this is a completely novel form of marketing and will require the promotion of new and specialized businesses.

It is frequently suggested that when statutory organizations exist for crop marketing they can conveniently fulfil the converse function of marketing inputs. In some cases, as in Morocco, Algeria and Ceylon, this is being done, but more often a central statutory body has difficulty in adapting itself efficiently to these specialized services. For want of other suitable institutions and enterprises, government services are often obliged to undertake the direct distribution of fertilizers, chemicals, equipment, seeds and other inputs needed for production development schemes, in spite of the problems involved. But, in any country where the demand for regular marketing services in these fields is growing in scope and variety, there is an evident need to promote ventures specially adapted to this work. At the same time, the cooperative unions and other farmers' organizations, which already play a major part in this field in such countries as India and Ceylon, clearly have a major role to play and in many parts of the world may be almost indispensable in providing a supply and credit service to small farmers.

Form of the problem

To sum up the problem, primitive and high cost methods of agricultural marketing are incompatible with sustained economic growth in general and with agricultural development in particular. It is difficult to generalize on a world-wide basis but the preceding paragraphs have suggested that the modernization of marketing is especially needed, on the one hand, to meet the needs of growing urban populations, to expand overseas trade and to support processing industries and, on the other hand, to allow production development by improving sales outlets for farmers and by furnishing them with necessary inputs.

The interdependence of marketing and production in agricultural development has to be fully recognized in any discussion of these problems. Producers will only expand their output to the extent that a marketing organization allows them to sell on profitable terms; nevertheless, production development schemes in the past have often failed to make due allowance for this condition. On the other hand, marketing arrangements can only work insofar as they suit the circumstances of the producers, and plans for new systems have frequently failed on this account. Development programmes for production and marketing should be considered inseparable, and inadequate liaison between those responsible for planning each of the two aspects has been an impediment all too familiar in some countries.

Official price policies and marketing

Motives for government action

The form and implementation of price policies is a matter of central importance for marketing improvement. In the interests of development and public welfare, governments inevitably find it increasingly necessary to concern themselves actively with prices of agricultural produce. In some cases their main concern is to raise the prices and incomes of producers both to improve their immediate welfare and to stimulate the extra production needed by the developing country. In other countries, particularly those with large urban populations, as in Latin America, national price policies are largely concerned with the need to restrain food prices and living costs and to control inflationary pressure. In India too, in the face of recurrent food shortages, price controls have been a prominent feature. Sometimes the price policy is explicitly designed to benefit both producers and consumers by combatting excessive market fluctuations and stabilizing prices at a generally acceptable level. The reduction of marketing margins and an attack on excess profits by traders may be an important element in this situation.

The concern here is with pricing in relation to marketing methods and efficiency and, while price policy obviously has objectives beyond the scope of marketing, the two subjects are usually inseparable in the circumstances of a developing country.⁸ This is because the organization of marketing and at least some measure of control over the movement of commodities are indispensable to official action to influence prices, especially in the case of crops marketed internally. In an advanced economy there may be sufficient evidence of prevailing price levels and marketing costs to allow producers' returns to be known fairly accurately. Then, where production is on a substantial scale and producers are literate, they can be registered and dealt with individually and there is a basis for detailed production quotas or official payments of grants, support prices or tax rebates. In a less developed country such arrangements are impossible and a more practical approach is to influence directly the prices of products in the marketing channels.

The more directly the marketing channels are under official control, the easier it is to implement a price policy. Consequently, statutory bodies with more or less comprehensive control over the marketing of crops have been set up as a means both of marketing improvement and of effective price control, and it is impossible to disentangle the two motives. Indeed, the particular form taken by statutory marketing organizations may owe less

to considerations of marketing improvement than to ideas of price control.

Price policies and official marketing systems

Since the second world war it has become common for the governments of developing countries to assume a large measure of direct responsibility for marketing their main export crops. Since agricultural exports are in most cases the principal earners of foreign exchange, and since in earlier years they were normally marketed and sold abroad by foreign owned enterprises, it was natural that governments should particularly concern themselves with this sector. The issue here was not simply one of price policy or of marketing improvement, but also of securing adequate control over the country's foreign trade. Either by licensing and controlling private exporters or by channelling exports through publicly owned organizations, most governments have been able to control the repatriation of earnings from their major export crops and so, to some extent, manipulate the prices paid to producers.

In Nigeria, Ghana, Sierra Leone and the Gambia, for example, statutory marketing boards with monopoly control over exports of cocoa, palm produce, cotton, groundnuts and other oilseeds were fully established long before those countries became independent.⁹ Through their licensed buying agents the boards have been able to control prices directly down to the level of official buying stations located within walking distance of most producers in the denser crop-growing areas. Between those points and the farms, trade has not been directly controlled, but competition between traders in this limited sector has generally been keen enough to protect the producers from exploitation.

In most of the French-speaking countries of Africa and in Madagascar, the 1950s saw the regulation of exports by means of *caisses de stabilisation*, whereby the export produce was left throughout the marketing process in the hands of private enterprise but producer prices were officially fixed and controls established over margins and profits.¹⁰ In comparison with operational marketing boards, this system has the obvious merit of requiring only a small official organization and little working capital. On the other hand, it allows only incomplete control over sales and overseas marketing costs, and can do little to improve actual efficiency in operations or to stimulate local participation in the marketing sector and build up new marketing enterprises. This system is still in use in Ivory Coast and Madagascar and for certain crops in other countries, but it has mostly been superseded by methods of control which involve public bodies more directly.

⁸ A broader discussion of official price policies for farm products was presented in FAO, *The state of food and agriculture 1967*, chapter 3, Incentives and disincentives for farmers in developing countries, Rome, 1967.

⁹ For a detailed discussion of the structure and operations of such export monopoly trading and price stabilizing boards, see FAO, *Agricultural marketing boards: their establishment and operation*, chapter 5, FAO Marketing Guide No. 5, Rome, 1966.

¹⁰ For details of the structure and operations of boards which stabilize prices without trading, see FAO, *op. cit.*, chapter 3.

In domestic crop marketing there has usually been less reason for governments to enforce marketing exclusively through official channels. Internal food crop marketing, unlike export crop marketing, has been mainly in the hands of local traders and the case for nationalization of the system has not usually arisen. Moreover, the complex patterns of domestic trade are not normally susceptible to efficient control by a central organization unless it can command capital, management and skilled manpower on an abnormal scale. Consequently, price policies and marketing improvement in domestic crop marketing have usually been pursued by administrative action, export-import controls, official trading in the open market or other such means which fall short of total direct control of the trade.

There are, however, notable exceptions, including such countries as Cuba, Burma and Guinea where the Government has sought development through close central control of the national economy and has largely taken over marketing functions from private enterprise. Another special case is Kenya, where the Maize and Produce Board is responsible for the payment of guaranteed producer prices and for handling all marketed supplies of maize, which is the basic national food crop. Controls in this case are facilitated because a substantial part of the commercial maize crop is grown on large farms and because there is a good transport network for the necessary movement of supplies. There have been protracted debates over the efficiency of the Kenyan system in comparison with possible alternatives that would allow freer movement of prices and more initiative by private enterprise. Given the Board's present standards of management, the evidence marshalled for and against the present system has been fairly well balanced.

Schemes for the overall control of basic food crop marketing on somewhat similar lines have been introduced in a number of other countries where the conditions have been less propitious than in Kenya. In varying degrees the central marketing organizations have failed to secure full monopoly control and have been unable to exercise their full legal responsibilities. There has been a tendency for private trade to reassert itself, either in black market operations or with the tolerance of the government, and in some cases the official organization has been largely forced out of business.

Benefits and costs of price stabilization

The idea of complete stability of prices within and between crop years has had a strong appeal to some public authorities but, even if it can be achieved, it is likely to carry a heavy economic cost. In the first place, enforced price stability for producers between one year and another is of dubious advantage if climatic conditions cause major changes in crop yields, since stability of prices then means instability of incomes. Moreover, between the end of one harvest and the beginning of the next, there are appreciable costs involved in crop finance and storage, and it is reasonable that these should be reflected in moderately rising prices during the course of the year. In any case, hardships and difficulty are caused

by acute shortages and heavy surpluses of supplies and by the associated wide fluctuations and uncertainties of price; moderate price movements to adjust market supply and demand are normally not objectionable.

Consequently the benefits to be derived from partial or general price stabilization need to be very carefully estimated in relation to the costs required to achieve them. If stabilization involves the creation of a large public organization, it may entail an increase in marketing costs and a drain on public funds which more than outweigh the advantages of more stable prices. It may be more realistic to seek only a modest reduction in price fluctuations, since this may be achieved with much less cost and effort than are involved in a more thoroughgoing system and the risks of failure are correspondingly less. This is particularly significant for the poorer countries which can least afford to commit skilled manpower and capital to the execution of major stabilization schemes.

Official price stabilization schemes involving various forms of stock-holding operations are found in many parts of Asia and in every country of Latin America. In India, for example, the Government's extensive participation in food-grain marketing has included the handling of United States grains imported under Public Law 480 arrangements and has involved legal price fixing and controls on private trade. In Argentina the grain board (Junta de Cereales) competes with private businesses and engages in the export trade, handling as much as 60 percent of the total wheat crop in 1965. Any official body which is capable of handling such a substantial part of the national output must maintain a large and expensive organization and, at least under Latin American conditions, ample storage and other handling facilities. The nature of the operations involved means that these facilities may only be fully used at irregular intervals as, for example, in Brazil where the official programme found it necessary to buy 27 percent of the total rice crop in 1965 and none at all in 1966. In terms of overhead marketing costs, such well-backed stabilization and support schemes are therefore apt to be very expensive and often beyond the means of smaller countries. One way of reducing the overheads is through regional cooperation, and this is one reason why the Central American countries are considering the establishment of a regional price stabilization scheme.

There is nevertheless growing interest in various countries in more restricted stabilization schemes¹¹ and in some cases buffer stocks of grain are being provided by the United Nations/FAO World Food Programme to initiate operations. The stocks are sold at the appropriate stage to generate working capital for further purchases of local grain. Experience suggests that the best prospects of success in the less developed countries are through schemes which begin cautiously, handling only limited tonnages and seeking only a modest impact on prices in

¹¹See H. Creupelandt and J.C. Abbott, *Stabilization of internal markets for basic grains: implementation experience in developing countries*, *Monthly Bulletin of Agricultural Economics and Statistics* (FAO), 18 (2), 1969, p. 1-9.

the initial stages. The technique is to buy up grain shortly after harvest when supplies are abundant and prices at their lowest, store for several months and sell toward the end of the crop year when market stocks are low and prices approach their annual peak. As a buyer the official agency aims to offer slightly more than the current market price at times when supplies are abundant. As a seller it aims to enter the market when prices approach their seasonal peak, supplementing supplies at prices below those ruling in the open market. From the margin between its buying and selling prices, it must cover all operating costs, which are likely to include substantial expenses for storage and transport from surplus to deficit supply areas. Its stabilizing influence on a national scale thus depends not only on the size of its purchases but on the narrowness of the margins within which it can operate.

There is evidence that limited schemes based on judicious buying and selling by an official body of even less than 20 percent of the marketed crop may significantly reduce the extremes of seasonal price movements, providing the operating costs can be kept to commercial standards. At the same time the pressure of competition from the official buyers may serve to check excess profit-taking by powerful traders and stimulate them to greater efficiency. Operations were begun in Dahomey in 1964 in this way on a very limited scale, and it appears that the annual buying programmes are now having a significant influence in the markets in the southern part of the country.

There are, however, two main dangers inherent in price stabilization schemes, whether large or small. The first is that they may be required by governments to follow uneconomic price policies or be subjected to arbitrary instructions. The unsatisfactory record of many national price stabilization agencies, especially in Latin America, has been largely due to inconsistent policies which have frequently resulted in failure to improve matters either for producers or consumers. The second danger is that, because of excessive overhead costs or other causes, the official ventures prove unable to compete with established traders, in spite of the apparently excessive margins which these traders take between buying and selling prices. Indeed, it is a common mistake to underestimate the practical costs of marketing in less developed areas especially the costs of operations by a new public body which probably supports well-paid management and substantial overheads. A recent feasibility study in Chad concluded that, if millet were purchased in surplus-growing areas at 12 CFA francs per kilogramme, it would be necessary to sell it at an average price of 25.5 CFA francs six months later in the deficit areas in order to break even.¹² If the new organization were inefficient or failed to handle an economic quantity of grain, its margin would be still wider and its price stabilization influence correspondingly reduced. In a number of cases where price stabilization agencies have been established, because of their high operating costs

they have proved unable to influence market prices without the aid of recurrent subsidies from public funds.

In many developing countries, governments have considered it necessary to go beyond a moderate stabilization of prices and to stipulate official fixed prices, often at each stage of the marketing process. The reasoning behind such controls is normally that they are needed to protect either producers or consumers against the effects of some chronic instability of supply, or else that they are necessary to defeat excessive profit-taking by traders. The first argument usually has more validity, but the second is more common. The main indictment of such controls, except in special circumstances, is that they are unlikely to be made effective, while at the same time they distract effort from the more relevant task of improving marketing efficiency. General control may be achieved, as in India where the price regulations are related to massive official intervention in the market and central control of imports. An impact may also be achieved, as in Cyprus where the authorities can deploy a reliable inspectorate to enforce prices for certain commodities in markets and shops. But more often, and especially in less developed countries, the means to maintain official prices simply are not available and levels can only be influenced by action to affect current supply in relation to demand. Repeatedly governments in Latin America have attempted to control marketing margins merely by official edicts and these attempts have invariably failed. Elsewhere, as in Niger or Madagascar, there have been abortive attempts to dictate official producer prices in the same way. Such action may meet a political need in showing the public that the government is watching their interests, but the practical effects on prices and marketing are not likely to be significant.

Price policies in support of efficient marketing and quality improvement

Often the official price for a crop is uniform at all buying points throughout the country and, for a commodity which must eventually all be marketed in a certain locality or exported through a particular port, this uniformity may be detrimental to production and marketing efficiency. Unless there are special considerations, such as the need to give special assistance to production development in particular areas, official prices at various buying points ought to reflect costs of transport to market by the most direct route; price differentials then give an appropriate incentive to crop development in districts nearer to the markets or ports, and also encourage movement from farm by the most direct route. These inducements are lost in countries with a uniform buying price system and bring a danger of misallocation of production resources as well as uneconomic use of transport.

Of greater significance is the difficult problem of quality control and incentives in relation to price policy. In Malaysia, for example, although a legal minimum price for rice of a standard quality has been in force for many years, this was not at first associated with provision for official grading and inspection. Traders dealing with

¹²Of this margin, transport costs accounted for 5 CFA francs.

producers were able to make arbitrary deductions from the official prices on the grounds that the producers' rice was substandard in terms of moisture and impurities. Producers, finding that they could not earn due credit for quality, reacted by not bothering to dry and clean their rice properly and the end result was a fall in the general quality of the crop marketed.

Major quality improvements may involve investments by producers or local traders in new types of processing equipment, but the change will not be made under controlled-price marketing unless there is at the same time a clear and practical system of quality grades, supported by price differentials and reliable enforcement through inspectors. In Nigeria in the mid-1950s these requirements were met in a campaign to improve the quality of groundnuts for export by reducing the proportion of broken nuts and thereby inhibiting the increase in free fatty acid content. The traditional method of decorticating groundnuts was by pounding in a pestle and mortar and then winnowing kernels from shells, a method which commonly produced 70 percent of broken kernels. A new hand-decorticating machine for use on a farm or village basis was then introduced which could reduce breakages of kernels to less than 30 percent but the cost, equivalent to nearly U.S.\$100, was a serious obstacle. To encourage the use of the improved method, the marketing authorities prescribed a new special grade for groundnuts containing at least 70 percent by weight of whole kernels and instituted an attractive premium price for produce of that grade. Within three years, the new decorticators had come into general use, virtually all purchases were qualifying as special grade, the market value of the crop had been significantly raised and the special grade became the standard. Striking results were also achieved by using similar price and grade incentives in a campaign to improve the quality of palm oil through better methods of preparation.

In a developing country there are serious dangers of abuse in a price incentive scheme which is complicated or does not properly reflect market preferences, or where the differentials are too great in relation to the effectiveness of the control and inspection services. It is therefore desirable to concentrate only on important and clearly recognizable features of quality, and it may be necessary to ignore some characteristics which are not readily identifiable at field level even though they directly affect the market value of the crop. An example is the pyrethrin content of pyrethrum flowers grown by smallholders; in such a case improvement must be sought by means other than direct price differentials.

Prices, politics and public revenue

Although positive action on the prices of agricultural products may form an important element of the economic and political strategy of governments, the means available for implementing such price policies are likely to be limited, except where it is feasible to establish at least a considerable measure of official control over the marketing processes. Experience has forced many of the less developed countries toward more

modest objectives in agricultural price policy so that they aim at exercising only a limited influence on producer and consumer prices. Experience has also shown that, even in cases where the organization for implementing an effective price policy exists, there is a danger that policy will be poorly conceived and ill suited to promote production development.

The essential problem is that major farm crop and food prices are inevitably a political issue, and the policy makers are consequently subject to various political pressures which may be more cogent than the economic arguments. All too often a government has to decide between the conflicting claims of long-term economic advantage and short-term political advantage, and finds it necessary or expedient to give priority to the latter. In particular, the imminence of a general election has a well-recognized influence on price policies in many countries. It should be added however that, since governments often announce prices without having effective means to enforce their decisions, the economic damage done by such vote-catching policies may be minimal. A government may be concerned merely to show its potential supporters that it has benevolent intentions toward them, even though its means of helping them are limited.

Price policies may be subject not only to crude political pressures to please particular groups, but also to the claims for revenue from agriculture to support general development. In the typical developing country there is a pressing need for capital to invest in general development, and it is inevitable that agriculture as the largest sector of the economy represents the largest potential source of funds. For this reason, and also because they are relatively easy to collect, substantial duties on agricultural exports have become commonplace. More significantly, where the degree of organization in marketing allows, agricultural producers have in some cases been taxed heavily on the market proceeds of their crops. This has happened in the operations of the monopoly marketing boards in Nigeria¹³ and Ghana where all sales proceeds are channelled through the boards and where payments to producers have been very substantially reduced by deductions made by the board and the government in the form of taxes, duties and development charges. The extreme case has been in Eastern Nigeria where, for palm kernels in the ten years from 1956 to 1965, these deductions averaged £11.5 per ton marketed, leaving an average buying station producer price of no more than £26 per ton. It is reasonable to think that such policies have discouraged investment in future production and have hampered the development of the producing industry. When the deductions reach such very high levels, it is necessary to take account of the possible adverse effects on investment and development in the sector concerned and to consider

¹³ For a discussion on the Nigerian marketing boards in the dual role of producer price stabilization agencies and revenue collecting bodies see Helleiner, Gerald K., *Marketing boards and domestic stabilization in Nigeria, Review of Economics and Statistics*, 48, 1966, p. 69-78.

whether more of the national development funds could not be raised from other sources.

It is likely that unsound price policies are in some measure due to a genuine lack of awareness of the price formation processes in trade. Since it is normally impossible to control every marketing transaction between farm producer and household consumer, it is important to have due regard for the forces of supply and demand in any practical price policy. When a crop is marketed domestically and when supplies cannot be readily adjusted by imports or exports, local supply and demand have to be aligned and this can usually be done only through correct pricing. It may be possible to stipulate the price at which consumers will buy but, without the paraphernalia of a rationing system, it is never possible to set the quantities that they will buy at that price. Without elaborate controls, attempts to set prices according to criteria other than market supply and demand lead to shortages or surpluses and are doomed to failure sooner or later. This does not mean that it is always necessary or desirable to accept the free working of the price mechanism;¹⁴ it means that, unless the authorities have effective means of controlling supply or demand, official prices must respect market conditions or they will be flouted. Such means may of course be available when the country is a large net exporter of the crop concerned or when domestic production is normally supplemented by imports. There is then obviously much broader scope for effective price controls through the regulation of external trade. Provided the system is well administered, regulation of internal prices within limits through the control of exports and imports by reference to threshold prices may be effective and economical.

Unrealistic pricing also follows sometimes from a lack of data available to the policy makers. Statistics on production, consumption, stocks and local prices are inevitably imperfect, but major improvements in this field would still be within the reach of many governments if the importance of reliable data for planning were more fully appreciated. Lack of knowledge of the existing situation coupled with misjudgement of future production and consumption have sometimes involved serious costs and failures. Furthermore, where implementation of policy involves an official marketing organization, there is a danger that the operating costs and overheads may not be properly taken into account in

¹⁴ The case against undue reliance on the price mechanism is presented for example by T. Balogh with special reference to Indian conditions in *Some aspects of economic growth of underdeveloped areas*, chapter 1, New Delhi, National Council of Applied Economic Research, May 1962. The essence of his argument is that where the economy is split into sectors which are only partially interconnected, a freeing of the price mechanism and a letting loose of market forces could not possibly optimize the working of the economic system.

determining prices and margins. Unduly optimistic assumptions have sometimes been made on the prospective turnover and costs of the central organization involved in the programme, and experience then proves that it is neither able to work within the margins envisaged nor to compete effectively with private trade.

Evolution of price policies in conformity with marketing development needs

It is clear that agricultural price policy and marketing improvement programmes are two subjects which overlap and fuse at various points. Both tend to be based on increasing government involvement in marketing and often on public institutions which control or influence the movement of produce through the marketing channels. These institutions are normally intended to serve both ends simultaneously – to facilitate the implementation of price policy and to improve marketing efficiency – but in some situations, especially where the price policy is defective in economic terms, the two ends may not be wholly compatible and the drive for marketing improvement then tends to be neglected. There are some conspicuous cases where marketing bodies are no longer an active force for more efficient and low cost marketing but have become essentially instruments for administering price policies and collecting revenues through taxation on produce.

The development of more efficient marketing of itself contributes toward price stability, since easier transport, more extensive storage, preservation and processing, more promotion and initiative in trading all make for smoother adjustments between supply and demand. Consequently, a price policy based on methods which inhibit initiative and change in the marketing sector may prove increasingly expensive.

On the other hand, on grounds of general development and public welfare, governments cannot be expected to leave main food and farm prices to the free working of market factors once they have effective means of intervention. In this they will seek to follow the developed countries in keeping price levels, or at least price fluctuations, within acceptable limits. They will therefore increasingly work to develop ways of influencing prices by economic means, either through controlling exports or imports or, when necessary, by various forms of intervention in domestic marketing. Their aim must be to evolve methods which give the required measures of control and direction, without sacrificing efficiency or restricting the incentives and changes necessary for progressive marketing improvements. A central question is how official policy should seek to organize the resources of the public and private sectors to maximum advantage. Some considerations underlying the choice of methods are discussed in the following section.

The State, private enterprises and cooperatives in marketing operations

One of the crucial questions in marketing improvement policy is to determine how far the State ought to extend its direct responsibilities in the marketing field, and how far it should seek to promote cooperatives, private companies or mixed forms of enterprise. Obviously the issue is determined in some developing countries primarily on ideological grounds, but in most cases the field remains open to a variety of forms of public and private organizations, so that direct efficiency and contribution to development are major determinants. It is therefore of interest to examine the characteristic strengths and weaknesses of these different forms of enterprise and to consider how far it may be desirable for governments to extend their direct activities in marketing. While recognizing that firm judgement must always depend largely on local conditions, this and the following sections offer some comments on this issue and on the essential roles of public and other forms of enterprise in marketing development. However, it may first be useful to illustrate the parts played by different forms of enterprise in various marketing functions under existing conditions in the less developed countries.

Export marketing

The active role of public enterprises is firmly established in the marketing of staple export crops in many developing countries, especially in Africa. Usually private and/or cooperative enterprise continues to play a major part in the practical operations of local buying and assembling but often statutory boards or other state organizations control or directly undertake export and sale. For products which are perishable or difficult to classify or which need special efforts for promotion in competitive world markets, however, the field is still left mainly to private enterprise. The explanation for this is that statutory boards have difficulty in organizing the more complex forms of commercial operations which these products involve. The marketing boards in Nigeria, for example, which for many years had dealt efficiently with oilseeds, cocoa and cotton, were not successful in marketing grapefruit and ginger. This is not to say that, if adequate resources and skilled management are available, public bodies cannot handle even complex export problems, as shown by the example of the Israeli Agricultural Export Company in developing markets for fruit and vegetables. Statutory boards for perishable products may also do excellent work in organizing and assisting private exporters, and a prominent case is the New Zealand Meat Producers' Board which has helped to promote world-wide markets for New Zealand lamb.

Up to the present, however, there are no conspicuous cases in the developing countries of public bodies conducting successful export campaigns for these types of commodities and the field is still left almost entirely to private enterprise. For a number of countries this means that marketing through large international companies is

still important, especially where heavy investments in specialized facilities are required, where operations are complex, and where close links with marketing organizations in the importing countries are involved. The marketing of bananas, for instance, is still largely handled by international companies established in both producing and buying countries. There have also been some notable developments through smaller private organizations such as the companies in Chad which, since the mid-1950s, have built up an export trade in beef by air which now amounts to over 4 000 tons per year. Or, to take another example, businessmen in China (Taiwan) have developed an export business in canned mushrooms and asparagus to European and United States markets reaching a value of almost U.S.\$40 million in 1966.

It is clear that future expansion of exports from developing countries, especially of new crops, will be determined largely by success in developing or encouraging suitable forms of enterprise for export marketing. The need to earn foreign exchange is a stimulus to the expansion and diversification of production for export, but campaigns in this direction will not be rewarded unless the crops can be sold under the highly competitive conditions prevailing in world markets. Some developing countries are especially anxious to develop an export trade in fruit and vegetables, but in spite of apparent geographical advantages they have found themselves handicapped by inferior organization and quality control in marketing in relation to competing producers in the United States or Occania. Others might take advantage of the growing international market for beef and mutton, both commodities which are tending to rise in price. The major livestock producing countries in the drier parts of Africa and Latin America are particularly interested in these prospects, but the fact that their pastoral areas are usually remote and with poor transport and marketing facilities adds to the problems of serving external markets in a consistent manner. To exploit their opportunities and compete successfully with such established exporters as Australia and New Zealand, these countries will have to modernize their local marketing arrangements, and also attack systematically the problems of transmissible disease.

For solving these kinds of production and marketing problems, government initiative for improved organization on a national scale appears to be indispensable. Private enterprises may supply the effort and initiative needed in detailed commercial operations but public investment and intervention by public authorities are likely to be required for the organization of production, quality control and assembly. For these purposes a growing number of countries have established national marketing boards or commissions especially for livestock and meat, fruit and vegetables. Most developing countries have consistently encouraged private enterprise

to develop processing ventures and, while preference is normally given to local citizens, it is usually accepted that, for larger projects, it may be necessary to attract the necessary capital, organization and skills from industrialized countries. In many cases tax privileges and other inducements are given to attract foreign investments in order to secure the benefits of industrialization.

Consequently, foreign companies and particularly a number of large organizations with special competence in international marketing, such as Liebig, California Packing Corporation, Nestlé, Compagnie marseillaise, Unilever and others, continue to play a major part in the industrial processing of farm products in developing countries, especially where exports are involved. These companies, through their product brand names, their organization and their strong connexions in the industrial countries which provide the main markets for their products, have unrivalled advantages in promoting trading developments.

In several countries, large companies which deal with primary production, processing and export marketing within one organization are still prominent, particularly for tea, sugar, rubber, pineapples and livestock. Due to the nature of the products involved there may be important advantages in such large-scale vertical integration, although in some cases the present arrangements owe more to historical factors than to present-day requirements. Usually in such cases primary crop production is on the companies' own plantations or estates but there are also important cases of successful contract relations with smallholder producers. Perhaps the best example of highly organized arrangements of this kind is that of production, processing and marketing of tobacco and cigarettes which has been newly developed in many countries in the past two decades.

Private enterprise will not enter the major commitments involved in a processing venture, however, unless there is a reasonable assurance of good commercial profits in the near future. Once the more obvious opportunities for private investment in processing have been taken up, except where development and the growth of markets have been very rapid, there has tended to be increasing difficulty in attracting further entrepreneurs. Also, in several important areas, political instability has greatly increased the diffidence of potential investors. Meanwhile, in their anxiety to promote industrialization as rapidly as possible, governments have been constrained to play a more active role in promoting processing projects, either in partnership with private companies when possible or purely as a public enterprise.

Inevitably, the criteria by which governments justify investments in this field tend to differ somewhat from those set by a private entrepreneur. The justification for a government is not confined to prospects of commercial profitability but also includes prospective effects on foreign exchange earnings, on employment and on general economic development and social welfare. Nevertheless even a government project cannot survive unless it either makes enough revenue to pay its way or

else is favoured with subsidies. Unfortunately there are numerous cases in which the sponsors of government financed projects, while having no intention of providing continuing subsidies, have still failed to plan on a proper commercial basis. The record is particularly bad in Africa where public authorities have invested a great deal of capital in processing ventures in recent years and where a large number of plants are now working at a fraction of capacity or standing permanently idle.

In some conspicuous cases these plants were established without careful regard for their economic merits, and their scale and form were clearly influenced by considerations of prestige. Choice of location, too, must sometimes be explained on political rather than economic grounds. In many other cases failure has been due to overoptimistic assumptions as to supplies of raw materials and effective demand for the products. In this respect there has sometimes been a quite astonishing lack of coordination in project planning. In one country, a large tomato processing plant was constructed without provision for substantial local production of tomatoes. In another, an industrial abattoir was sited where the only route to market was a 1 000-kilometre journey by air at prohibitive cost. The obvious lesson is that, to achieve a higher proportion of successes in future projects, much more care and skill must be devoted to detailed preinvestment feasibility studies, including special attention to economic and marketing aspects. If the necessary expertise for this task is not available locally, it is prudent to engage independent consultants and to regard their fees as an indispensable part of the investment.

Primary marketing and cooperative development

The involvement of public authorities in the primary stages of crop and livestock marketing has already been discussed to some extent in connexion with price policies. Except for those developing countries with centrally planned economies, there have been few attempts to displace private trade completely in this sector in favour of official buying organizations. Even where monopoly marketing boards or buying agencies exist, they do not usually attempt total market coverage directly; in some countries they depend wholly on cooperatives for the primary stages of crop purchase and assembly, but frequently they leave this part of the field to private traders, either operating on their own account or as accredited agents of the boards. Alternatively, official buyers handle a minor part of the crop, usually in direct competition with private merchants. In most cases the role of private enterprise, either acting under some degree of official control or operating in a completely free market, remains of leading significance and, in a typical case, the farmer is still directly dependent upon merchant buyers for the convenient disposal of his crops.

The main reason for the continued predominance of private traders in primary marketing, in spite of criticisms of the kind discussed later, is the complex and fragmented nature of the trading operations involved and

the formidable problems of staffing, finance and administration involved in overall public control. Consequently, this is an area in which it has proved singularly difficult for government authorities to take decisive action toward helping the producer and increasing marketing efficiency. One of the persistent and basic problems in the development of agriculture and marketing is to link the small farm producer effectively to the main marketing channels.

Cooperative development is one logical means of improving the situation. If small producers can be helped to organize themselves into cooperative societies and unions for selling their crops and buying their requisites, they have a prospect of better access to markets and a promise of countervailing power in their dealings with traders. In some situations, where indigenous private traders are lacking, a cooperative movement is seen as the only alternative to leaving marketing in the hands of expatriates or immigrant groups. Usually support for cooperative enterprise is politically popular since it is seen as favourable to producers and restrictive to the unpopular middlemen. Accordingly most countries have given at least some support to producers' marketing cooperatives and, for some, the cooperative movement is the chosen instrument for primary marketing development.

Unlike the original producers' cooperative movements in Europe, the new versions in developing countries have usually been established with considerable assistance from governments. They have received support in various forms, often including loans, tax privileges, advice and facilities, and significant legal protection. In particular, in order to reinforce the loyalty of their members, they have often been given local monopoly rights in marketing and processing. Various development schemes have been entirely based on a cooperative form of organization, reinforced by regulations which impose special discipline on the members in terms of productive effort and collaboration. Irrigation projects have been especially suitable for this, and the tightly-organized settlement scheme at Mwea in Kenya which provides most of the country's rice supplies is a model of what this kind of organization can become.

For a new cooperative marketing scheme to be successful, it is clear that it must be not only capable of filling an existing need in production or marketing organization; it must also elicit a response from its members and sustain their loyalty and confidence. At the same time, its management must have enthusiasm and a genuine interest in cost-cutting if the enterprise is to make headway in competition with rival traders. In practice, the promotion and direction of producer cooperatives in recent years have tended to mean close central control and support by government; the officially approved movement has received help and privileges, and producers within its sphere of operations have been required to use its services and comply with its terms. Where cooperatives have been given a monopoly position, however, there is a danger that their managers and governing committees may lose any direct incentive to give faithful service to their producer members, who

cannot take their business elsewhere and, in extreme cases, may fare worse with the monopoly cooperative society than they did with competing private traders. When a government creates privileged cooperatives in this way it must also accept the obligation to combat the dangers of inefficiency and injustice to producers by providing adequate supervision.

Because of the rapid rate at which cooperatives have been promoted in some countries and the heavy responsibilities put upon them in relation to their limited resources and experience, performance has often been disappointing and competition with private traders largely unsuccessful. These problems are well known and do not need further discussion here. Certainly, where operations are well controlled and leadership is sound and enterprising, substantial progress has been made in a number of countries where cooperative methods are relatively new. In some cases, success has to be ascribed largely to special assistance in management which cannot be sustained indefinitely. In Africa this has been the case with the well-run producers' cooperative at Kigesi in Uganda, which has built up a successful trade in vegetables; it was also true of the cooperative ranch at Koma Rock in Kenya. In Niger, too, rural cooperatives have been expanding very successfully in the marketing of cereals, but their management has been heavily supported by expatriate advisers under bilateral aid.

Nevertheless, in some other countries such as Tanzania and Tunisia, cooperatives without intensive assistance of this kind have for several years been coping with the marketing and processing of crops on a national scale. In India the striking success of the Anand milk producers' cooperative over the past 20 years has attracted world-wide attention. This venture has transformed the living conditions of peasant farmers in the Kaira district of Gujarat; its business has expanded continuously under excellent local management and in 1967 it handled and processed more than 70 000 tons of milk for 120 000 producer members. Its remarkable progress shows what may be achieved elsewhere under suitable conditions and good management.

It takes time for cooperative enterprises to gain experience and build up loyalties and resources, and it is natural that examples of commercially successful cooperatives are more readily found in those countries where developed resources of capital and skill are more plentiful than in most countries of Africa and Asia. In Cyprus, for example, the movement has a long history and is a major force in the commercial and industrial life of the country. In several of the larger Latin American countries there are large and powerful cooperative organizations which are successfully operating major processing and trading businesses. In Lebanon the Bekaa Poultry Cooperative packs, grades and distributes eggs and table poultry for some 120 members and since 1963 has built up excellent facilities and a reputation for quality products and commercial efficiency. It now supplies a large part of the Lebanese domestic market for eggs and exports about 70 million eggs per year.

It is abundantly clear that successful cooperative development cannot be rushed and that the movement

has to blend gradually into the social structure and steadily develop strength and traditions. In the earlier stages the cooperatives most likely to succeed are those with the simplest functions, making least demands on managerial skill and organization. A new cooperative is more likely to succeed, for instance, as an agent who only assembles and delivers produce for a marketing board than as a trading enterprise selling under competitive conditions. It is easier to assume new functions in marketing and processing after resources and experience have been built up.

As has already been stated, any government which promotes cooperative marketing as a matter of national policy is clearly under an obligation to take corresponding measures to see that standards of management and staffing are raised and that the producers' interests are faithfully served. The cooperative movement cannot be sustained merely by restricting competition from private traders, since this is likely to mean a further fall in efficiency, greater waste of resources, and a heavier marketing bill for producers and consumers. Current efforts by developing countries to strengthen their cooperative movements through organization and training and through raising the general status of cooperative service are therefore highly significant. The most notable examples are perhaps the large programmes recently launched for cooperative improvement in Kenya and Tanzania with aid from the Nordic countries.

Retail marketing

Domestic retail marketing is traditionally the field of small-scale private enterprise, and entrants are usually numerous since little capital or special training is needed. The main role of governments in this field consists in promoting improvements. On the one hand, regulations are needed to improve trading practices, maintain competitive pricing, establish standards of hygiene and so on; on the other hand, adequate basic facilities must be provided, particularly market-places and halls with proper equipment and regulations. In some cities, such as Accra, Ghana, the public authorities provide roadside kiosks for the sale of fruit and vegetables at convenient points. Retail marketing through public authorities in developing countries generally has an unfavourable record, since it is here that the characteristic handicaps of public enterprise are likely to be most serious. Again, it must be recognized that central or local government intervention in this field is likely to be inspired by purposes other than direct marketing efficiency. There are exceptional cases of intervention specifically intended to increase competition and reduce retail prices, such as the fair price shops set up in India, Mexico and certain other Latin American and African countries. But the scope for successful initiative in this form has again been restricted by the difficulty of securing efficient management and flexible operation under public control.

Although retail trade in much of the developing world is still simple and on a small scale, there are growing sectors which call for more complex organizations with

more capital and skilled management in order to meet the needs of modern cities and higher income communities. To supplement local resources, international companies are active in this field and, provided they do not obstruct the development of local enterprise or otherwise prejudice the economic and social aims of the government, their activities have usually been recognized as beneficial. The Kingsway Stores of Unilever and the supermarkets of Printana and Monoprix are prominent in the main towns of west and central Africa and set high and competitive standards. In Latin America branches of Sears Roebuck and Co., a United States company, have developed since 1942 in an impressive way and have not only helped to revolutionize retailing but, by providing outlets for local products and manufactures, have also promoted numerous new production ventures.¹⁵

Vertically integrated schemes for production, processing and marketing

Before discussing in more detail the role of the various forms of enterprise in marketing development, mention must be made of those major schemes which aim at developing the production and marketing of a particular commodity or group of commodities under closely integrated arrangements within a specific area. In each successful case, a striking feature of the enterprise has been the close coordination of the production and marketing operations under energetic direction and tight overall organization. One well-known example is the Gezira scheme in the Sudan, where land was newly irrigated for the intensive production of cotton and other crops and a statutory authority given control over production, processing and marketing with impressive results. On a smaller scale, the *Compagnie française pour le développement des fibres textiles*, a semi-official body, has acted as a cotton development agency in a number of countries and has effectively established cotton as a new cash crop by closely controlling and servicing production, ginning and marketing.¹⁶

A conspicuously successful programme, based on coordinated smallholder production, has been carried forward in the past five years by the Kenya Tea Development Authority. Since 1964, the planted area of tea bushes has been more than doubled to reach more than 11 000 hectares and now represents approximately 40 percent of the national area planted to tea. The most remarkable feature has been not so much the rapid growth of production as the achievement of high standards of quality, since good quality tea has to be carefully picked and promptly delivered for processing and is therefore especially difficult to produce under smallholder conditions. Nevertheless, Kenyan smallholder

¹⁵ Described by P.F. Drucker, Marketing and economic development, *Journal of Marketing*, 22(1), 1958, p. 257-258.

¹⁶ The work of the *Compagnie française pour le développement des fibres textiles* in Mali since 1952 has been examined as one of the case studies in *Agricultural development in tropical Africa*, by John C. de Wilde *et al.*, Baltimore, Md, Johns Hopkins Press, 1967, volume 2, p. 301-337.

teas have established a reputation for high and consistent quality and now fetch prices comparable to those for good estate produced teas. This has been achieved with the aid of loans from the International Bank for Reconstruction and Development and bilateral agencies, through close and intelligent direction by the Tea Development Authority of all stages of production and harvesting and a well-run system of collection, payments and production credits. The authority has the services of a team of well qualified tea development officers who closely control all field operations.

An integrated scheme of a different kind is under way in southern Dahomey, based on a special form of supervised cooperatives. Within certain areas which had formerly produced little but meagre subsistence crops, the Government has persuaded the peasant landholders to form themselves into cooperatives which are closely controlled and managed by the Société nationale pour le développement rural du Dahomey (SONADER), a national statutory body, charged with responsibility for agricultural development. The members have been required to lease their holdings to the cooperatives for 50 years at a rental of approximately U.S. \$3.75 per hectare. SONADER is then responsible for reorganizing production in the name of the cooperatives under modern methods, establishing economically sized blocks of food crops, livestock herds and plantations of improved oil palms, with associated arrangements for processing and marketing. The farmers concerned have accepted the rather authoritarian arrangements involved, while the planning and organization by SONADER, since its creation in 1962, have been energetic and efficient. In consequence, progress up to date has been impressive and has recently attracted an IBRD loan of U.S. \$9.3 million for further development.

Clearly the possibilities of progress are greatly enhanced where marketing can be effectively coordinated with primary production so that the whole development proceeds as a combined operation. When the means of such coordination are lacking, and production and primary sales from small-scale producers persist in the traditional way, it may be impossible to achieve the degree of organization necessary for industrial-scale processing or long-range marketing and progress cannot be rapid. Consequently, there is growing interest in the various forms of vertical coordination which efficiently link small farm production, industrial processing and large-scale distribution and sales.

In many cases, as in Dahomey, combined operations may be successfully based on producers' cooperatives, in spite of the problems discussed earlier. Reference has already been made to the outstandingly successful Anand dairy cooperative in India; an enterprise which has, as its trade symbol, a circle formed by four clasped hands, representing those of the producer, manufacturer, trader and consumer. Contract growing arrangements between farmers and processing factories are also of growing importance. For example, the Hindustan Lever company obtains supplies of peas for a canning factory from local Indian farmers under contract arrangements, based closely on the systems already developed in Europe. As a

means of resolving marketing problems, close relations between primary producers and large processor distributors are so important that governments must continue to promote such linkages by cooperatives, contracts or various other forms of organization.

Reasons for the extension of public enterprise in marketing operations

Obviously all marketing improvement programmes tend to involve increasing public activity. Feeder roads, highways and railways, markets, abattoirs, central stores and a variety of other general marketing facilities are likely to be provided only by the State. In addition, public services are required for licensing, grading and law enforcement in the public interest. But, as has been shown, marketing policy in most developing countries in recent years has also involved the extension of the public sector into actual commercial operations, through the establishment of marketing boards and other official trading bodies. In some countries this has been the principal feature of official policy, involving some replacement of private enterprise in the marketing field.

It is necessary to recognize that not all direct public action in marketing reduces the field of private trade, nor does it necessarily imply a preference for a public rather than a private form of enterprise. An illustration of this is the Livestock Marketing Division of the Ministry of Agriculture in Kenya, which was formed specifically to buy cattle in remote areas where private traders were unwilling to operate. Nevertheless, it is commonly found that the establishment of a statutory authority for trading operations implies some dissatisfaction with the existing marketing services as provided by private enterprise. It is therefore of special interest to consider under what conditions increasing participation by public authorities in marketing operations is in the best interest of efficiency and development, and to what extent better use might be made of private traders and commercial companies. It is appropriate first to review some of the main reasons that have induced governments to limit the role of private enterprise and to increase the scope of their own activities in the marketing field.

Some of the considerations which have led public policy in this direction have already been mentioned, particularly the desire to increase central control over the national economy so that resources can be more effectively directed for rapid development. Statutory marketing authorities in a developing country can greatly reduce the problems of policy implementation and administration that would arise if trade were left in private hands. The more effective implementation of price policies, the easier collection of revenues and the closer control of foreign exchange and trade profits are all aspects of this advantage. Some countries have experienced continual frustration in applying effective exchange control to private exporters and this is one consideration which, for example, led to the establishment of the Office de commercialisation et exportation in Morocco.

As regards export marketing, a further economic

consideration may be the advantage of unified national sales in terms of impact on overseas markets. The Nigerian Produce Marketing Company, for example, handling Nigerian produce worth some U.S. \$300-400 million per year, is a significant force on the world markets concerned. Sales through one national organization have also proved advantageous in the marketing of citrus and other fruit and vegetables, by facilitating the rational distribution of national exports between foreign markets and by ensuring standardization of products and the promotion of sales under national brands. Algeria and Morocco, both major exporters of citrus products, had these advantages in view when establishing their monopoly export boards.

Another consideration in some less developed countries is that private enterprise simply does not exist in the form required for modern marketing services, while business prospects are insufficient to attract entrepreneurs from other areas. Public authorities may then feel compelled to provide directly those marketing services needed for agricultural and commercial development. This refers, for instance, to the development of exports of new commodities in the course of diversification programmes, as attempted by the Colombian Federación de Cafeteros. It may also apply to the case of agricultural inputs for, even where local private enterprise can cope with the marketing of simple farm products, it may be unable to handle the procurement and distribution of fertilizers, insecticides, machinery and improved seeds and seedlings. Consequently, these particular functions are frequently undertaken initially by ministries of agriculture or by official agencies; competing private and cooperative enterprises may come in later when there is a larger volume of business to handle.

In addition to these basically economic motives, there are a number of situations where other kinds of considerations have been the prime movers, making it unrealistic to judge the marketing policies of these countries solely in terms of economic efficiency. In a number of countries, including many of those in Africa, large-scale trade until recent years was still controlled by expatriate companies. This applied especially to export marketing, as has already been noted, and the power and status of these companies, particularly in some of the newer states, were regarded as a threat to national economic autonomy. Indigenous private companies could not provide the organization, capital and experience to compete with these expatriate interests and so, where the functions of the latter were taken over by new public institutions, this did not necessarily represent a preference for public rather than private enterprise, but rather an acceptance of the only available means of increasing national control over economic affairs and of reducing the role of expatriate companies. It is important to recognize that the desire to bring financial and commercial activities more fully under national control has often transcended considerations of short-term efficiency and cost control. On the grounds that sound economic development must be built on local ownership and control of the country's production and trade, some

governments have recognized that a period of lower economic efficiency was a necessary price to pay, and have taken steps accordingly.

Ideological factors have also been important in a number of cases, not only in those states which have centrally planned economies. There are a greater number of developing countries in which private concerns continue to play a major part in trade and commerce but are nevertheless regarded with some disfavour on grounds which are at least partly ideological. Sometimes this attitude is largely inspired by a desire to reduce the status of traders and merchants who belong to a particular ethnic group. It has sometimes been easier to limit their activities by setting up public marketing enterprises than by transferring trade to other and more acceptable private groups.

Popular view of traders' functions

Finally, it has to be recognized that traders as a group tend to be viewed unsympathetically by the general public. Although it is obvious that produce grown on a farm is worthless unless it can be made available to consumers in the required place at the appropriate time, the popular idea persists that, while the sowing and weeding of the crop are intrinsically productive operations, its subsequent storage and distribution to consumers are not. This feeling is reinforced in situations where competition is imperfect and prices are unstable, so that traders appear to manipulate prices and reap excessive profits. The term "speculator" tends to be purely derogatory, and there is frequent condemnation of the numerous intermediaries between the original producer and the eventual consumer. These feelings are expressed in declarations like that in the manifesto of the Uganda Democratic Party in 1960: "The Democratic Party intends to eliminate unnecessary middlemen so as to realize ... maximum prices to farmers and bring the exploitation of farmers by certain unscrupulous interests to an end."

There are undoubtedly situations where these familiar judgements on unnecessary middlemen and speculators have some validity, but equally it must be recognized that they are often based on a less than full appreciation of the real functions that traders fulfil. Several economists, notably Professor P.T. Bauer,¹⁷ have been at pains to show that, if a particular trader in a marketing chain were really unnecessary, he would be unlikely to survive, since others would by-pass him and secure for themselves the margin that he enjoyed. This would not apply if the trader in question had some special power or prestige so that he could compel others to use his services against their economic interests. But such cases are the exception; normally it is in the interests of the traders themselves to minimize the number of intermediaries who share the margin between producer and consumer

¹⁷See, for example, *West African trade*, by P.T. Bauer, Cambridge, University Press, 1954, and *The economics of marketing reform*, by P.T. Bauer and B.S. Yamey, *Journal of Political Economy*, 62(3), 1954, p. 210-235.

prices. When a large number persists, there is therefore some reason to expect that, under existing conditions, each fulfils a need.

The term speculator is also freely used to condemn all those who buy when prices are low and sell when they are high. Where this involves collusion or the cornering of supplies by traders, the effects are clearly antisocial. But where the trader simply acts as an additional buyer when demand is inadequate and as an additional seller when supplies are short, his speculation serves to reduce the extremes of price fluctuations, rather than create them as the public often believes, and is therefore economically useful. By buying and holding produce under these circumstances, speculators take upon themselves risks which would otherwise have to be carried elsewhere and the more intensive their activities the more they serve to stabilize prices.

This is not to contest the fact that local marketing arrangements in a developing country may still remain highly unsatisfactory, even when there are numerous traders apparently in keen competition, so that their individual earnings are very low. Social factors, tradition or a general lack of capital or knowledge may still prevent the evolution of a modern and rational marketing system within a reasonable time. Moreover, in other situations traders obviously often do enjoy profits which are excessive in relation to the services they perform and to the levels of income of the other members of the society in which they operate. It is easy to show that their situation frequently allows them to exploit both producers and consumers. In given circumstances it may well be a fair judgement on the traders that, in return for their talents and efforts, they reap far greater rewards than do the producers, and consequently a campaign to strengthen the position of farmers in relation to traders may be fully warranted. Often, however, the tendency is to go beyond this and "throw out the baby with the bathwater" by assuming that traders' activities are by nature unprofitable to the economy. In developing areas where primary producers are small and unorganized and often in a weak bargaining position in relation to traders, it is likely to be easy to secure popular support for such a view and for a programme to eliminate middlemen and speculators.¹⁸

Potential handicaps of public bodies in marketing operations

Thus there are a number of considerations which have led governments to extend the scope of official marketing operations at the expense of private enterprise. As already stressed, in some situations the policy may be inspired by reasons other than economic, or by economic reasons which stretch far beyond the field of marketing efficiency. There remain numerous cases where marketing improvement is the central consideration and where a decision to curtail the role of private enterprise depends

¹⁸ A study of private trading in food crops which deals with those topics is *The marketing of minor crops in Uganda* by Anne Martin, London, HMSO, 1963.

heavily on the assumption that public institutions are the more effective instrument of development.¹⁹ It is therefore necessary to examine briefly certain characteristic difficulties in maintaining commercial standards of efficiency in an official institution.

The greatest handicap is often the inevitable exposure to political pressures. To minimize this factor, some European countries have found it necessary to grant public organizations engaged in commercial or industrial operations a considerable degree of autonomy. Governments direct general policy and may intervene on crucial issues, but decision-making on normal business matters is left to the management, who are reasonably protected from interference and outside pressure. In developing countries, the management is usually less fortunate in this respect, and operational efficiency is likely to suffer from frequent interventions by political authorities and pressure groups.

At the same time, the staffing of a public body may be largely determined externally and may not accord with operating efficiency. In countries where unemployment is a serious problem, a new public organization may be under pressure to provide as many new jobs as possible and to accept senior staff who are well connected but may be unqualified for their duties. In extreme cases, staffing is entirely within a system of political patronage and the organization is made to provide lucrative posts for party stalwarts to such an extent that neither management nor staff have the qualities and attitudes necessary for commercial operations. In the course of their operations public bodies in commercial work are also particularly vulnerable to corruption and speculation and, in countries where rigorous standards are not enforced, this factor alone has precluded success. Coupled with this is a tendency for public bodies to be accommodated and equipped more expensively than is justified solely for operating efficiency. Offices and transport are provided for reasons of prestige and conspicuous investment in advanced labour-saving machinery and equipment is to be seen in places where there is abundant manpower. Where this happens, the organization is inevitably saddled with excessive overheads and high operating costs.

Heavy investments in modern bulk storage, a specialized transport fleet, high-speed handling equipment and so on sometimes arise from an undue reliance on economies of scale in marketing operations. A large and highly capitalized marketing unit can only enjoy the full advantages of scale if it is tightly organized, operated to capacity and effectively coordinated with other parts of the marketing process. Frequently the environment in a developing country does not allow this, and the potential economies are lost under a heavy burden of overheads. Despite appearances, a skilful

¹⁹ There is an interesting study of this subject by R.W. Cummings Jr in *Pricing efficiency in the Indian wheat market*, New Delhi, Impex India Booksellers and Publishers, 1967. See also Effectiveness of pricing in an Indian wheat market: a case study of Khanna, Punjab, by the same author, *American Journal of Agricultural Economics*, 50(3), 1968, p. 687-701.

small-scale trader with a general-purpose truck, a simple store and a small labour gang may well be a more efficient marketing unit in a less developed environment. Mistakes in management, investment or organization may of course also be made by private firms, but they will quickly be followed by corrective action to cut losses or by the elimination of the firm. If a public body enjoys a monopoly in its field of operations, the consequences of high operating costs may be obscured; but if it is to enter the field in competition with private enterprise the consequences may make effective operation impossible unless repeated government subsidies are forthcoming.

Clearly the worst of these handicaps may be avoided if the public body can be given first class management and reasonable protection from political interference in staffing and operation. But it has to be recognized that it is still difficult for a public body to match the normal commercial efficiency of a well-run private company. Public responsibility for actions and expenditures encourages attitudes and modes of operating which constitute a virtue in public administration but may be a grave handicap in commerce. The fact that public bodies cannot freely convert better operating results and higher profits into salary increments or bonuses for management and staff makes it difficult for them to match the incentives and standards of working discipline that are found in the better private companies. Similarly, the laudable tendency of good civil servants to be circumspect and limit their own initiatives is less appropriate in competitive commercial work where risk taking is essential to success and a bureaucratic approach a grave handicap. It is extremely difficult to create in a public body, which is organized along civil service lines, the incentives, drive and freedom of action conducive to commercial success.

Related to this is the disadvantage of public in comparison with private enterprises in adapting to new situations or combining diverse activities. A versatile private trader is free to engage in any venture up to the limits set by the law and his own competence and can, at short notice, switch his plans in a more profitable direction or seize a special opportunity to employ spare capital or empty transport. Usually the manager of a corresponding public body will have less freedom of action in this way or less incentive to use it, especially where risks are involved. The fact that much marketing work is carried out at irregular intervals and the pattern of crop production is seasonal means that earnings may be greatly improved by alacrity in taking subsidiary work which helps keep equipment and labour fully employed. In many parts of the world it is of particular advantage to combine the buying and primary marketing of produce with the distribution and retail sale of merchandise: the same transport, stores, local managers and staff can to a large extent be used for both types of trade. As already mentioned, the characteristic weaknesses of a public organization are normally most serious in retail trading and, with few exceptions including the distribution of farm inputs which has been mentioned above, public bodies in agricultural marketing have not had the same

opportunities as private companies to combine their produce buying business with retail trade in merchandise.

A complication of a different nature is that a public body set up for commercial operations is often required to extend its services into unprofitable fields. For example, it may be expected not only to compete with private enterprise in buying crops in main growing areas, but also to provide a buying service in remote places where operations are so uneconomical that private firms are not attracted. As a development measure this may be fully justified but, unless these services are specially subsidized, the overall competitive efficiency of the organization is weakened.

Making the best use of private and public enterprise

Emphasis has been laid upon the problems of public bodies in achieving commercial efficiency but it is also true that, given good management with adequate powers, great improvements could be made upon the standards often met today. Unfortunately, governments are frequently content to let their statutory corporations, official agencies and other institutions with commercial functions run as though they were administrative departments of ministries. This is not inevitable, and much could be done to create incentives and attitudes that would produce more drive, better discipline and more commercial efficiency. Performance incentives have to be improved both for the public bodies themselves and for their individual managers and staff members. There is no standard prescription for providing suitable incentives; it is necessary for the authorities concerned to create the right environment and attitudes, and to devise whatever means are appropriate for rewarding and encouraging the right kinds of skill, effort and initiative. Experience suggests that some kind of profit motive is still important at all levels, and it is significant that elements of competition and profit have been deliberately introduced into the economic policies of the older communist countries in recent years.

Where ideological considerations are not overriding, planners must strive to make the best use of both private and public enterprise for the development of modern marketing systems. On the one hand, under suitable conditions private ventures are capable of lower cost operations and are best able to provide the drive and initiative necessary for marketing efficiency and innovation. On the other hand, public intervention is usually needed to give control and direction according to development plans and policies and to function in fields where private enterprise is lacking. Also, in many developing countries it is relatively difficult for the private sector to mobilize capital for major marketing investments so that the State has to take the initiative in commercial enterprises such as processing plants, stores and transport systems as well as conventional public works. The fact that most development aid is made available to governments rather than to the private sector is a powerful influence in this direction.

Clearly the optimum policy in sharing responsibilities between the public and private sectors takes careful

account of the degree of skill, organization and coverage already achieved by private enterprise and of its potential for further development. Not only does this depend upon economic circumstances but also upon historical environment, social structures and personality factors in the communities concerned. Because of different backgrounds, the characteristic attitudes toward trade and the talent for trading varies widely between one ethnic group and another. In particular, ethnic groups living outside their native lands tend to be conspicuously successful in commerce.

In all cases it is ultimately the responsibility of government to determine the role appropriate for private enterprise in marketing as in all other economic activities, and its policy will be framed according to local economic, social and political conditions. The purpose here is merely to throw some light upon the implications which this choice may have for marketing efficiency. What is to be particularly hoped for is that in some countries there will be a more objective approach which takes due account of these implications, and ensures that the entrepreneurial talents available to a country are not merely hampered and curtailed but directed and utilized for their positive contribution. In certain countries where existing forms of marketing enterprise have been deliberately replaced, governments have appeared reckless of the implied cost to development in the form of wasted resources. Moreover it has often proved extremely difficult to create alternative forms of enterprise. For example, there is a danger of underrating the importance of private traders and companies as a source of capital and credit. Although in some countries the power of the trader-moneylenders over peasant producers represents a grave problem in agricultural development, under other circumstances, merchants' credit, especially in relation to supplies of farm inputs, is a valuable feature of private trade. There is now perhaps an increasing awareness of the national assets which established managerial talent, organization and capital represent, and a new interest in how to adapt them to national requirements instead of neglecting them.

There are various forms of joint enterprise between public bodies and private businesses which can provide both for effective public control and for efficient marketing arrangements. Commodity marketing in the developed countries offers many examples of such arrangements, allowing close direction of policy and prices, but utilizing the resources of private enterprise extensively in practical operations. In several developing countries, too, marketing boards have advantageously used individual traders and companies as their agents in the practical work of handling crops. In this way there is an opportunity of extending effective control over prices and marketing methods close to the farmers' level, and at the same time of maintaining a more economical and

efficient service than is usually possible if the authority undertakes detailed field operations with its own directly employed staff. In Nigeria, for example, it has always been the policy of the statutory boards to delegate to private concerns, with the status of licensed buying agents, responsibility for the physical buying and assembling of export crops. These enterprises are required to pay guaranteed producer prices and receive fixed unit buying allowances, but on these terms they are free to compete with each other to maximize turnover and profits. For many years special encouragement and assistance in the form of advance payments and bank overdraft guarantees were given to local concerns and a number of them successfully built up their business as agents of the boards and expanded into other forms of trade, transport and processing. Thus the boards were of significant help in expanding the pool of entrepreneurial resources available to the country.

Beyond this, there are a variety of possibilities for partnership between private and public enterprise or for the formation of semipublic concerns, especially where large-scale technical operations are involved. As already noted, the more ambitious ventures in processing for international markets have usually involved this sort of arrangement. Local marketing authorities or public corporations have joined forces with international companies who provide the necessary expertise and part of the capital for processing operations and also the overseas sales organization. A closer association in the form of *sociétés d'économie mixte* is familiar in the French-speaking countries, and a notable example is the Société nigérienne de commercialisation des arachides (SONARA), the organization responsible since 1962 for marketing the groundnut crop of Niger. This enterprise was founded with capital subscribed by the Government and a number of commercial companies already engaged in the groundnut trade. It thus secured expert services from its inception, and has been able to operate efficiently within the framework of official policy.

By such arrangements developing areas are often able to attract required investments from the industrialized countries without the danger of losing economic control to foreign interests. Such liaisons have frequently been the basis of rapid development in particular sectors, governments being able to exercise equitable control over the distribution of profits and give the enterprise a national character. The private investor appreciates the official support and security implied in public participation, while the government secures the benefits of capital, managerial skill and organization needed for large-scale commercial success. It is highly desirable if at the same time indigenous private or cooperative interests can also be brought into the association and, in integrated operations which directly involve primary production and marketing, this is often feasible from the beginning.

Government as the promoter of marketing improvement

Basic facilities and services

Government concern with price policy and with the forms of marketing enterprise has been discussed as two special topics in the context of the general development of agricultural marketing. This concluding section considers the broader responsibilities of governments in promoting overall marketing improvements by means of the facilities, services and encouragements essential to progress.

Although they are only mentioned briefly in these pages, obviously government contributions to marketing development begin with the provision of law and order, roads, railways, postal services, telephones, and so on. While the efficiency of these basic facilities and services is a function of general development, they clearly influence the potential efficiency of agricultural marketing. In all developed countries, marketing is regulated and helped by a large body of laws, regulations, standards and rules of conduct. Countries in the course of development have to build up this structure and, as marketing becomes more complex, their public authorities are increasingly involved in controls and services which directly concern marketing improvement by regulating commerce, by protecting consumers from deception or health risks, and in general by preventing the exploitation of one sector of the public by another. There are other, specific services which have to be progressively introduced and expanded by the State as the volume and complexity of marketing grow, such as the application of weights and measures, standardized quality grading, market information, research and advisory services, and hygiene controls. These basic services are fully discussed in a number of publications on agricultural marketing and so, in spite of their importance, they are not further examined here. Instead, attention is concentrated on some of the other, less discussed but also important responsibilities which a government bears as the central promoter of marketing improvement.

The making of policy

Marketing improvement as a specific subject usually receives only scanty treatment in published national development plans. Out of 13 such official plans examined in the course of a recent study,²⁰ none formally assigned a major role to the marketing of agricultural products and, in all but three cases, the financial allocation to marketing was less than 6 percent of total expected investment in agriculture. To some extent this reflects the view that marketing will develop naturally to suit the requirements of production and consumption, and that it is difficult to devise measures to force progress in this field. It is true that it is likely to be

²⁰J.C. Abbott, Marketing issues in agricultural development planning. In *Markets and marketing in developing economies*, ed. by R. Moyer and S.C. Hollander, Homewood, Illinois, Irwin, 1968, p. 87-116.

more difficult to identify and measure distinct economic benefits from a marketing improvement programme than from a programme for production development. The impact of new services, facilities or methods in marketing is likely to be far more complex and diffused, and this adds to the difficulties in developing countries of formulating and presenting a persuasive case for investments to the policy makers. Consequently, marketing policy has sometimes tended to concentrate on one easily recognizable objective, often price stabilization or central storage, and has not made a methodical economic approach to the overall subject.

Far more damaging still for the ultimate effectiveness of marketing improvement has been the frequent subordination of economic considerations to short-term political motives or the interests of influential groups. As already noted, the reorganization of trade in the interests of government supporters, the setting of unrealistic prices and margins, or the misappropriation of funds are unhappily familiar in a number of countries. In extreme cases marketing enterprises under official control have been so mismanaged and corrupted that a situation has developed in which, for a time, real marketing development through the public sector has become well nigh impossible.

Given a government with sound intentions, it is necessary for the policy makers to be adequately backed by an organization to plan economic policy in a competent and objective way and present it in a form that commands respect. It may be easy for ministers to recognize that a certain price policy would increase a government's popularity, but it takes more skill and authority to make it clear that it would cause disproportionate harm to the economy in the years ahead. Effective presentation of facts and policy proposals on marketing questions is often hampered because responsibility for agricultural marketing is vested in more than one government department, and because none is closely coordinated with the department concerned with production. Conflicting views and interests may never be properly reconciled and consequently planning, as the basis for policy and implementation, is gravely defective. Proper coordination and clear responsibility for marketing proposals and planning would allow a better and more cogent presentation of facts and policy proposals and would be a major step forward. Inevitably such a move is often frustrated by the lack of institutions and of trained personnel both for the staffing of the higher planning unit and for feeding it with the necessary statistics, research results, market reports and other such data. This is but one of the areas in which a greater supply of trained marketing staff is urgently needed, as discussed below.

Powers of local governments in marketing

Local government involvement in agricultural marketing and processing is of major importance

throughout Latin America and much of Asia. In varying degrees, municipal authorities own and operate abattoirs and markets, control produce movements, license traders and levy taxes. It is inevitable that in carrying out these functions local authorities are partly influenced by considerations other than marketing development and efficiency. Their primary duty is to serve the interests of the population within their areas of jurisdiction, whereas marketing channels normally involve producers and others living outside those areas. Consequently the marketing policies of the various authorities are unlikely to be well coordinated in the interests of overall national development or to be properly complementary to central government policy.

In particular, there is often a tendency — both in developed and in developing countries — for local governments to judge marketing installations, such as abattoirs, wholesale or retail markets, more on their capacity as revenue earners than on their efficiency as marketing units. When they have power to require the use of these facilities and thus avoid competition, they may have little incentive to improve their standards of service or to enter into major commitments for new capital expenditure. They may consider it better policy to continue to enjoy revenue from old premises which are already amortized, regardless of the fact that an inefficient service is being given to the users. Also it is inevitable that vested interests grow up around existing arrangements and so constitute additional resistance to change; in particular, those traders who are well established in the existing limited premises are unwilling to give up their privileged positions. In many major cities all over the world, central market premises are antiquated and increasingly inadequate for present marketing needs, but the responsible authorities are reluctant to undertake the construction of new ones.

In some cases, municipal regulations prohibit the sale of produce which has not passed through the public market or abattoir, a procedure which is likely to raise costs to the disadvantage of both producers and consumers. In Bogotá in Colombia it took nearly ten years of sustained efforts up to 1966 to break the monopoly of the Bogotá abattoir in supplying meat to the city. Meanwhile, low priced cattle from the eastern plains of Colombia had to be brought live to the abattoir at high cost because the municipality would not accept meat slaughtered in the producing areas and consigned direct to Bogotá by refrigerated trucks. A modern packing plant set up in the Llanos was thus kept out of business, cattle producers received lower prices and Bogotá sometimes suffered meat shortages.

It has to be borne in mind that concern for public health was originally one of the main reasons for local government involvement with marketing and processing, especially of perishable products, and that established arrangements may still be justified when it is difficult to ensure proper hygiene and disease control in other ways. On balance, however, it is to be hoped that the influence of local government authorities on agricultural marketing will diminish; that more of their regulatory and taxation powers will be effectively transferred to the national

government, and that trading in the municipal areas will be liberalized.

Controls which were originated when trade and taxation were largely of a local character are becoming increasingly serious constraints on the development and widening of marketing arrangements. Firm and progressive action by central governments is necessary to correct this situation. Inevitably local authorities will resist the erosion of their powers and sources of revenue in this way, and progress is likely to be slow; even in some highly industrialized countries various forms of this problem have still not been finally resolved.

Evaluation of policies

Over the whole field of marketing policy it is desirable to encourage greater official willingness to evaluate past policies and adapt or abolish marketing units, services and legislation which no longer serve true economic or valid social or political purposes. Like other public bodies, those concerned with marketing tend to become a firmly established part of the political scene and agreement to abolish or change them tends to be regarded as an intolerable admission of policy failure. They also provide employment and profits, and their disappearance would be highly unwelcome to persons associated with them in various ways. Yet structural change is an inevitable part of marketing development and, especially in poorer countries, outdated or unsuitable services and institutions can be a serious brake on progress.

In the more highly developed countries, producers' views or general opinion may be influential in reviewing public activities in marketing and, in the United Kingdom for instance, marketing boards for both tomatoes and eggs have been abolished in recent years after popular pressure had led to formal inquiries. In developing countries public opinion is likely to be less articulate and authoritative in such matters and, in that sense, a greater responsibility lies directly upon the government to examine and reappraise honestly its involvement in marketing matters. Although the nature of the functions discharged by public bodies and services in marketing usually precludes any accurate cost-benefit study, significant evaluations of their work in economic terms can still be made.

Planning marketing improvements

Marketing improvement is a continuous process and progressive adaptations of capacity, structure and technique are therefore needed to suit developments in production, consumer incomes, communications and general economic environment. Experience suggests that the most effective improvements are usually to be sought through adaptations of existing organizations, resources and methods, primitive though they may be. This is not to suggest that marketing improvements in the developing countries must follow the same long path taken historically by the present industrialized nations. It is reasonable to make full use of experience, technology and capital to devise short cuts in development wherever the results can be integrated into the current economic environment. The important condition is that proposals

for change and improvements which involve public investment should be carefully appraised to see whether the prospective commitments of capital, management and skilled manpower are likely to yield an attractive return on their cost in terms of more efficient marketing and more rapid development. In particular, it needs to be shown that the new arrangements will suit the environment in which they have to work.

For example, under the conditions prevailing in most developing countries, the idea of rapidly raising the productivity of labour in marketing by substituting highly mechanized and organized systems in place of simple conventional methods is likely to prove illusory. In poorer countries marketing, and particularly retail trade, tends to attract much manpower which has virtually no other opportunity for employment. Although the economic productivity of an Indian or African as a hawker or streetseller may be very low, it may still exceed the contribution that he might make in any other available employment. The factors which permit the economic introduction of highly capitalized marketing in a wealthy economy are completely lacking in this situation.

The contrast lies in the fact that the wealthiest industrial countries have now achieved such high levels of production and consumption per head that marketing enterprises have an extremely high turnover in relation to their area of operations and the population served. At the same time, in the "mass consumption" economies labour costs are high. For both technical and economic reasons, therefore, capital equipment is substituted for labour and full advantage can be taken of the economies of scale. Added to this, a high degree of organization encourages integration between enterprises, with further economies in manpower. In a developing country, on the other hand, there is rarely the same inducement to mechanize operations and save labour and not often the same opportunity to organize large-scale operations in commerce. Exceptions are found in export marketing where the latter stages involve large turnovers for shipment, but more often the fragmentary nature of production and the relatively low value of purchases per customer limit the scope for large-scale units. In some cases these factors have been given insufficient weight in the establishment of public bodies to take over and modernize the marketing of staple crops. Thus, the virtual elimination of small-scale private enterprises from this field, as in Ghana between 1963 and 1966, meant a waste of existing economic resources and also led to a sizable increase in marketing margins.

Creating the environment for development

Whether private trade retains direct control over marketing in all fields, or whether its role is restricted in favour of public or cooperative marketing, it is still necessary to stress the significance of official policy and services in stimulating efficiency and development in the private enterprise sectors. Established traders and commercial companies represent scarce national resources in the form of capital, skill and organization, and

therefore, within the appropriate fields, it is no more than good sense on the part of governments to see that these resources are put to maximum use. The official services already discussed can do much to this end, but it is also important that the governments' wider policies should help promote the conditions in which healthy competition flourishes and the entry of newcomers is not artificially restricted. This is one of the ways in which local government powers are often badly employed through restrictive licensing and the support of an oligopoly of influential local traders.

More positive assistance is also sometimes appropriate, for example through credit facilities for the construction of stores, packing stations or processing plants. It is worth noting that the problem of credit is not confined to producers. In a number of countries, especially when there is inflation, private traders and companies have great difficulty in securing loans on reasonable terms, and this seriously hampers investments in facilities that would improve the efficiency of their marketing operations. Assistance in this direction may be a more economical way of introducing these improvements than by direct provision through public authorities. Unfortunately, schemes for assistance to private businesses tend to be difficult to administer impartially and successfully, and it is hard to be sure that aid will not go to the most influential rather than the most deserving cases.

In numerous countries, marketing efficiency continues to suffer from the effects of the vacillating attitude of their governments toward private enterprise. Often, in areas where governments have no intention of taking over the functions of private traders and commercial firms, the administration still maintains an attitude that varies between tolerance and hostility. In general it would be better to tackle such problems as the exploitation of producers and high marketing margins by encouraging freer entry to the trade, more investment in facilities and greater competition, rather than by measures which restrict new entrants and threaten those already in business. Suspicion of government intentions can magnify the risks of trading and impede a businessman's investments and efforts without any compensating gain to the rest of the economy. Consequently, in those areas where private enterprise is to continue to provide marketing services, it is logical for the authorities to strive for stable conditions in business and to give the confidence that is essential for investment and expansion.

Training²¹

Finally, it is clear that action in all of these ways to improve marketing depends upon adequate numbers of educated and trained personnel at all levels. It is equally clear that the shortage of such personnel is a major restraint on the improvement of planning, services and general marketing efficiency in all developing countries.

²¹The problems of improving and expanding training in agricultural marketing at all levels are fully discussed in FAO, *Report on the International Expert Meeting on Agricultural Marketing Training held in Berlin, 22 January to 3 February 1968*, Rome, 1968.

Over much of the field the need is for good general education; the efficiency of producers and the semiskilled staffs of traders, transporters and retailers in marketing operations would be enormously improved in many countries by sound basic schooling. Technical instruction of larger numbers of staff in clerical duties, bookkeeping, mechanics and other such skills is also a pressing need. Ill-trained lorry drivers, for example, can be a significant cause of high transport costs in marketing. Beyond this the shortage of persons adequately trained in economics and marketing subjects is apparent in almost every developing country at intermediate and senior levels. This contributes to deficiencies in high-level planning, in government marketing services and in the management and staffing of public bodies set up for operational purposes. More facilities for the training of staff are also needed to serve the needs of the private sector in marketing.

In many countries shortages of highly qualified staff are met to some extent by the recruitment of expatriates under various international aid agreements. Although such services may be invaluable, they cannot represent an adequate answer to the problem. The expatriates are likely to be specialized under the conditions found in their home countries and it is not easy for them to adapt their methods and outlook quickly to the new environment. Moreover, in most cases their services are provided only for limited periods so that continuity is lost. In the long run the developing countries must devote more resources to the training of local personnel to fill these key roles in economics and marketing. The requirements for highly trained people are growing rapidly as the scope and complexity of marketing develop and new techniques and skills are involved.

It is important that the forms of training be properly related to local needs and problems, and this demands more facilities at national or at least regional level. A long

course in marketing methods in western Europe or North America is likely to be less than ideal training for a student who is to work under pioneering conditions in tropical Africa or Asia. Universities and technical institutes within the developing countries have to pay particular attention to supplementary courses adapted to local problems and to practical aspects. In-service training also has an important part to play.

It has been a common mistake in the past for governments to plan marketing institutions and systems supported by capital investments but insufficiently backed by organization and good quality management and staff. Marketing is carried out by people and its efficiency is unavoidably dependent upon their personal capabilities. Consequently, it is reasonable to regard education and training as the cornerstone of a realistic marketing improvement programme.

Reconciling aims with resources

In conclusion, it may be said that the most significant contributions made by governments toward marketing development are not necessarily the most spectacular. Indeed it has sometimes been a fault, notably in some newly independent countries, that governments have felt obliged to take ostensibly vigorous action in marketing, without due regard for the resources available or the commitments involved. In mounting drastic programmes and assigning new and heavy tasks to the public sector, their reach has sometimes exceeded their grasp and the changes brought about have not helped development. Policies must be tailored to suit the resources available and the environment in which they are set to work. The important principle is that improvement programmes should be so balanced that resources are allocated where they will have the most impact and will achieve the best use of available capital, management and organization in the interests of efficiency and growth.

Chapter IV. - MODERNIZING INSTITUTIONS TO PROMOTE FORESTRY DEVELOPMENT

The forestry and forest industries sector possesses a number of economic and technical characteristics which enable it to act as an important base for economic growth and to play a decisive role in the attack on underdevelopment. However, despite this and the fact that more than half of the world's forests are located in the developing countries, it is evident that this sector is making a much smaller contribution to the improvement of their national economies than its potential warrants.

This is not to deny that in recent years forestry and forest industries have made significant and increasing contributions to the economic growth of some developing countries; indeed, between 1962 and 1967 the exports of wood and wood products from developing countries increased at a faster rate than their total exports. However, the base from which these exports grew was small, and very little of the timber exported was subjected to any sort of mechanical conversion process in the countries of origin. In addition, many of the developing countries, including some with extensive forest resources, are still net importers of forest products, especially of the more highly processed types.

Because of the predominance of roundwood and simply processed timber such as sawnwood in the forestry exports of developing countries, most of the value added to their total wood production accrues to the already industrialized countries. In many cases this may reduce the export-earning and import-saving capacity of the developing countries, retard the diversification of their economies and the introduction of their labour force to more complex processes, and in general result in slower rates of economic growth.

The situation is all the more disappointing because forest products constitute one of the few agricultural commodity groups for which demand is growing rapidly both in the developing countries and in the industrialized regions. It has been estimated that in Africa, Asia and Latin America the annual demand for wood-based panels will rise between 1962 and 1975 from 3.64 to 12.8 million cubic metres, for paper and paperboard from 13.76 to 39.9 million metric tons, and for roundwood from 65.9 to 90.4 million cubic metres. In the developed countries it is expected that the overall demand for paper and paperboard will increase over the same period from 63.71 to 122 million cubic metres, and for wood-based panels from 26.9 to 63 million cubic metres.¹ The

¹FAO, Wood: world trends and prospects, *Unasylva*, Vol. 20 (1-2), 1966. Also FFHC Basic Study No. 16, 1967.

forestry and forest industries sector therefore has a great potential for both export earnings and import substitution. Why, then, are the forest resources of the developing world not making the desired impact?

There are, no doubt, many obstacles to the development of the sector. In the past the state of forest science and technology was such that the development of indigenous forest production was severely restricted. But, as a result of advances made in recent years this is no longer the case. The absence of adequate investment remains an obvious impediment. It will be shown, however, that this is not so much a root cause as a symptom reflecting other factors which appear to make investment in forestry less attractive than that in some other fields. There are also infrastructural deficiencies such as lack of roads for transporting forest products and shortage of electric power for forest industries. In addition, the efforts of developing countries to expand their exports are hampered by various barriers in the developed countries, which tend to protect their own processing industries and give preference to imports of logs.

All these handicaps are undoubtedly significant. Experience shows, however, that the most serious obstacles to the rapid development of forestry and forest industries in the developing countries are institutional. These institutional impediments are therefore the main topic of this study.

By way of background, the study begins with a discussion of those characteristics of forestry and forest industries which render the sector an important catalyst for economic development. This is followed by a brief exposition of some recent advances in forest science and technology, in order to show that lack of knowledge is no longer an obstacle to the transformation of forestry in the developing countries into a modern development-oriented sector. The rest of the study is devoted to a discussion of three principal institutional restraints on forestry development. It will be shown that the structure and constitution of forest services in most developing countries are not suited to the development-oriented management of forest resources. This is followed by an examination of a number of shortcomings in education, research and forest extension. It will be further demonstrated that forest legislation in many developing countries has not been specifically designed to speed up the rational utilization of this resource. In addition, because it is frequently contradictory, it often hinders purposeful development.

Throughout this discussion suggestions are made for improving the institutions concerned, to make them more

suitable for modern requirements. Finally, the problem of resource evaluation will be considered.

Relevance of forestry and forest industries to development

One of the main social problems in many developing countries is the increasing urban unemployment which results from the drift of population from the country to the town, since the rate of job creation through urban industrialization is not high enough to absorb these migrants. Any undertaking which provides significant employment opportunities in rural areas can therefore play an important part in rural stabilization and in general economic development.²

Most production forestry activity is based on wood. Because wood is bulky, it is not only difficult to transport, but its value relative to its weight is often low. Moreover, most forest industries are weight losing, and the wood raw material generally accounts for a significant proportion of production costs. Consequently, although some forest industries, particularly the less capital-intensive types such as sawmilling, are somewhat flexible in their locational requirements, most others, like the pulp industry, are more or less tied to the forested areas. The economics of location thus favour the establishment of forest industries near the source of the raw material. By creating significant employment opportunities in rural areas, forestry and forest industries can therefore provide an excellent means of alleviating the problems of underdevelopment and unemployment.

Another relevant characteristic is the ability of forests to yield a great number of products which vary considerably both in their properties and in the uses to which they can be put. This diversity is caused partly by the floristic composition of the forests, partly by the multiplicity of products obtainable from a single tree, and partly by the fact that the composition of wood is such that it is capable of providing the raw material for a group of related but very divergent industries. In addition, wood itself is a versatile material. It is comparatively easy to work, is strong in relation to its weight, is often beautiful in appearance, is elastic, and is nonconductive. Forest products therefore range from

commodities such as fuelwood and sawlogs to complex products such as pulp and paper; from by-products like resins, latex and essential oils, to particle board and plywood.

This catholicity of end use is one of the chief reasons for the importance of the forestry and forest industries sector in the attack on underdevelopment. The products which the forests yield and the processes employed to convert them into other articles are such that there appears to be some type of forest industry suitable for virtually every stage of economic development.

A few primary industries may serve as illustrations. At one end of the scale is the sawmilling industry in which the value added in processing is often very low. Sawmilling is not a very capital-intensive process and, as economies of scale are not of paramount importance, the size of mills can range from very small units with simple machinery to large concerns that are heavily mechanized. Not surprisingly, this is usually the first forest industry to be established, because it does not require a high degree of technical skill and its foreign exchange outlay is low.

At the other end of the scale is the capital-intensive pulp and paper industry. Although investment needs are high, so is the value added. Perhaps equally important to investors, pay-out time (total investment divided by annual gross output) is low, ranging from 18 months to three years. More than half of the investment costs are for equipment and engineering fees which often necessitate high foreign exchange expenditures. On the other hand, the potential foreign exchange earning and saving capacity of the pulp and paper industry is high. The pattern of production costs varies considerably depending on the process used, the size of the plant, its location and whether the production of pulp is integrated with that of paper. A large proportion of the labour force should be skilled, but unskilled labour has been easily trained in the techniques of pulp and paper production in a number of developing countries, including Burma, Colombia, India and Swaziland.

Plywood manufacture lies between sawmilling and the pulp and paper industry in technological requirements and in production costs. Although higher than for sawmilling, investment costs are much lower than for pulp and paper, and economies of scale are not as great as they are for pulp and paper. Formerly the availability of logs of large diameter was thought indispensable for plywood manufacture, but this is no longer a prerequisite.

This small but representative sample of forest industries is sufficient to illustrate the wide range of scales available for developing countries, the varying

² For a fuller discussion see, in particular, *The role of forest industries in the attack on economic underdevelopment*, in FAO, *The state of food and agriculture 1962*, Rome, 1962. C.A. D'Adamo, *Financiamiento de las plantaciones forestales en América del sud*, document, FAO Symposium on Man-Made Forests and Their Industrial Importance, Canberra, 14-24 April 1967, Rome, FAO, 1967. -- G.R. Gregory, *Forests and economic development in Latin America*, *Journal of Forestry*, 63, 1965, p.83-88. -- K.F.S. King, *The formulation of forest policies in developing countries*, document, Ninth Commonwealth Forestry Conference, New Delhi, 1968, and J.A. Zivnuska, *The integration of forest development plans and national development plans*, document, Sixth World Forestry Congress, Madrid 1966, have also discussed this subject.

intensities of capital and labour demanded, the different degrees of skills required and the consequent possibility of growth by stages. In addition, this group of industries possesses a feature which makes it eminently suitable for the attack on economic underdevelopment. Forest industries not only slip easily into the existing economic structures of developing countries, they also provide the basis for succeeding stages of economic development. Much of the demand for wood products comes from other industries and the inputs of many wood-using industries are products of other industries. Through these forward and backward linkages,³ the expansion of forestry and forest industries can therefore act as a stimulating force for many other economic activities.

Forestry and forest industries can also make a special contribution to development through the earning and saving of foreign exchange. Two attributes possessed by wood and wood products are valuable in this context. First, in contrast to most other tropical products, the income elasticities of demand for forest products in the

³See, for example, H.B. Chenery and T. Watanabe, *International comparisons of the structure of production*, paper presented at the Cleveland meeting of the Economic Society, 1956 (cited by A.O. Hirschmann, *The strategy of economic development*, New Haven, Conn., Yale University Press, 1968). The authors ranked 29 industries in Italy, Japan and the United States according to their combined backward and forward linkages. They considered that more weight should be given to backward linkage for development potential, and found that paper and paper products ranked third (57 backward/78 forward), timber twelfth (61/30) and forestry, with agriculture, twenty-third. Both paper and timber have higher than average backward linkage indices.

developed countries are, in general, relatively high. Secondly, the developed countries of the temperate regions do not have significant forest resources for the manufacture of certain grades of sawnwood, plywood and veneer for which there is demand. There is therefore a growing dependence on tropical forests, and it appears that further expansion of high-quality hardwood consumption will be based on tropical hardwoods.

Finally, although the developed countries undoubtedly possess some advantages in the growing and processing of wood — such as cheaper capital, a greater supply of skills, and a more adequate infrastructure — these appear to be more than counterbalanced by certain factors which tend to favour the developing countries. The growth rates of forests in developing countries are generally higher than those in developed countries; labour costs per unit of forest product are lower in developing countries;⁴ freight costs of processed forest products emanating from the developing countries are lower than the costs of transporting unconverted wood for manufacture in the developed countries;⁵ and, because of the increasing demands on the forests of developed countries for nonwood services such as recreation, production costs per unit area are rising steeply. These demands are not likely to be experienced with such intensity by the developing countries for some time to come.

⁴R. Eklund, R.A. de Rosayro, H. Lühr and L. Nagoda, *Forest industries development in west Africa*, Addis Ababa, United Nations Economic and Social Council, Economic Commission for Africa, 1966.

⁵R. Eklund *et al.*, *op. cit.*

Recent advances in forest science

Recent developments in various branches of forest science and technology have eased the biological and technological constraints under which forestry operates as an economic activity. A full discussion of these advances is beyond the scope of this study, and attention will be drawn only to those innovations which are considered specially relevant to developing economies.

In the past, forest production in the developing countries was primarily dependent upon natural forests. Because natural tropical forests are extensive and possess fine hardwoods that are required both in the developing and developed regions for many grades of sawnwood, plywood and veneer, and also because of recent advances in forest technology, natural forests will play an important role in world forestry. However, it is now recognized in the developing countries that forest plantations must in many cases be established to complement these natural forests or to replace those that have been overexploited. The advantages of forest plantations are many and far-reaching. They utilize time and space more efficiently, and yield raw material of comparatively uniform size and quality. Their products

can be more or less custom-made to meet certain technological requirements. They are relatively simple to manage and, unlike natural forests, their location can be planned. They are also more responsive than natural forests to the advances of science.

Forest fertilization

Significant progress in forest fertilization is of fairly recent occurrence. In the past it was generally held that a considerable amount of the fertilizers applied to forest soils would be lost through leaching. And even where the fertilizers were demonstrably effective with regard to the growth and survival of young and recently planted trees, there were doubts concerning the duration of the effects. Little was known about the nature and size of the response which trees would make to fertilizers that had been applied in the pole, sapling, and semimature stages of growth, and there was no knowledge of the quality of the wood produced by fertilized trees.

The position is now somewhat changed. Reports from all over the world show that on many forest sites the

fears expressed with regard to the leaching of applied nutrients were exaggerated. Even on gravelly soil, five years after nitrogenous fertilizer had been applied, it was found that nitrogen had been leached only from a small part of the upper soil horizon.⁶ This is explained by certain characteristics of the forest ecosystem which enable it to retain applied fertilizers for very long periods. The fertilizers are absorbed by the roots of forest trees, are eventually incorporated into plant tissues, and are returned to the soil when the dead leaves, twigs, fruits and branches fall. This cycle of uptake, deposition, and uptake again, obviously influences the duration of the effect of applied fertilizers, and the evidence suggests that this effect may be experienced up to 40 years after application, depending upon the type and quantity of fertilizers applied, the nature of the soil, the climate, the drainage pattern, and the efficiency with which the nutrient cycle functions.⁷

The magnitude of the effects can also be surprisingly high. Growth increases have been recorded which range from 15 to 200 percent more than unfertilized areas of similar species composition and on similar sites, and experience in Scandinavia indicates that increases in periodic annual increment of between 30 and 50 percent are easily obtained. This type of response has been observed in all the stages of a forest plantation's growth, and fertilizers have been shown to increase the productivity of forest plantation crops even after the plantations had closed canopy.⁸

Nor is increased growth the only advantage to be gained. It has been found in Zambia, for example, that an application of boron in quantities higher than those normally used for trace elements has resulted in the successful establishment of eucalyptus in areas in which this genus had previously failed.⁹ In other parts of the world, even checked or extremely slow-growing plantations have been stimulated to greater growth.

These remarkable increases in productivity have not adversely affected the quality of the wood raw material, and the wood produced by fertilized trees has been found to be eminently suitable for most end uses.

Forest tree breeding

Recent progress in the field of forest tree breeding has been no less spectacular. With the spread of tropical forestry activity to the establishment of plantations in which management is of necessity more intensive, it has become possible and indeed necessary to choose those species, provenances and genotypes which are capable of

exploiting the available environments to the best advantage. It has also become obvious that where otherwise desirable species do not possess certain characteristics, and where desirable characteristics are distributed among species, it would be profitable to breed for those characteristics.

Hence, throughout the tropical world, forest tree breeders have been collecting seed from various provenances, conducting provenance trials, selecting individuals from successful provenances for breeding purposes, establishing seed orchards, testing progeny, and attempting interspecific crosses and vegetative propagation. They have also been examining the quality of the wood produced by the trees, provenance taxonomy, phenology of growth and flowering, pollen disposal, etc.

Considering the short time which has been devoted to this field of endeavour, the intensity of research in some countries and the results so far obtained are encouraging. In east Africa the impetus has come chiefly from the tree-breeding section of the East African Agriculture and Forestry Research Organization. Already much progress has been made in Tanzania in seed stand selection and there is a series of progeny trials, perhaps the most important of which, that of *Pinus patula*, has been replicated in Kenya and Uganda. There are many provenance and progeny trials, seed orchards and tree banks, and there is a sound programme for the coming years. Kenya and Uganda are also forging ahead. As a result, knowledge has become available on the species to be grown for form and vigour and on the areas to which they are best suited.¹⁰

Provenance trials are considered to be an essential part of genetic improvement work, and in Zambia, for example, replicated trials have been established with such species as *Pinus khasya*, *Eucalyptus maculata*, and some Mexican and Caribbean pines. The discovery of the vigour and form of the F₁ generation produced by the natural hybridization of *Eucalyptus grandis* and *E. tereticornis* has led to the controlled pollination and systematic exploration of hybrids in diallel hybridizing patterns. A seedling seed orchard has been established to utilize seed of superior phenotypes of *Pinus khasya* which had been collected in the Philippines, and clonal seed orchards of pine and eucalypt species have been laid down. These seed orchards are intended to provide phenotypically good strains of species from which seed is in short supply, and material for the diallel pattern hybridizing experiment.¹¹

In Nigeria relatively extensive species trials are being conducted with various species of pine and eucalypt, and with teak, and attention is increasingly being paid to provenance trials. Some of the teak results have already been adapted to large-scale plantations. In Trinidad, a

⁶S.P. Gessel and T.N. Stote, *The use of nitrogenous fertilizer with Douglas fir*, document, Sixth World Forestry Congress, Madrid, 1966.

⁷H.S.D. Swan, *The fertilization of man-made forests*, document, FAO Symposium on Man-Made Forests and Their Industrial Importance, Canberra, 14-24 April 1967, Rome, 1967.

⁸S.O. Heiberg and D.P. White, Potash deficiency of reforested pine and spruce stands in northern New York, *Proceedings of the Soil Science Society of America*, 1950, 15, 1951, p. 369-376.

⁹L. Nwoboshi, A case for fertilizers in Nigerian forestry, *Obeche*, 1 (4), 1968.

¹⁰E. Václav, *Tree breeding in Tanzania*, document, FAO Symposium on Man-Made Forests and Their Industrial Importance, Canberra, 14-24 April 1967, FAO, Rome, 1967.

¹¹E.N. Cooling, *Improvement of seed of exotic forest trees for use in Zambia*, document, FAO Symposium on Man-Made Forests and Their Industrial Importance, Canberra, 14-24 April 1967, Rome, 1967.

successful technique has been evolved for teak grafting, and much work has also been done on the grafting of *Pinus caribaea* although the results, promising as they are, have not been as gratifying as those obtained for teak. Clonal teak and pine gardens have been successfully established.

In the Republic of Korea genetically improved seeds have been obtained from the interspecific crossing of *Pinus taeda* with *P. rigida*, and elsewhere in Asia, particularly at the Thai/Danish Teak Improvement Centre, there has been much activity in this field.

It is apparent from these by no means exhaustive examples that much rewarding work is being done in those biological areas that are relevant to the production of the wood raw material, and that biological knowledge is not a critical obstacle to forestry development. It is not being suggested, however, that there is no room for further improvement. In the field of fertilization there is obviously need for more fundamental research. More knowledge is still needed on, for example, the nature of the laws governing the assimilation of nutrients by trees, the optimum amounts of fertilizers which should be applied in order to create satisfactory soil conditions, the effect of slow-acting fertilizers on tree growth, and the best techniques of fertilizer application. There is also an urgent need to test the techniques and results obtained in some countries, most of them temperate, under more widespread tropical conditions. In the field of tree breeding it is necessary to adopt the methods of quantitative genetics, particularly as the characters of vigour and form, for example, are likely to be under polygenic control and will therefore certainly show complex inheritance patterns. Also, there are still many bottlenecks in seed procurement and distribution, and the logistics of this whole operation need to be worked out more efficiently. As a general proposition, however, existing forest biological knowledge is quite considerable, and this aspect of forest science ought not seriously to hinder forestry development. The development problem in this respect appears to be the application of existing knowledge.

Wood pulp for paper

The impact of technology is felt in varying degrees in all the stages of forestry and forest industries, from relatively simple operations such as the preparation of soil mixtures for forest nurseries to more complicated processes such as the manufacture of paper. It is evident, therefore, that although there have been significant advances in many areas, particularly in those processing stages which permit a more integrated utilization of the forest crop, all of them cannot be discussed here. Three topics have therefore been selected for examination, partly because of their importance to the more sophisticated of the forest industries, and partly because they relate more directly to natural forests, which were excluded from the treatment of recent advances made in forest biology. The topics concern the nature of the raw material required for the production of wood pulp for

paper manufacture, log size in plywood manufacture, and wood and wood products transport.

In the past it was generally held that tropical hardwoods were unsuitable for paper pulp because of the shortness of their fibres. It is important to realize that the raw material base for paper pulp manufacture has changed considerably throughout the development of paper technology. Partly as a result of the increasing demands for paper and paper products and partly because of the reduction in supply of the traditional materials used for pulp manufacture, new processes have been evolved from time to time to utilize more abundant raw material. Succeeding techniques have tended not only to correct the imperfections of preceding processes but also, in doing so, to incorporate a wider range of wood species into the pulp-making ambit. It is more than probable that, if tropical hardwoods had been in abundant supply near the main centres of paper consumption, their raw material would have been utilized earlier for pulp and paper production.

Be that as it may, because of the relative abundance of hardwood species and the favourable price differential which they possess in many parts of the world over coniferous species, the use of semichemical and chemimechanical processes, for which these woods are particularly suited, is becoming of increasing importance. It is already well established that combining the mechanical and chemical pulping processes leads to the utilization of a range of quite unconventional raw materials. Many investigations have revealed that tropical hardwoods are capable of producing paper pulp and there are companies in all parts of the world which are translating the research findings in pulp and paper technology to practical advantage. The important factor seems to be the process and machinery used, rather than the structure of the wood.

This is not to imply that, given the present state of technology, tropical hardwoods in mixture can be used for the production of all types of paper. There seems to be some correlation between the morphological characters of wood fibres and certain properties of the resulting pulp and paper.¹² It seems obvious therefore that developing countries with large areas of tropical high forests should concentrate on the production of those types of paper for which they have a comparative advantage in terms of raw material supply, and equally that they should not permit old ideas concerning the quality of their wood resources to inhibit their potential for growth in this industry. Above all, they should not consider that short-fibred hardwoods are merely

¹² An investigation was conducted recently in which 12 species of African hardwoods, of greatly differing densities, were treated by the Kraft process. Many cooks were made and the result revealed correlations between flexibility coefficient and the following characteristics: density of the wood, rate of impregnation of the wood by alkaline reactive agents, beatability rate of the pulps, dryness of drained pulps, tensile, bursting and folding strength of paper, bulk and porosity. See D. Normand and C. Petroff, *The correlation between the physical and mechanical properties of paper and dimensional characteristics of fibre from tropical hardwoods*, document, Conference on Pulp and Paper Development in Africa and Near East, Cairo, 8-20 March 1965.

substitutes for long-fibred softwoods; they are a valuable raw material in their own right.

Plywood log size

The former technological necessity for large logs in plywood manufacture has sometimes been one of the factors which have limited the growth of this industry in developing countries. For, although many of them possessed woods which displayed all the physical characteristics that lend themselves to easy peeling, the preponderance of small sizes often meant that only a few suitable logs could be extracted per unit area, and extraction costs were therefore relatively high. Moreover, in many of the old processes, the heavy losses on conversion were mainly due to the often considerable dimensions of the residual cores, which were perforce left by the machinery used.

While there is little doubt that the presence of large logs would sometimes make the economics of plywood manufacture more attractive, recent developments in manufacturing methods make it possible to utilize much smaller girths.¹³ This means that a whole range of species which at maturity are small in diameter, in addition to the smaller sizes of those species that are already being utilized, can now be processed.

Other reasons for this change in the nature of the raw material used for plywood manufacture are the evolution of new market patterns for plywood for construction purposes, and the consequent technological advance that has been made in veneer cutting. As the quality of the wood raw material is not of as great importance when plywood is used for construction, the new type of industry is able to utilize wood of a quality and size intermediate between that needed for sawn timber and pulpwood. New veneer cutters with automatic chargers are capable of peeling logs of sometimes indifferent quality at very great speeds, and this can lead to a wider use of species. If these technological advances are applied in the factories of the developing countries, they cannot but improve the competitiveness of their plywood industries.

Wood and wood products transport

Until recently the harvesting of wood has been based essentially on standard agricultural tractors and motorized vehicles. In many developed countries these traditional means of wood transport are now obsolescent. In their place, highly mechanized multipurpose harvesters, of which the most important new component is the articulated tractor, are being developed. Many systems are being tested, and it is as yet too early to assess the full operational consequences of the various methods. However, the range of wood harvesting

¹³ This advantage is partly achieved by using a kind of telescopic spindle to hold the log in place while it is being rotated. As the log is peeled and becomes progressively smaller, the large spindle required to support the weight of the initially large log is no longer necessary, and the outer casings are withdrawn leaving a small spindle, sometimes with diameters as small as 5 centimetres.

machinery is now extremely wide, and the developing countries are therefore in a position to choose and adapt those types that have been adequately tested, are best suited to their condition, and – most important – are commensurate with their socioeconomic needs. It must be emphasized however that, even if it is considered to be socioeconomically desirable fully to mechanize wood harvesting, the efficient use of these machines requires detailed plans of operation. Without research in the logistics of forest operations, mechanical innovations of this type are to a great extent useless.

Remarkable strides have also been made in transporting wood in bulk. This has been mainly due to the increasing interest which is being shown in chipping wood within the forests. The fluidized movement of pulp by air pressure is also becoming more widespread. Another development which may be adapted with advantage by many developing countries is the use of pallets or flats for the transport of unit loads of forest products. This advance enables loads to be packed and handled at relatively low cost. It could therefore make the exports of some forest products from the developing countries more competitive. Here again it must be stressed, however, that the full effect of these improvements can be realized only if parallel improvements are made in the conversion processes that are employed.

In these important aspects of forest technology which have been chosen for their illustrative value, there are signs of a significant breakthrough. Much remains to be done, even in the fields selected for illustration. The technology of pulp production with mixed tropical hardwoods is as yet in its infancy, and it is still a vast, comparatively unexplored field. Much more needs to be known about the optimum proportions of species to be employed in given mixtures, about solving the problems of chemical recovery, about the improvement of appearance, and therefore of the marketability, of the finished product. So far, much of the paper produced from tropical pulps has been sold in local markets. This has saved foreign exchange. But to compete successfully in the harsh international markets the existing processes must be continually refined.

The plywood produced by the developing nations is often as good as that manufactured in the more industrialized countries. But there is still scope for improving the economics of production by the further refinement of the quality of the glues that are used and by their greater local manufacture. Better surface treatments will also improve the appearance of the produce and increase its salability. More research should also be conducted on those technological and market features which lead to the production of new types of plywood.

Inevitably, the list of gaps in knowledge, of the areas in which it is necessary to break new ground, and of the fields in which technology must be refined, is long. Nevertheless, it appears that sufficient information is available to warrant the claim that the forest resources of the developing countries constitute one of their greatest assets.

Where changes should be made

It should be clear from what has already been said that, because of its special characteristics and because of the increasing demand for wood and wood products in all parts of the world, the forestry and forest industries sector of the developing countries is capable of making a significant and perhaps unique contribution to economic development. Moreover, the world now possesses sufficient scientific knowledge to transform this potentiality into reality: to increase the productivity of forest plantations, to utilize more fully the natural forests, to harvest forest products more efficiently, and to convert the wood raw material to utilizable end products. Yet, because of certain critical institutional obstacles, which it is well within the competence of the developing countries to remove, their forestry and forest industries sectors are not playing the propulsive role necessary for development.

Because of the differing stages of development in the less industrialized nations, even within the forestry and forest industries sector, the obstacles they must overcome will vary from country to country. Some countries possess abundant productive forests and viable forest industries. Others, although they are well forested, have few if any wood-based industries. Some countries have managed to establish forest industries based on imported raw material, even though their forest area is small or poorly stocked. In others, although there is a virtual absence of both productive forests and forest industries, there is much protection forestry activity.

This classification is by no means exhaustive, and various permutations of the conditions are, of course, possible. However, there are some obstacles which experience has shown to be present, in one form or another, in all developing countries. It is the principal argument of this study that these are basically institutional and that, if they are removed, the stage will be set for the desired acceleration of progress in the sector.

Forest administration

FUNCTIONS AND EXPERTISE OF FOREST SERVICES

Traditionally, forest services in developing countries have been concerned with the identification of the indigenous forest flora and with investigating the ecology of the forests. Where indigenous forests did not exist, or where existing forests were considered inadequate or unsuitable for protection and production, efforts were devoted to the establishment of plantations and all the necessary operations that were concomitant with their establishment. Convinced that a permanent forest estate, often a fixed proportion of the country's land area, was a necessity for sound forest administration, they paid much attention to the reservation and demarcation of the forests. The forest services also controlled the issue of leases, and generally the wood raw material that was

produced from those leases was either exported in log form or was subjected only to the most rudimentary conversion processes. They paid a great deal of attention to the contribution which the forests could make to government revenues, and much of their administrative activity was geared to the measurement of timber for the assessment and collection of royalties and fees. Wood technology was mainly confined to ascertaining the strength of timber for structural purposes, and the suitability of the woods for various simple end uses. Some planning was attempted but this was, as it were, in a vacuum, being merely concerned with the management of forests in particular areas. Very little consideration was given to planning the overall role of forestry in, and the contribution it could make to, the national economy as a whole. What is perhaps especially important is that very little thought was given to forest industrial development.

Criticism of these activities is not intended. In the past many of them were, as they still are today, absolutely necessary. The failure to plan on a national scale merely reflected the imperfections of the times, or was the result of the philosophies which then guided the proconsular classes who governed many of these lands. Indeed, much of the past thinking in forestry was in advance of that in other fields of endeavour, for foresters, concerned as they were with a crop which took many years to mature and one in which the capital and interest were inextricably joined, were evolving admirable planning techniques within the confines of their own sector and their limited objectives.

However, the functions of the forest services in the developing countries have changed and broadened. The modern forester must now weld the traditional conservationist approach to a more dynamic attitude toward development. It is therefore necessary to adjust and widen the administrative base of forestry. This is true for most activities in developing countries but it is particularly important in forestry because, unlike government agricultural, geological, and veterinary services, the forest service is concerned not only with research, extension and the provision of advice, but also with the direct management of a resource, and one which often covers vast areas.

The duties of forest services should embrace all those activities which are connected with the regeneration and maintenance of the forests, the harvesting, processing and marketing of forest produce, the maintenance and improvement of soil and water resources, and the establishment and maintenance of amenity areas. The range of expertise required is wide, and forest services must now be prepared to draw upon trained personnel in quite diverse fields. The ever important biological aspects of forestry are reasonably well covered in developing countries, and the training of most foresters in these countries has been heavily weighted in favour of this discipline. The discussion which follows will therefore be confined to an examination of the more serious

shortcomings of the other important branches of forestry and forest industries.

Forest economics

Forest economists are needed in almost all activities connected with forestry and forest industries. Yet, there are no forest economists in more than 90 percent of the developing countries. Because in almost all industries production is carried out in anticipation of demand, the forecasting of demand should be a prerequisite of production. This is particularly true in forestry where the primary production process often covers a considerable period. It is especially important in modern forestry where, because of the diversity of forest products, demand forecasting is not a simple exercise concerned with a particular end product, but a complex operation involving a multiplicity of end uses and joint products. In some developing countries, however, plantation schemes are embarked upon with not even the vaguest idea of the size and nature of the future markets for the products envisaged. In others, opportunities for the establishment of plantations are forgone because the necessary investigations are not carried out, and decisions continue to be based on guesses rather than on careful examination of the evidence. Economists are therefore needed to help in the assessment of the size and pattern of future markets for various products.

In addition to this analysis of wood requirements and the markets for wood and wood products, forest economists are required to conduct cost/benefit analyses, trade and market surveys, transport appraisals, and forest industry feasibility studies; they are required to advise on location decisions; and they are needed to integrate the results of all these enquiries with resource evaluations, and to convert them into comprehensive development plans for the forestry and forest industries sector, consistent with the aims and objectives of national and regional planning. This last is an important task. For forestry development plans can no longer be formulated in *vacuo*, but must form part of the general economic plan.

The influence of economics extends even into the realms of silviculture. Simply stated, the practice of silviculture can be looked upon as an attempt to control and regulate the growth of forests and plantations in such a way that the forest or plantation which will produce most efficiently the types and services that are required is ultimately attained. In the attempt to achieve the object of management many silvicultural techniques will be employed. In many instances, however, the practices that are ultimately followed are employed merely because of their silvicultural, and not because of their economic benefits. The physical outputs are not translated into monetary terms, and the inputs are not weighed against the monetary outputs. Sometimes, perhaps fortuitously, the physical and monetary benefits coincide, but where they are in conflict the economy may suffer. Silvicultural practices must therefore always be tested for their economic efficiency, for it must be remembered that, in production forestry, money is becoming a more

important consideration. The forests are only the means by which this is obtained.

Forest industries

The second great weakness in forestry expertise in the developing countries lies in the field of forest industries. In very few forest administrations are there personnel with the knowledge required to advise on, let alone manage, the range of sophisticated forest industries that is becoming so important in modern forestry development. It is not being advocated that each forest service should possess experts in all the various ramifications of the forest industries complex, that they should employ particle board, plywood, and pulp and paper specialists, and that they should have at their day-to-day disposal professionals such as chemists and engineers. What is necessary, however, and what is being urged here, is that foresters in developing economies, particularly because of the general shortage of these specialists in their countries, should be in a position to identify, at least at the preliminary stages of investigation, the requirements of the various forest industries, and the suitability of their wood resources for a number of processes.

More specifically, they should be able to advise governments, planners and sometimes financiers on the technical suitability of the principal raw material for the end product envisaged. They should know if power, water and secondary raw materials are needed for the industry and, if so, in what amounts, whether they are available, or whether they can be made available. They should understand the technical requirements of various processes, so as to be in a position to advise governments and interested persons and organizations on what processes are most suitable. And they should be capable of assessing the manpower requirements of the industry, the degrees of skill that are desired, and the local availability of these skills.

Without this kind of knowledge, indigenous forest industrialization remains solely dependent upon external advice. And although such advice may be forthcoming from the international agencies and through bilateral aid and is usually presented objectively and without bias, it would obviously be advantageous for the local forest administrations to be in a position to appraise the value of the work that has been done for them, if not to provide the services themselves, and to initiate requests for such advice on a well-informed basis.

Land use

Another area where new emphasis is required is general land use. The modern forest service should possess foresters who are able not merely to express in qualitative terms the influence of the forests on soil and water, and the contribution which the efficient management of the forest habitat may make to wildlife production, to recreation, to tourism, and to the entire social environment; they ought to be capable of expressing these quantitatively, and of translating their assessment into monetary values. They should possess the tools to determine the various land-use priorities, to

advise whether multiple-use management should be pursued and, if so, what should be the dominant use in the combination. To do this properly, they should not only be aware of the possible combinations, and appreciate the interactions of the various uses, but they should also be able to assess the demands of society for the goods and services that are to be produced, and the costs and benefits which flow from these uses. The vague, often unsupported arguments of the past should be replaced and bolstered by factual evidence.

Business management and administration

Perhaps the greatest and most frequent shortcoming of forest services in developing countries is the inadequacy of business management and administrative understanding. This defect is not confined to the nontechnical aspects of forestry, but is found even in the narrow field of forest management in which foresters have for a long time been active. In view of the traditional emphasis in the less developed countries on the conservationist aspects of forestry, this is perhaps not surprising. In today's socioeconomic environment, however, forests should be fundamentally regarded as development resources to be managed in a businesslike way. There is a great need, therefore, for staff with training in, and the understanding of, business management techniques.

In the past the preservation of nature seemed to dominate all other considerations in the practice of forestry. Although the value of the wood produced from the trees was considered to be of some importance, the pursuit of wealth at the expense of the forests was, in many cases, frowned upon. Foresters were aware of the interactions of forests, water and soil. They had noted that the ravaging of the forest resource often resulted in erosion, soil deposition, siltation, floods and droughts. In addition, they were concerned with the provision of wood to communities which depended upon local forests for their supplies. Because of the limitations of transport facilities they feared the disruption of these supplies, and their thinking, plans and management practices were controlled by these factors.

They therefore evolved certain cultural tenets which emphasized that the forest resource, if not kept intact, should not be unduly disturbed. They also insisted that the physical yield of timber and other forest products should be sustained, in order to produce an even flow of output. These guiding principles and the philosophy underlying them, admirable though they might have been at the times and in the places in which they were formulated, were later given the imprimatur of universal sanctity, and are still followed unquestioningly in many developing countries, in situations in which they have little relevance.

It is now becoming increasingly urgent that the philosophy of forestry be broadened to incorporate unabashedly the concept of economic values. Capital is a scarce resource, and so in many countries is land. Forestry therefore has to compete for those resources, and in order to do this effectively its operations must be

efficient. It is only in this way that the forestry and forest industries sector can make its full contribution to economic development. Forest administrations must therefore employ those administrative and management tools which enable them to make the most effective use of the available resources. The forester must be able to make decisions on the analysis of the data and information at his disposal. He must know how to develop alternative solutions, to set goals, to check on performance, and to evaluate results. Put in another way, the task of the modern forester is to determine what goals should and could be achieved, where they could be accomplished, who are the best persons to assign to the necessary duties, the methods that should be employed, and the time when they should be performed. He must also be able to justify these actions and decisions.

It is easy and tempting to suggest that the developing countries should all employ those modern tools which have come to be known under the generic description of operations research. Many of them, for example linear programming, dynamic programming, game theory and probability theory, have their place in forest management and administration and may be used in many forestry and forest industries operations. As a general rule, however, the time is not ripe in those countries for the general applicability of these methods, if only because the information for estimating the required parameters is not always present.

There is, however, one group of planning and control techniques which may be recommended for general use in forestry and forest industries operations in developing countries. This group consists of what is called the programme evaluation and review technique (PERT) and the critical path method (CPM). These two approaches are generally referred to as network analyses. In network analysis a network or graphic model is constructed which illustrates a project or a programme. The technique used in constructing this model is to list the major activities which must be performed to complete the project or programme and to draw up graphically a plan of the logistics of the activities: their sequence, the time needed to complete each of them, and the resource (manpower, money, raw material, etc.) to be allocated. The network therefore shows the interrelations of the activities: when each begins, when each ends, and their influence on each other.

This is not the place to consider the system in detail.¹⁴ It may be employed in several situations in forestry and forest industries planning and management operations, offers a way to greater control over many aspects of development and production, and makes it possible to present large amounts of data in a brief, orderly way. It offers solutions for difficulties such as determining the time which will be needed for executing a project, and the costs which will be incurred. It enables policy makers to detect gaps in the availability of personnel necessary for particular activities. It shows

¹⁴ For further information see: J.J. Moder and C.R. Phillips, *Project management with CPM and PERT*, New York, Reinhold, 1964.

where and when new controls should be put into effect. It can be used as a basis for determining material and capital requirements. Finally, it enables forest managers to handle the uncertainties involved in projects and programmes where no standard cost and time data are available.

Most important perhaps for the developing countries, it is a manual technique which does not depend upon sophisticated and costly machines but which necessitates a rigorous and logical approach in the evaluation of the individual operations and in the formulation of the sequence of activities. Nor is the acquisition of the working skill that is needed for its performance a formidable task.

Whatever modern administrative and managerial tools are employed, the important factor is one of attitude. The former approach of foresters in the developing countries must give way to a new professionalism in which the efficiency of their management and the quality of their planning should be the paramount considerations.

In summary, therefore, a modern forest service in a developing country should have at its disposal, in addition to the forest biologists who traditionally constitute the bulk of the professional staff, forest economists, forest industrialists, land managers and competent administrators. It is not being suggested that each forest officer should possess all the skills or the knowledge to use the tools that have been described. What is being urged, however, is that not only should those skills and knowledge be available and used by the forest service, but also that all forest officers should appreciate the interplay and indispensability of the various disciplines, and should themselves have at least a rudimentary understanding of them.

ORGANIZATION OF FOREST ADMINISTRATIONS

Possession of expertise will not in itself ensure that a forest service has the essential capacity to organize forestry development. The efficiency with which a forest service is able to initiate and promote forestry and forest industries is to a great extent influenced by its position in the overall administrative structure of the State, and by its own organizational structure. Because the type of organization should depend upon the goals which it is established to achieve, and upon the prevailing socioeconomic circumstances, there is obviously no single formula which would be applicable to all the forest services of the developing countries. However, several of the defects discussed are to be found in many of the nonindustrialized nations, and it is hoped that the treatment below will provide guidelines along which governments could proceed in the reorganization of their forest services.

It must be emphasized that production forestry is a business, and that the organization of forest services must therefore differ in some important respects from that of other government departments in which the duties are limited to the provision of services. It must also be

pointed out that administration is not an end in itself, but a means of efficiently achieving desired objectives. From this it follows that the structure of administrative organizations must change as new knowledge becomes available, as socioeconomic conditions alter, and as goals change. This, of course, is a fact frequently forgotten not only in developing but also in developed countries, and changes in administrative attitudes and structures tend to be difficult to bring about. It is therefore not surprising that in many developing countries the forest services are structured in the same manner as those government services that are concerned with noncommercial activities, and are still controlled by organizations that were fashioned at a time when the goals were substantially different from the modern objectives of forestry.

Among the possible ways of incorporating forestry administrations into the framework of a nation's public services are those of:

1. placing forestry and forest industries into a ministry which caters for other departments such as agriculture, or natural resources, or industries, or planning, etc.;
2. constituting forestry and forest industries administrations as a separate ministry;
3. giving the forestry and forest industries administration a relatively extragovernmental and more business-like character by making it into a public corporation;
4. while keeping forestry and forest industries within the civil service, affording it a degree of autonomy by establishing a forestry commission to supervise it.

There are advantages and disadvantages in all those arrangements. By placing forestry and forest industries into ministries which are concerned with problems of a broadly similar nature, it should be possible to communicate ideas, to influence those responsible for other related fields of endeavour through daily contact, and to achieve that integrated approach to the nation's problems that is so desirable. Sometimes, however, not only are these ideals not attained, but the very presence of different agencies in one ministry may increase competition among the various departments in a way that is inimical to the country's welfare. In addition, when the portfolios of ministers comprise several responsibilities it is almost inevitable that some of them be given more weight than others, and the case for particular projects and programmes in fields which do not appear to be obviously vote-catching is not presented to cabinet ministers with the necessary conviction.

It is for these reasons that it is sometimes urged that forestry and forest industries should be placed in a separate ministry. Here, however, the advantages of the many-sided approach to the solution of the nation's land-use and relevant industrialization problems are lost. Although the case for forestry and forest industries is more likely to be presented with single-minded dedication, there is some understandable controversy as to whether this sectoral advantage outweighs those of the

more integrated approach outlined above. Moreover, the trend in business administration and management (as opposed to government administration) seems to be toward the organization of cross-sectional teams to plan and implement particular programmes, and this trend is likely to influence government organization in the future.

Many governments have established public corporations to administer and manage those undertakings that are considered to be mainly commercial. The arguments in favour of public corporations, with respect to forestry and forest industries, are based on some characteristics of the civil service which make it difficult for civil servants to perform efficiently the business and commercial aspects of forest administration. In certain circumstances, many of the traditional strengths of the civil service may become weaknesses. The security of tenure which a civil servant enjoys, and the general absence of the need to compete for promotion, should impart a sense of objectivity and a disinterest which it might be difficult to achieve in a business climate. However, these same conditions of service sometimes lead to an absence of drive, a reluctance to adopt new ideas and to take risks, and a hesitancy in changing traditional practices and venturing into new fields.

By contrast, because promotion is on merit in public corporations, there is a spirit of competition among the staff, productivity is consequently in many cases increased, and there is a tendency toward innovation. Also, because tenure is less secure, the staff member is consciously and constantly aware of the need to improve himself. And, perhaps most important of all, public corporations are freed from the annual budgetary control of finance ministries and government treasuries, and are thus able to plan and implement forest management with a reasonably clear view ahead.

The main danger which might follow the establishment of such a corporation in the field of forestry, particularly in the developing countries, would seem to be that it might result in a greater turnover of personnel once the guarantee of permanent employment and promotion was removed. This would be a serious impediment not only because forestry requires continuity in planning and in effort, but also because of the small number of trained foresters available in these countries. In addition, the achievement of the measure of autonomy that would be gained through public corporations would, in some cases, hinder the integrated approach to solving the nation's problems.

Another possible solution is to establish forestry commissions. These commissions would have direct access to the minister responsible, would advise on the formulation of policy, and would exercise executive control over the staff of the forestry departments. If the members are properly chosen, the establishment of forestry commissions permits the infusion of fresh ideas into the forest administration, and provides the necessary links with industry and forest owners. However, because forestry commissioners are usually chosen from outside the public service, many governments are loath to delegate so much authority to them.

This brief review of some methods of fitting forest administrations into the systems of national institutions has revealed that there is a variety of choices. The final decision will therefore probably depend upon the philosophies of governments. However, whichever method is chosen, there appears to be a strong case for affording forest services a greater degree of autonomy than obtains within the normal civil service organization. The long-term nature of forestry, the unity of the production process and the indispensable connexion between the growing of trees and the processing of wood, the need for continuous contact between producers and consumers, and the necessity for anticipating changes in demand and effecting procedural and functional reforms to accommodate these changes, suggest that forest services should be guided and controlled by somewhat flexible administrative arrangements. These seem to be best provided in an autonomous organization. The integration of the activities of such an organization with those other sectors of the economy which are relevant to forestry and forest industries development would then become of primary importance.

INTEGRATION

In addition to providing that flexibility which results from autonomy, the organizational structure of forest services should be capable of performing a threefold function:

1. It should facilitate the integration of forestry development planning with national and regional planning, for, as has been shown, forestry and forest industries are influenced by, and influence, quite diverse sectors of the national economy.
2. It should permit the coordination of forestry and forest industries activity, not only with the physical and recreational services which the forests provide, but also with other land-use practices that are influenced by forestry.
3. It should ensure the interchange of ideas between those responsible for forestry and those whose chief interest lies in forest industries. There must be a realization, and this realization must be reflected in the structure, that forestry and forest industries are interwoven; that what is grown and tended determines what is manufactured; and that what is demanded by consumers should dictate what is grown. Each depends upon the other. Production forestry is a whole process, and not a set of distinct, unconnected activities.

The integration of forestry development planning with national and regional planning, and the coordination of forestry with other land-use practices may be achieved by assigning forestry officers to the national or regional planning units or development ministries. An officer who is assigned the responsibility for advising on the planning of forestry and forest industries should, of course, be a person with a knowledge of the relevant disciplines. There is frequently some doubt concerning the type of training such an officer should have had. There appear to

be three possibilities: a person who has been formally trained in both forestry and development economics; one whose main area of training has been in forestry but who has acquired a knowledge of economics through experience of working with the tools of economists, and through seminars and in-service courses; and one who has been trained in economics and has gained a knowledge of the fundamentals of forestry. It is probable that the first sort of person is the most suitable for the type of task that is envisaged, but it is rarely possible to find such an expert, even in the developed countries. Forest services in developing countries must therefore choose from the personnel available. In any case, formal training is not the only criterion. What is required, perhaps even more, is a person with the ability to look at matters objectively, to ensure that the case for forestry is considered in its proper perspective and, while paying special attention to the sector for which he is responsible, to consider the national economy as a whole.

The officers whose duty it is to assist in the coordination of forestry and other types of land use, particularly with regard to the cause/effect relationship between the practice of forestry and the presence of forests on the one hand, and erosion and water control on the other, should of course be specialists in these matters. They should be continuously available to advise not only on the physical impact of forestry on the general environment, but on the effects, both short- and long-term, of those land-use practices which lead to the clearance of forests and the disturbance of wildlife, and which have an impact on recreation. The channels of communication between forest services and other government officers who deal with land matters are often tortuous and clogged, and it is for this reason that it is essential that this type of officer should also be placed in a coordinating department such as a planning unit or a development ministry. Although both these classes of officer will be physically assigned to the department responsible for planning, they should remain in the forest service, be under the control of its head and be ultimately responsible to him, for the essential links between the forest service and the central or regional governments in these areas must be maintained.

The problem of achieving the desired cross-fertilization of ideas and information (regarding policies, technology, markets, supplies, and future trends in the forestry and forest industries sector) between those responsible for the production of the wood raw material, and those concerned with its conversion into semifinished and finished products, is complicated by the fact that there is, in many nations, an ancient dichotomy between forestry on the one hand and forest industries on the other. This is an artificial and untenable distinction, but it is so ingrained in some countries, in which the State produces the wood and private entrepreneurs control the conversion and manufacturing processes, that many aspects of the national economies, or attitudes to public or private sector behaviour, would have to be radically altered if the integrated planning of forestry and forest industries and the implementation of these plans are to be ensured.

It is possible, of course, by employing fiscal and legal measures to direct industrialization along the lines which the State desires. But these measures do not offer guarantees that investment will be made in those industries and areas considered desirable. They merely provide restraints and incentives which it may not be possible to make strong enough to achieve the objectives.

Another way of ensuring the desired integration and cooperation is through the establishment of forestry and forest industries consultative committees. These should be statutory bodies, and their composition should be such that they reflect the opinions of a wide range of forest industrialists as well as those responsible for the growing side of forestry. In this manner a forum for the closest cooperation between those two indispensable arms of the forestry and forest industries complex would be provided, without too drastic an alteration of the existing structures.

This sort of approach is already being pursued in a few developing countries. In Western Nigeria, for example, following the report¹⁵ of a committee set up to enquire into forest policy and management, a forestry commission was established. The important points in the present context are that it is a statutory requirement that membership of the commission should reflect the various interests concerned with forestry, namely production, utilization, marketing, and ownership, and that at least two of the seven commissioners should be representatives of forest industries. In the words of the report, one of the main purposes of the commission would be: "to formulate and administer a long-term system of planned forest management and forest industry regulation."

However, the most effective means of achieving the integration of the forestry and forest industries complex is, perhaps, for the State to become actively involved — for this and other reasons — in the processing of wood products as well as in raw material production. In Ceylon, for example, a State Timber Corporation has been established since 1957. This corporation manages and controls such forestry and forest industries activities as timber extraction, primary wood conversion, and the manufacture and marketing of wood products. In the Sudan and some Indian states a somewhat similar arrangement exists. In Malawi a chain of sawmills is owned and operated by the State. In Tanzania a recently established particle board mill is entirely owned by the Government, which also possesses shares in a plywood factory. In Paraguay at least one sawmill is government-owned. In Honduras, plans are already at an advanced stage for government participation in a pulp and paper factory. Although the financial interests of the Honduran Government will be quite sizable, the majority of shares will be owned by private investors.

The range of active participation which a government may take in forest industries management and control is, therefore, quite wide. Since these industries possess distinct social and economic developmental

¹⁵ A.L. Mabogunje *et al.*, *Forest policy and management in Western State of Nigeria: Report of the Committee set up by His Excellency the Military Governor of Nigeria*, Ibadan, 1967.

characteristics, in addition to the financial profits which they undoubtedly provide, it might be good policy for more developing countries to undertake this type of investment.

RULES AND REGULATIONS

Apart from these organizational defects there are, in many developing countries, procedural obstacles to efficiency which appear to be unnecessary even within the civil service structure. Most governments in developing countries have not changed the functional machinery of the administrative services which they inherited at the time of independence, and the rules and procedures governing the day-to-day administration remain, to a great extent, as they were in the preindependence era. The implications of this to the general national administration are not of concern here. What is important, in the present context, are their effects on forestry.

The pivot of the present functional machinery in most forest services is the necessity for civil servants rigorously to follow a set of general or government orders or some such body of rules, and to be guided by precedents in the tendering of advice and the solving of problems. There are, of course, many advantages to be gained by the possession of rules and procedures which direct the actions of personnel, for they impart a certain uniformity of approach, and tend to limit nepotism and corruption. However, in an activity such as forestry, they should be a framework and not a straightjacket. Moreover, many of those which obtain in developing countries were formulated in circumstances which bear little relevance to the developmental needs of forestry today and they should, in such cases, be revised. With regard to administration by precedents, this is again desirable in some situations but there are few precedents, in the developing countries, which are based on decisions in the forestry industries sector under political independence. There is a clear case, therefore, for the formulation of a set of rules specifically for the forest service. This does not necessarily mean that the forest service should be outside the general civil service organization. There are many cases of branches of the civil service, such as the police, which, while operating under rules and employing procedures specially evolved with their particular functions in mind, are yet responsible to legislatures through a minister, and remain within the general framework of the civil service.

DISPOSITION OF FIELD PERSONNEL

Another legacy of the past under which forest services operate is the spatial distribution of their personnel. In a study¹⁶ made of three developing countries in Africa, Asia and Latin America in order to determine the rationale of the distribution of professional forestry staff

in the field, certain parameters were used,¹⁷ based upon the activities of the forest services. Even when factors such as the ease of communication within the region were taken into account, the postings appeared at first to be irrational and haphazard. It was only after the history of the forest services in the various countries had been investigated that it became obvious that forest officers were being posted to particular areas merely because these were the traditional places to which they had always been sent. These are not isolated examples, and in many developing countries the result is that the deployment of field personnel is such that some districts are undermanned while others are overstaffed.

In other countries there is overcentralization. Professional forest officers are concentrated in one or other of the main towns, are not provided by governments with the necessary incentives for living in the often difficult field conditions, and are not given adequate travel allocations. This failure of governments to provide the necessary physical environment leads to poor supervision of the junior field staff, increases the opportunities for corruption, often permits encroachment on the forest estate by shifting cultivators and illegal operators, and inevitably results in the destruction of the forests, the wasteful exploitation of a valuable resource, and the loss of revenue.

It must therefore be clearly understood that the way in which staff are organized in the field is an important aspect of forest administration. Their deployment must be guided by the volume and complexity of the work they have to perform, and by the availability of means of communication such as roads, rivers and vehicles, which permit them to travel to the work areas. In this, as in most matters, the exercise is mainly one of assessing the costs to be incurred and the benefits which would result from the various alternatives of disposition, and deciding on those which would maximize net returns within the social context of the country.

Often complementing this organizational shortcoming is a failure of communication, an absence of the skills that are so necessary in personnel management. This is particularly important in forestry where efficient administration requires that professionals visit, and sometimes live in, the forest, in circumstances in which such postings are often interpreted by the local population as a sign of inferior status. The best men, they feel, are kept at headquarters.

Before leaving this examination of the various defects of forest administrations in developing countries, it may be useful to stress that although formal structural arrangements, special rules and regulations, and a more rational deployment of staff undoubtedly help to influence the efficiency of the forest service, in the final

¹⁷Because forest officers in these countries were exclusively concerned with overseeing timber exploitation, inspecting leases, sawmills and other conversion plant, and in regenerating the forests either naturally or artificially, the parameters were the area under their charge and the number of leases, etc., on it, the volume of timber produced in those areas, the number of processing plants they inspected, and the silvicultural activity (calculated in terms of area regenerated, thinned, etc.).

¹⁶K.F.S. King, *Some aspects of forest administration in developing countries*, *Obeche*, 1 (1), 1965.

analysis it is the attitude toward forestry and economic development that is most important. In order for the sector to make the contribution to development for which it has the potential, governments, forest officers and the public must be development-oriented. Governments should appreciate not only the contribution which the forestry and forest industries sector can make, but also its special features and the need for establishing the links which have been discussed. They ought to understand that, because of the long-term nature of forestry, funds should be allocated not on a year-to-year basis, but for long enough periods for foresters to be assured that their plans will be implemented, that the forests which they have planted will be tended, that the industries which they have advised should be established will be provided with the necessary wood raw material. Without this understanding, there is danger that scarce resources will be frittered away on projects which remain unfinished.

By the same token foresters must understand that their profession and their activities are not outside the general framework of the nation's economy, but are a part of it. They must strive therefore to achieve an integrated approach to planning and, where necessary, to the execution of these plans. In these matters, the spirit and attitude are often more important than the formal organization although, undoubtedly, the latter can be of great significance.

To recapitulate, the following suggestions are made:

1. Because of the characteristics of forestry and forest industries, forest services should be given a greater degree of autonomy than is normally possible within a civil service.
2. Means need to be found for integrating the growing side of forestry with the industrial side. To this end it may be advisable for governments either to control forest industries or to participate in their ownership and management.
3. Specialists in the fields of forestry development planning, and the nonwood services of forestry, should be assigned to the ministries or other units that are responsible for national or regional development planning. They should, however, remain members of the forest service, and be ultimately responsible to the head of that service.
4. The administration of forestry departments should be guided not by the general body of rules and regulations which govern the civil service, but by a special set of rules and regulations which take into account the characteristics of the forestry and forest industries sector, and the business nature of government forestry.
5. The distribution of field personnel should be rationalized, special attention being paid to the input/output relationships that are involved in the deployment of staff in different areas.
6. Above all, the nation must be development-oriented, and governments must provide forest administrations

with the necessary funds to perform their manifold duties. This may mean a special dispensation with regard to the time-honoured system of allocations through annual budgets.

Education, research and extension

From the discussion of the administrative difficulties under which most forest services operate in the developing countries, it will be evident that there is need for a reorientation in the training which foresters have traditionally been given. This task is complicated by the fact that, in addition, the number of trained foresters must be increased at all levels if the forest resources of the developing countries are to be mobilized to their best advantage.

Table IV-1 gives an estimate of the number of practising professional foresters in the world, and their geographical distribution.

It will be noted that the more industrialized countries utilize 71 000 or about 80 percent of the world's total of forest practitioners. It will also be observed that, of the 17 000 foresters who are estimated to work in the developing countries, 11 000 are believed to be in China (Mainland), leaving a mere 6 000 or fewer than 9 percent of the world total in the less industrialized countries in Africa, Asia and Latin America. By contrast, these countries possess over 50 percent of the world's forest land.

FAO has also estimated the number of professional foresters and technicians¹⁸ who will be required by 1985 in 57 selected developing countries of Africa, Asia and Latin America, if the various forest services are to be able to manage and service their forestry and forest industries sectors effectively (Table IV-2). To make this kind of estimate, is, admittedly, a hazardous exercise. However, the gap between what exists and what is wanted, even in the restricted sample of countries so far investigated, is so

TABLE IV 1. NUMBER AND GEOGRAPHICAL DISTRIBUTION OF PRACTISING PROFESSIONAL FORESTERS IN 1968

	Number
Europe, including U.S.S.R.	32 000
United States and Canada	30 000
Japan, Australia, New Zealand and South Africa	9 000
Total developed regions	71 000
Africa	500
Asia, excluding Japan and China (Mainland)	4 000
Latin America	1 500
China (Mainland)	11 000
Total developing regions	17 000
Total all regions	88 000

¹⁸ Throughout this chapter the term professional is used to describe a graduate of a university, or equivalent institution, in forestry or ancillary subjects. A technician is a person who, after a minimum of nine years of schooling, has undergone formal full-time training in a recognized institution at the subprofessional level. No estimates are given in Table IV-2 of the personnel required at the vocational level (i.e., forest guards, foremen, etc.).

TABLE IV-2. -- TRAINED MANPOWER REQUIREMENTS FOR FORESTRY AND FOREST INDUSTRIES, 1985

	Technical manpower	Professional manpower
Latin America (24 countries)	30 600	6 500
Asia and Far East (9 countries)	22 800	5 700
Africa (24 countries)	9 600	1 800
Total	63 000	14 000

enormous that any deficiencies in the criteria and methodology¹⁹ are likely to be of only minor significance.

Not surprisingly, a similar disparity is found in the number of institutions which provide forestry and forest industries education at university level. FAO surveys, the results of which are shown in Table IV-3, show that over 70 percent of these forestry institutions of higher learning are in the more industrialized countries and that, if China (Mainland) is excluded, the developing countries possess only about 17 percent of the existing forestry schools.

Although this poverty of numbers of forestry education institutions is an undoubted weakness it may, paradoxically, be a future source of strength for the developing countries, provided that they strive immediately to remedy the situation. For it provides them with the opportunity to create those institutions in which the personnel whom they require will be trained not, as in so many cases in the past, in a manner irrelevant to their development needs, but in a way in which the future requirements of the entire national economy will be taken into account. It is much easier to

TABLE IV 3. - NUMBER AND GEOGRAPHICAL DISTRIBUTION OF FORESTRY INSTITUTIONS AT UNIVERSITY LEVEL

	Number
Europe, including U.S.S.R.	56
United States and Canada	44
Japan, Australia, New Zealand and South Africa	34
Total developed regions	134
Africa	3
Asia, excluding Japan and China (Mainland)	16
Latin America	15
China (Mainland)	20
Total developing regions	54
Total all regions	188

¹⁹In a study of this nature, it might have been more appropriate to determine the work-force requirements for each forestry activity and then to apply supervision ratios to assess needs for trained personnel at various levels. However, for lack of locally derived measures of labour requirements, it was not possible to adopt this approach. Instead, empirical norms of technical personnel per unit area of forest and unit of production were used. Estimates of requirements for professional personnel were derived by applying empirical supervision ratios. These norms and supervision ratios are largely based on data from the various regions and, while they are considered to be workable averages, they will need to be adjusted for each country and revised in the light of technological advances and changing socioeconomic conditions.

educate and train a mind that is uncluttered by the dogmas and false tenets of the past, than it is to attempt to recast old and hardened attitudes into new moulds. Nevertheless, provision should also be made for further training to be given to those officers who are already qualified.

In the following paragraphs three types of activity which greatly influence forest administration and, consequently, forestry and forest industries development — education, research, and extension — will be considered. It is realized that these activities are interconnected and interdependent. They are discussed separately only in the interests of a clearer presentation.

EDUCATION

In this section an attempt will be made to answer two questions:

1. Where should the vast numbers of trained foresters who are needed in the developing countries be taught?
2. What kind of education should they receive?

It is sometimes urged that, because the cost of producing a professional forester is high, and because many of the techniques and technologies with which the student would have to be familiar may not be readily available in developing countries, it would be wise policy to train professional foresters in institutions that are already established in the more industrialized countries. It may be argued, however, that the protagonists of this point of view, though rightly cost conscious, and though sincerely concerned with the use of the scarce capital resources of the developing countries, have not given sufficient weight to the benefits. They frequently do not consider the full range of social and economic advantages which accrues to the student, and ultimately to the nation, through his being educated in a physical, social, and economic environment similar to that in which he will have to work on the completion of his training.

Even if it is true that the initial costs of educating a student at the undergraduate level in a developing country are higher than those of training him at a similar level in developed countries,²⁰ these costs are reduced with time, and the graduate is often better equipped to deal with local problems because he has been trained to think about them in the context in which they are found. And although a higher degree of teaching ability is often demanded in relatively nonindustrialized countries when explaining certain aspects of forest industries, these difficulties may to a great extent be overcome through the use of visual aids. What is more important, however, is that these drawbacks are more than compensated for by the advantages that are gained in the teaching of those other aspects of forestry and forest industries which rely

²⁰This, however, is not always the case. FAO has compared the costs, in purely financial terms, of educating Iranian foresters in a developed country with those of educating them at home, and has found that it is cheaper to train them in their own country.

heavily on local examples, and on the local environment: dendrology, silviculture, land use, forest influences, wildlife management, the place of the sector in national economies, forest management and forest administration. Independent thought, moreover, is a habit which does not come easily but yet is vitally needed in the developing countries and which may best be nurtured in familiar environments. It is equally desirable that the closest links should be established, at the outset, between the future leaders of this sector of the economy and the people whom they will ultimately serve. These links are better forged if the leaders do not consider themselves as beings apart because of their overseas education.

Two last points need to be made. First, it can be demonstrated that the failure rate of students from the developing countries who seek education in developed countries is higher than that of those who are educated in environments similar to their own. The reason for this is not, generally, because of lower educational standards in the developing countries, but usually because of the difficulties in living and studying in alien societies.

Secondly, in most developing countries those who are selected for overseas education are usually from among the best qualified of the student population. It is a sad fact, however, that a very high proportion of those who are successful, in some countries as high as 60 percent²¹ and usually the most gifted, do not return to their countries of origin. In contrast, the number of successful locally trained personnel who ultimately seek permanent employment abroad is extremely low. Foreign education encourages the brain drain.

For these reasons, therefore, it appears best on balance that undergraduate education be provided in the developing countries themselves. It must be stressed that what is being suggested is not the establishment of forestry institutions of learning in each country which hopes to develop its forestry and forest industries sector. There is great need for a careful evaluation of the national manpower requirements of the sector, for an assessment of these on a regional basis, and for the planning and establishment of forestry schools in such a manner that they serve large areas with similar physical environments, at similar stages of economic development and with similar problems.

The solution which has been offered to the first problem posed in this section raises a supplementary question. If it has been decided to train undergraduates in forestry in the developing countries, in what sort of institution should they be educated? The answer to this depends upon the existing educational system of the country or region that is being considered. However, as a generalization, it would appear advisable to establish forestry faculties or forestry departments within universities, rather than as separate institutions.²² Apart from the psychological advantages to be gained in many

developing countries from possessing a university degree which has been awarded by an institution that also confers degrees in other fields of learning, there are usually benefits to be achieved both in the quality and range of the teaching offered and in the reduction of the total costs per student.

Forestry education at the undergraduate level should be interdisciplinary. The modern forester needs to receive training in a very wide range of subjects, many of which are taught in other disciplines and to other professions in the university. It is obvious, therefore, that costs would be considerably reduced if the embryonic forester were able to draw upon the existing resources for those aspects of knowledge that are not peculiar to forestry. It is also more than probable that the quality of the teaching given in these sometimes basic interdisciplinary subjects would be higher than if taught by forestry specialists. However, in order to achieve the desired forestry slant, it may be necessary either for special courses to be arranged for the forestry student or for the members of the forestry department to apply the basic material taught in other departments and faculties in their own, more specifically professional lectures. Whatever the system employed it is essential for the undergraduate to appreciate that, although he is being trained as a forester, forestry is only one of the many important national activities; and it seems that a university is a better place than an autonomous institution to give him the desired intersectoral outlook.

What should be taught in these forestry faculties in the universities of the developing countries? To a large extent the answer should be clear from the earlier discussion of the expertise required of the modern forester. A few points will, however, be specially stressed. It is fashionable for the advocates of this or the other relevant discipline to draw up a list of subjects, and to emphasize that his particular speciality deserves considerable attention. The result is that in many countries, both developed and developing, forestry curricula frequently become extremely crowded, or there is an imbalance which often reflects not the needs of the students and the nation but the ideas of the most persuasive or influential professors.

It is not possible to make a universal declaration of the contents of forestry curricula. There are, however, certain general observations which can be made. First, it must be broadly based at the undergraduate level. The professional forester is essentially a resource manager and he must therefore be given the type of education which equips him for advising upon, planning and supervising the use of these resources. This means that he must understand how all the ramifications of the economy of the forestry and forest industries sector operate and how the sector is, and can be, integrated with the national economy. Because the resource which he manages is one which includes not only the forests but lands which may be used for forestry, for recreation, for wildlife and for other forms of land-use which influence or are influenced by forests, he must have an appreciation of the interactions of all these activities and their social implications. This does not mean, however, that the

²¹ Jahangir Amusegar. *Technical assistance in theory and in practice*. London, Praeger, 1967.

²² The FAO Advisory Committee on Forestry Education has repeatedly emphasized the advantages to be gained from such an arrangement.

courses which he is given must be cluttered with detail, for the professional forester is not a technician. This is often not clearly understood, and the result is sometimes a person who is unsuitable either for a professional's or a technician's post. The courses offered the undergraduate forester must be a judicious selection and combination of the past and present knowledge that is relevant to the practice of his profession. In particular, he must be trained to think, to question, to seek information for himself, and to continue to learn, always.

Secondly, the emphasis in the curriculum must be on those areas of knowledge which are especially relevant to the country or region for which the students are being prepared. These areas should be identified by studies of the national economy, national development plans and manpower requirements. It follows that as times change courses will have to be revised, not only to keep in line with new developments but also to meet the changing demands of the society which the student is called upon to serve.

Thirdly, the forestry undergraduate should be taught to use the relevant tools of scientific management and administration. This should be an important part of the curriculum wherever the institution is established. The significance of this has already been discussed in the context of the day-to-day administration which forest officers are called upon to undertake. It must however be emphasized here that, if the professional forester is not to perform the duties of a technician, his role as a manager must be performed more efficiently, for he will, to a considerable extent, have delegated many routine duties to the subprofessional cadre of the forest service.

Above all, the undergraduate should be so educated that he is development oriented. This requirement has been touched upon when discussing the necessity for his education to be broadly based. However, it deserves mention in its own right because development is his *raison d'être*.

In short, the object of the education of the undergraduate is to produce a development-oriented resource manager, with a wide basic knowledge of forestry and forest industries, who would supervise a body of subprofessional technicians, guards, foremen, etc. However, in addition to this flexible generalist, the forest service requires specialists on the one hand, and technicians on the other.

The considerations which govern the place in which the specialist receives his training are somewhat different from those which have been examined with respect to the undergraduate. If the student has received his initial professional training in his own environment, he will already have profited from the advantages which have been discussed, and it should greatly widen and deepen his experience if he carries out his postgraduate work in a developed country. The importance of this will, it is true, depend to a great extent on the nature of the specialization that he follows. Many aspects of ecological research, for example, are best done in the home country if the academic and research facilities are available. Nevertheless, as a general rule, it is desirable that both the generalist and the specialist who have been trained in

their own environment should be given the opportunity, at some future time, to study abroad in order to add to their experience, and to achieve the necessary interchange of ideas.

The type of specialization undertaken should be geared to the nation's requirements. But there is such a great need in developing countries for forest economists and forest industries specialists that it would appear advisable for many countries to try to provide suitable opportunities for specific training in these fields as soon as possible.

Specialists are required not only for research but also to carry out certain specialist tasks of forestry and forest industries, both in the public and private sectors of national economies. For example, in an analysis²³ of the job functions and educational experience required in the pulp and paper industry, it was considered that 18 areas of academic training were relevant. There were 27 job functions which ranged from timber operations (including forestry research, logging, and forest management), through manufacturing operations, marketing, research and development, and engineering, to administration. As might be expected, it was considered that a knowledge of industrial engineering and of pulp and paper technology would be useful in most of the job functions. What is significant, however, is that next in importance to these was training in business administration, and the call for economists was considered to be almost as high. Forestry training per se was thought to be useful only in 7 of the 27 functions, and biology only in three.

Admittedly, the pulp and paper industry is a rather exceptional type of forest industry, in that the engineering, industrial and management skills that are required are somewhat more complex than for most other forest industries. However, this analysis does indicate that, if the development of forest industries is being planned, it is advisable to have or to train specialists in areas other than those of traditional forestry.

The training given to the two types of specialists, researchers and operators, ought to be quite different. The researcher must be trained and encouraged to innovate, to adapt techniques and ideas to his own requirements, and to design and analyse experiments in such a way that significant results are obtained. Primarily, however, his training should be attitudinal, so that he may be better prepared to question ancient concepts and the traditionally accepted views of his profession.

The operations specialist should be given the training which would make him a person with a deep knowledge of his particular field, one who is able to perform his functions with expertise and with facility. Although the two types must inevitably overlap in conceptual and in technical and scientific ability, the sort of person required for those types of activity often possesses different attributes.

At the other end of the scale of educational requirements are those who should receive technical and

²³ American Paper Institute, *Of paper and opportunity*, New York, 1965.

vocational training. The great shortage of trained workers at this level in forestry and forest industries in the developing countries cannot be too strongly stressed. Too frequently professional foresters who have been educated at great expense to perform managerial tasks are, because of this deficiency, forced to perform functions which should be assigned to the subprofessional cadre. If the wide and general training which has been suggested for the general forester is accepted, it is absolutely necessary that a strong staff of technicians be available. Forestry education plans should therefore not be formulated in a piecemeal manner, but the whole range of manpower requirements should be considered, and educational institutions to accommodate all levels of training should be coordinated and established concurrently.

Because of the nature of the work these subprofessional officers will be called upon to undertake, it is essential that they should wherever possible be trained in their own countries. They should be made familiar with all aspects of forestry and forest industries that fall within their competence. Here again, the tendency to overload curricula should be avoided; for instance, the methodology of forest policy formulation, the details of the various industrial processes, the chemistry of wood, the physiology of the forest vegetation, certain aspects of soil genesis, etc., need not be stressed. These are the tools of the professional forester who sees not only the particular forest but the whole forest estate, not only the forestry and forest industries sector but the whole national economy. The technician and the forest worker are craftsmen who must be taught their crafts.

It has been stated above that there is a dearth of foresters at all levels in the developing countries, and that this deficit should be met by the establishment of schools in the developing countries themselves. It should, however, be apparent that, if the forest services and the forest industries do not have at present the necessary trained manpower to perform their duties, it would be difficult to provide teachers for these new institutions.

FAO is very conscious of this difficulty, and has assisted in the establishment of forestry educational institutions at all levels in various developing countries. Many of the more industrialized countries are also interested in this problem and are helping to improve forestry teaching facilities within the developing countries by means of bilateral aid.

The responsibility of foreign experts in the field of forestry education is great. They set the pattern for future development by assisting in the choice of the counterparts who will run the schools after their departure, by planning the courses of study and by formulating a guiding philosophy of forestry education. It is important that they be chosen not merely for their technical and scientific knowledge, but for their ability to impart this knowledge, for the spirit of humility with which they face the problems of an alien society, for their commitment to the economic development of the countries and regions in which they work, and for their appreciation of cultures and ways of life sometimes vastly different from their own.

The language of tuition may not be that in which the teacher habitually thinks. Very frequently, particularly in Africa, although the student has facility in the language of exposition, it is his second language, and he is happier in his local language. These two factors greatly increase the difficulty of teaching, and demand great patience and ingenuity from the teacher. Moreover, the difficulty is compounded by the virtual absence of textbooks which reflect the local scene and are primarily concerned with the development of tropical forestry and forest industries.

It is therefore essential that these teachers be carefully selected. It is also important that suitable textbooks be made available and that modern aids be used at all times. Here again, FAO is trying to remedy this situation by collecting and collating the texts of its project officers engaged in teaching in the hope that books relevant to conditions in the various regions may be issued.

RESEARCH

There is little dispute concerning the necessity for research in all forestry and forest industries activities. But there is much controversy over the level and type of research which should be conducted in developing countries. Although the reasons given for taking this or that position in the forest research controversy are many, the essence of the problem appears to be the high capital costs of some forms of research. It may therefore be advisable, for the purpose of this discussion, to identify two broad categories: the relatively inexpensive and the expensive types of research.

In most developing countries what is considered to be inexpensive research is usually undertaken. Much of this is of necessity relatively unsophisticated, but even here there is much scope for improvement. Many of the advances made in forestry in the more industrialized countries can be comparatively cheaply adapted to tropical situations. Yet the gap is very wide between what is known and practised in the developed countries and what is being done in the developing countries, in those fields in which there are apparently possibilities for adaptation.

This is not to say that all the progress made in the developed countries can be transferred to the developing countries. The application of technological advances cannot be separated from the social, economic and ecological context, and from the institutional framework in which the forestry and forest industries sector operates. This is extremely important, but it does not mean that the technology of the developed countries should be rejected out-of-hand. What it does imply, is that very careful consideration should be given in adaptive research to socioeconomic factors which have little to do with the efficiency of the machine or technique that is being tested.

In some countries it appears that a disproportionate amount of time and energy is spent on the growing side of forestry to the neglect of other areas of research. The work done on forest products utilization is often quite inadequate and little research, if any, is conducted in such areas as forest products marketing and work science.

There is also a large neglected field of social and economic problems which pertain to forestry, which does not demand any expensive equipment for their investigation but needs to be carefully researched if progress in forestry is to be achieved on all fronts.

The most important gap, however, exists in what has been classified as the expensive research category, and it is here that there is conflicting opinion concerning the role which the developing countries themselves must play. It may be useful therefore to show how this concentration on what seems to be low cost research might fail to solve some problems that are fundamental to the progress of forestry in certain areas.

One problem which has plagued foresters in developing countries for a long time is the difficulty of utilizing completely the mixed tropical hardwoods found in their forests. In many places the proportion of species considered to be marketable is low, and the remainder are therefore classified as weeds. Much research effort has been devoted to regenerating those species that are considered to be economic in the sense of being salable, not necessarily in the sense of returning the cost of growing, and to eliminating those species that are considered to be unmarketable. In some countries the research has been going on for almost all of this century, and yet only in a few have economic answers been supplied, even on a local scale.

The amount of money spent over the years in various countries in the attempt to provide superior stands by natural regeneration methods is quite considerable. It is being suggested here, however, that this problem is not really one of silviculture and of ecology, but of utilization, and ought to have been tackled in a way which seems likely to give greater returns, though it might initially cost more than the conventional regeneration methods. It is not improbable that, if some of the resources expended on natural regeneration research had been partly diverted to technological research on the utilization of mixed tropical hardwoods for various end products, the results would have been more fruitful. The approach that has been followed may appear to have been inexpensive in the short run, but there is little doubt that in the long run it has been quite costly.

Those who oppose complex research of this type in forestry and forest industries being carried out in the developing countries argue that, because it requires highly trained experts and much financial expenditure, the less industrialized nations cannot afford to take the attendant risks, and that proposals for sophisticated research institutes are unrealistic. They assert that the forestry problems of developing countries are not unique, and that therefore these countries should utilize the facilities and experience of the more industrialized nations. On the other hand, a case may be presented which shows that the opportunity costs of the developing countries not pursuing this category of research themselves are quite high.

Where there are differences of opinion of this nature it is often advisable to examine the available empirical evidence in order to determine if a valid judgement may

be given. It has been shown that in recent years there have been advances in many aspects of forestry which affect the developing countries. It is now possible to utilize mixed tropical hardwoods for pulp and paper; the technology for the conversion of small-sized logs to plywood is now well-established; the utilization of mixed species for particle board manufacture is a daily occurrence. All these advances have come about as a result of research which originated and which was first applied in the developed countries.

However, the research was undertaken as a result of the pressures on the forest resources of the more industrialized countries, and because of their rapidly increasing labour costs. In general, it was not carried out to help the developing countries to solve their problems, and any gains which they obtained were incidental to the main purpose of the exercise. It is therefore implicit in the arguments adduced by those who urge that expensive research should be confined to the more industrialized nations that the developing countries must not only await the timing of research activities in the developed countries, but that they must, at the same time, hope that the results of these activities will be of use to them. It appears that, unless the habits of the developed countries change, it would be fortuitous if the advances which they make in forestry and forest industries could be applied to the developing countries at the time when they need them most.

Moreover, the high-level research undertaken locally would be of great assistance to the forestry institutions of higher learning which have been advocated. The universities would be stimulated by the achievements of the research centres, and the latter in turn would be inspired by the presence of the universities. In addition, the absence of organizations concerned with the complex type of research often retards the development of a capability for design, and for the solution of all but the simplest of problems. The presence of these institutions might also help to dam the stream of trained personnel which flows so relentlessly from the poor to the rich countries.

Nevertheless, the difficulties caused by the high costs of trained manpower and facilities for complex research are real, and it would be irresponsible to advise all the developing countries to attempt to undertake this category of research. One solution to this problem is for specific research projects to be carried out in the institutions already established in the more industrialized countries. However, although this is desirable and ought to play an increasingly important role in future forestry research and in future bilateral aid, there is no guarantee that these facilities will always be available, or that the projects considered important by the developing nations will be given the same priority by the developed world. In addition, the valuable experience to be gained through the formulation and solution of problems would be denied many of the forestry researchers in the developing countries.

On balance, therefore, it would seem desirable for the developing countries to establish regional forestry research institutions. The contribution which research has

made in the developed countries to the improvement of the forestry and forest industries sector is so great that, provided they are well planned, the establishment of research institutes in developing countries would not be a luxury as is so often argued.

Almost inevitably, in the initial period, many of the research posts will have to be staffed by experts from the developed countries, to be relieved by local personnel as they become trained. This, of course, raises career problems for the expatriate researcher -- not only in forestry, but in all fields in which such personnel are required. It is therefore important that a system be established whereby those workers who are needed for certain periods in the developing countries may be made available for as long as they are required, but may be reabsorbed into their own forest services without being penalized for having helped the developing countries.

Whatever the category of research undertaken, it is important that it be planned to meet the short- and long-term development requirements of the nation and not the whims of individual researchers, and that priorities be clearly established. It is essential that there should be cooperation between the various forestry and forest industries research institutes and, wherever possible, coordination of their activities. Above all it must be appreciated that the results of research have a greater chance of being applied if they are conceived with the social, economic and technical needs of the potential recipients constantly in view, and if they are fostered in the local context.

EXTENSION

The problems of communication which beset the forester are somewhat different from those which are faced, for example, by an agricultural extension officer. Part of the latter's work is concerned with convincing the farmer that he should adopt new technologies, use improved strains and employ modern practices in the raising of his crops. In contrast, because the forester in a developing country in most cases produces the raw material himself, he does not generally have to persuade anyone else of the necessity to modernize and make more efficient those aspects of forestry concerned with the regeneration of trees.

As has been stated, the forester is a resource manager. It has also been indicated that the use of this resource might affect the livelihood of those people who live in or near the forests, as well as those who are far removed from them. An important part of the forester's work therefore is to explain the influence of other land-use practices on the forests.

It is perhaps not surprising that many farmers in developing countries do not understand the cause/effect relationship which exists between forests, water and soil. As a result they seasonally burn the forests, practise shifting cultivation, fell forests on steep slopes in order to cultivate the land, plant crops which tend to hasten erosion, and generally ravage the forest estate. What is more reprehensible is that sometimes governments and those officials responsible for other forms of land use either do not appreciate the effects of these practices or

choose to ignore them. The consequences are that the valuable forest resource is wasted, water regimes are sometimes adversely affected and agriculture in other areas often suffers.

Foresters have long been aware of this problem of maintaining their production and protection forests, and have tried to prevent their misuse by, *inter alia*, advising governments to enact punitive legislation, and by organizing patrols around and within their forests. Although useful, these methods exert only a limited effect and it is therefore necessary to persuade and demonstrate to the people that they are dissipating their patrimony. This is especially important in those countries in which there are valuable pockets of forest not owned by the State but held privately -- either individually or communally.

To be effective, extension methods should depend upon the prevalent types of offence and existing social conditions. It is of little value to produce television programmes deprecating the practice of shifting cultivation if the communities for which the advice is intended do not possess television sets. However, it may be advisable to train forest officers in extension work, so that they may go to the people and explain to them the problems which they create for themselves by the practices they employ.

Advice and exhortation are not enough. For it is perhaps expecting too much to ask people to give up their time-honoured practices without offering them suitable alternatives. The best approach is therefore interdisciplinary. Agriculturists and foresters should travel together, not only to tell the farmers what is wrong and why it is wrong, but to show them what is right. It must be demonstrated to them how they may prevent erosion, what areas should be chosen for the production of different crops, what strains they should use and what fertilizers they should employ so that yields may be improved and soils not prematurely exhausted, and, if they have to burn, how and when to do so. The protection of the forests is as much the agriculturist's problem as it is the forester's.

It is not only in the field of conservation that there is need for extension. In many developing countries most of the simpler types of wood conversion processes are owned and run by local inhabitants. Often, even where the machinery is not outmoded, the design and layout of the factories are poor, labour is inefficiently organized, the location of the plant is uneconomic and productivity is usually low.

There is therefore much scope for the organization of experts to advise on these matters. There is, for example, need for time and motion studies so that bottlenecks in production may be identified and the necessary redeployment of labour suggested. The experts should actively engage in the designing of factories and their erection. They should study the economics of transport, the relationship of possible plant sites to the raw material and to the markets, and should be in a position to advise on the most economic location of proposed ventures.

Forest services should also disseminate the knowledge which they have acquired with regard to the quantity and

quality of the available wood species, and the uses to which they may be put. Too often suitable local wood materials in the developing countries are not utilized and scarce foreign exchange is spent on more expensive substitutes. Certain grades and types of wood may also frequently be used in situations for which they are neither physically nor economically suitable.

These are the areas in which extension work will be of immediate relevance in most developing countries. The results of all the investigations and research applicable to the nongovernmental arm of the forestry and forest industries sector which have been carried out should be communicated to the people concerned. To do this effectively, all the available media must be employed. This is essential if forest policies are to be properly implemented.

Forest legislation

Although in many countries in Latin America, and a few in Africa and Asia, an appreciable amount of forest land is privately and individually owned, most forest lands in the developing world are held under public or communal ownership. Those forests that are individually or communally owned are covered by an often chaotic mixture of customary law, statute law which relates to the general land tenure situation, and specific forest law. In some countries, where most of the forest land is owned by the State, the laws pertaining to forestry have not been systematized, and the various statutes sometimes contain conflicting clauses. As a result, the particular branch of law which relates to specific forests is often not readily ascertained, ownership is not easily identified and, because of the general uncertainty, the laws are sometimes not enforced. Even in those countries in which the State owns all the forest land and a coherent body of forest law has been promulgated, the laws generally tend to relate mainly to the definition and protection of the forest estate, the terms and conditions of concessions, and to the punishment of offences.

Forest law has not generally been conceived as a positive agent of development, but merely as a means of preventing the misuse of the forests. It has been considered not in terms of its general constructive function, but chiefly in terms of litigation. The consequence of this emphasis on the deterrent and punitive aspects of forest law, combined with the uncertainties and conflicts just mentioned, is that in many cases the law becomes an obstacle to development. It therefore seems necessary to examine the role that law should and could have in moulding and shaping forestry and forest industries development, before discussing some of the defects to be found in existing forest legislation.

It must be recognized that in drafting forest laws it is inevitable that certain conceptual antinomies will be encountered. Should the rights of the individual prevail over the welfare of the State as a whole? Should the emphasis be placed on stability or on change, on tradition or on progress? These are only two of the problems to be met, but they indicate that the law must be placed in the ideological or philosophical context of the nation for which it is being formulated. If this is not done, its

provisions may be generally unacceptable and its enforcement impossible or, at best, extremely unpopular.

However, within these limitations it may be acceptable as a general proposition that in the modern situation the object of all laws relating to forestry should be the promotion and regulation of forestry and forest industries activities so that the forest resource may be utilized for the general economic development of the nation. It seems, therefore, in order to draw up laws which meet this objective, and particularly because what is being advocated here is to some extent a departure from the normal practice, that an analytical approach to forest legislation would be most rewarding. Discrepancies between the existing laws and the economic plans of the nation must be identified, and the legal means that are employed to ensure that the plans are implemented must be examined both for their adequacy and for their possible acceptance by society. The transfer of forest laws which have been conceived at different times and in different places will not necessarily help development.

The collection and analysis of several types of data should therefore precede either the revision of an existing forest law or the drafting of entirely new legislation. All laws relevant to forestry ought to be examined: land law, land-tenure systems, rules of succession, various taxation and industrial laws, the law of contract and the legal conditions under which labour may be employed, minimum wage rates, etc. The criminal law should also be carefully scrutinized, for any recommendations with regard to such matters as penalties would have to fit within its framework. Most important of all is constitutional law. It is often extremely difficult to alter the terms of a nation's constitution, and it is therefore essential that the full implications of its clauses be clearly understood before legislation for any form of activity is drawn up.

Legal investigations are, in themselves, not enough, however. If the laws that are finally formulated for the forestry and forest industries sector are to have the desired propulsive effect, if they are to be employed as an instrument of development it is equally advisable to consider any land capability classifications that are available, any land-use plans which the nation may have and, indeed, the general socioeconomic situation.

With this background knowledge, the nation will then be in a position to revise those other laws which it considers might hinder forestry development. It will be better able to create a forest law that will assist development by clarifying questions of ownership and by regulating the transference of land both *inter vivos* and through succession. It will be able to legislate for the scientific use of its land and for the equitable distribution of suitable forestry industries. Forest legislation cannot be approached by considering only the forestry and forest industries sector. In this, as in all development matters, the integrated attack is often the most effective.

It is not intended to minimize the difficulties of enacting and enforcing this type of comprehensive legislation, which takes into account other sectors of the economy and in which is implicit the function of reforming and modernizing a particular sector or sectors

of an economy. This intrinsic difficulty is increased in the case of forestry because many of the reforms and regulations inevitably concern rights in land: how it is held, how it may be transferred, who should manage it, how it should be used. These are matters in which ordinary people take more than a passing interest and it has been found, in Africa for example, that it is generally easier to change the criminal law, to amend those aspects of civil law which deal with contracts and torts, even to tamper with laws which concern such institutions as marriage, than it is to alter those laws and customs which affect the holding and disposition of land.

To state the difficulty is not to say that an attempt should not be made to solve it. Where forest legislation infringes upon and is directly influenced by time-honoured and traditional customs of ownership and use, it may be necessary to proceed slowly and to appreciate fully the possible social and economic results of any reforms that are advocated. But where there are inconsistencies and doubts they should be removed, where there are discrepancies and divergencies of opinion on what is local custom they should be resolved. It would also be helpful if the varied and confusing terminology which is often used to describe tropical land-tenure systems were made nationally uniform.

The treatment of forest legislation in the developing countries has been couched thus far in general terms. An attempt has been made to show that forest law is specialized and not basic, and that it should be used as an instrument of development. It has also been indicated that in many countries the very concept of the purpose of forest law is outmoded, and that there should be a more functional, a more developmental approach. If this approach is to be followed, the laws will have to be revised from time to time as socioeconomic conditions and technology change. The procedure for the revision of main laws is often cumbersome and time-consuming. It may therefore be advisable to frame the parent forest law in such a way that its provisions are skeletal, but that it authorizes in clear terms a well-defined authority to enact subsidiary legislation, in specific circumstances, by rule, regulation, by-law or order. Amendments to subsidiary legislation can often be comparatively easily performed, and it is here that the details of the law should be included.

In addition to such general shortcomings, there are defects even in the narrowly conceived laws which now regulate and control forestry and forest industries in most nations. The remaining parts of this section will therefore be devoted to these specific obstacles to forestry development. The problems vary from region to region, from country to country. Indeed, sometimes they differ within countries. However, the list which is given below, though not exhaustive, is a representative example of the most common defects which should be removed to enable the sector to develop to its full potential:

1. inconsistencies in the general forest law;²⁴

²⁴The forest ordinance of one developing country has been said to give "the impression of a pack of cards that has been thoroughly shuffled and dealt with several kings and aces accidentally excluded from the pack." W.A. Gordon, *The law of forestry*, London, H.M.S.O., 1955.

2. confusion in the definition of forest land;
3. imprecision in the definition of the powers of forest officers;²⁵
4. conflict between forest legislation and other related laws;
5. incompatibility of forest laws among the states, and between them and the central government in federal types of government;
6. multiplicity of legally sanctioned authorities concerned with forestry matters even in some states with a unitary form of government;
7. dual control of forest lands;
8. prevalence of various rights of usage over forest lands;
9. absence of control over privately owned forests;
10. unnecessary number of types of forest tenure;
11. unsuitability of existing types of forest tenure for development;
12. inadequacy of legislation affecting investment in forestry and forest industries.

All these problems will not be discussed because it is believed that, once identified, some of them are easily rectified if there is the will to do so; in addition, the difficulties are not all of the same importance. Consequently, those listed from (1) to (5) above will not be examined further.

Multiplicity of forest laws and regulations

A case study from a country in west Africa may best illustrate this problem. In that country the forest estate is managed and controlled under three sets of regulations and rules, all of which were passed as a result of powers granted to different authorities by the forest ordinance. These rules and regulations are concerned, inter alia, with the granting of licences for the erection of sawmills.

In deciding whether to refuse or grant an application to erect a sawmill, the authorities are supposed to take account of its proposed location, the adequacy of the supply of logs, the possible markets for the timber, the suitability of the machinery, the layout of the mill, and the financial status and experience of the applicant. However, many of the applicants who are refused by one authority are given permission by another, and the result is that there is a greater number of sawmills than it is the national policy to encourage. Because there is a captive market for sawn timber, the high log prices which are asked as a result of the relatively poor log supply/demand situation, and the high costs of conversion which result from permission being given to inefficient operators who do not possess the necessary experience, can be passed on to the consumer.

It is not intended to examine here the underlying policy of sawmill regulation. The purpose is to show how

²⁵In one country relatively junior forest officers are given important powers that are denied the chief conservator of forests, the professional head of the forest service. This has, to some extent, removed the decision-making process from the chief conservator, placed it in the wrong place in the administrative hierarchy, and might conceivably affect the implementation of forest policy, lead to inconsistent action and, indeed, the balkanization of the forest service.

any policy may be circumvented if the legal machinery for its implementation is ill conceived or, as in this example, if there are too many instruments of law and too many authorities to decide the issues. Nor must it be thought that this problem is peculiar to west Africa and the sawmilling industry. These have been chosen merely as illustrations of a more pernicious malady: the underwriting by law of futile competition between authorities.

Dual control

In some countries, particularly in Africa, there is a legal arrangement whereby forest lands owned by communities are supposed to be managed by the State on their behalf. The owners are represented by councils or other groups of persons who control the issue of forest leases, licences or permits, and employ and supervise the lower echelons of the subprofessional forestry staff. The State provides advice through professional and certain levels of subprofessional staff which it employs and controls, and decides on the type of regeneration to be pursued, the felling cycle to be followed, the rotation of the forests and other technical aspects of forestry. This state of affairs has become known as the dual control of forests.

The arrangement was evolved in many countries in the days before independence, and was presumably designed to protect the rights of indigenous communities from the expatriate ruling classes. It worked reasonably well at a time when forest industrialization was rudimentary, when forestry was essentially a local as opposed to a national undertaking, and was mainly concerned with the extraction of the wood raw material. Nowadays, however, dual control leads to a number of problems. Conflicts between the State and the local authorities arise because the definitive power over forest labour rests with the owners and not with the professional and technically trained officers appointed by the State, because the policies formulated by the State are drastically amended by the local councils, and because there is almost constant friction between the State and the local authorities on such matters as to whom leases, licences and permits should be issued. In several cases, agreement cannot be reached on the leasing of contiguous blocks of forests, owned by different communities, to a single lessee, even when it is clear that because of economies of scale a large area would be essential for the establishment of conversion plant.

Although there are strong indications that dual control reduces efficiency, the actual effect of the separation of ownership and management on the profitability of the forest enterprise has not been the subject of analytical study. However, evidence from other sectors of national economies suggests that, where ownership and control are vested in one authority, a much higher return on investment is provided, there is a better managed capital structure and a more efficient allocation of resources.²⁶

²⁶See, for example, R.J. Monsen, J.S. Chiu, and D.E. Cooley, The effect of separation of ownership and control on the performance of the large firm, *Quarterly Journal of Economics*, 82, 1968, p. 435-451.

It would therefore seem desirable for those developing countries in which dual control exists to devise means of overcoming this conflict of responsibility.

Unfortunately, it is frequently very difficult to change this situation, particularly as the old arrangements have been compounded, in many of the new constitutions of the former colonial territories, by clauses which guarantee the right of ownership and appear to prevent its transference from the communities to the State. One possible answer to this problem, which has been canvassed, is to leave ownership with the communities, but to transfer all those powers that are necessary for proper forest management from the owners to the government.

In many countries, however, the law does not appear to accommodate such a solution. As ownership is legally considered to consist of an aggregated bundle of rights, governments are not permitted to strip owners of these rights if by so doing their residual powers become mere tokens of ownership. The right to dispose, to control and to manage are part and parcel of ownership²⁷ and, if these are all taken away, compensation must be paid. A more feasible solution to the dual control problem would therefore probably be a contractual arrangement between government and owners whereby all aspects of management are vested in the State and, as a consideration, an agreed proportion of the fees and royalties or a fixed annual sum is paid to the owners. There should of course be provision for annual or periodic review.

*Rights of usage*²⁸

Another restriction on the efficient use of the forest resource in developing countries is the prevalence of various rights of usage over forest land. The presence of rights and obligations which are determined, not by transactions between parties but by considerations such as age, sex, religion and tribal affiliation, often reflects a stage of socioeconomic growth in which society is guided, in the main, by status rather than by contract. The exercise of these rights was perhaps desirable when there was not much differentiation of labour and when economies were primarily of the subsistence type. Indeed, they may still be useful in very localized areas. In general, however, they are obstacles to development when exchange economies are introduced, and when efficiency demands the uninterrupted use of a resource.

Apart from the right of entry, the most common rights over forest land in the developing countries are those which concern the taking of forest produce, collection of wood for fuel, planting of crops in the forest, grazing of cattle, lopping of trees for fodder, and taking of soil. In some countries it is even held that

²⁷It should be noted, however, that ownership is not considered to be an absolute right in those countries which operate under the principles of Roman law.

²⁸A right of usage may be defined as a legal interest, generally in land, held by a person or persons, either severally or in groups, giving the power to use or to prevent the use of land or the products of land which is held by another.

shifting cultivation may be practised as a right. Moreover, these rights are frequently heritable, seem to exist in gross, and in many cases the law is not clear as to whether they are alienable.

From the development point of view it is desirable that forest land should be as unburdened of rights as far as possible. Every effort should therefore be made to remove those which exist in the forest estate. Rights may, of course, be extinguished by voluntary abandonment. They may also be extinguished by limitation, by commutation, or by compensation. Whatever the legal methods, the increased security of the forest estate which may be gained often justifies their use.

Private ownership of forest lands

In those developing countries in which there are areas of private forests, they are usually either unmanaged or inefficiently managed. Private forests are found in many parts of the developed world but there are generally provisions for their proper management by the State if the private owners so desire or if the State considers it necessary; moreover, these provisions are enforced.

In the developing countries two sets of factors have generally militated against such a solution. Either the private forests are owned by a class of persons who are politically so powerful that they impede all attempts at legislation and the enforcement of legislation, which they consider to be against their own interests even if it is designed to ensure that forests are managed for the nation's benefit or, as was the case with the communal ownership of forest land which has been considered earlier, national constitutions effectively prevent the imposition of controls over the exercise of the right of private ownership.

The ultimate solution to the problems which arise from both private and communal forest landownership is for the State to assume absolute ownership of these lands. If such a step is contemplated it may be necessary either to change the constitution or to convince the courts that it is in the public interest that the lands be expropriated. Neither of these courses ought to be followed without a thorough investigation of all the consequences which might arise. However, it seems advisable to assemble the various considerations which tend to impede rational forest resource management by private owners, and which therefore call for alternative solutions including, where conditions warrant it, state ownership.

Forest lands possess a distinctive character and specific, complex technical and managerial requirements.²⁹ Because of their special physiographic features forests minimize erosion and reduce the possibility of floods and drought. These effects are far-reaching and the activities of almost every citizen in many areas may be affected by the way in which forests are managed. In some communities the forests are also

much used for recreational purposes. Private owners do not always appear to possess the social commitment to provide these protectional and recreational services and as these services are frequently vital to the development of the community, it would appear desirable for the State to own forests serving such purposes.

The case for state ownership of forest land does not rest, however, merely on the characteristics of protection and recreation forests. In most cases forest areas are able to provide forest products as well as these services. This interdependence of the various functions adds another dimension to the complexity of the managerial requirements of forestry, and often makes it imperative for the State to ensure that one aspect, for example erosion control, is not neglected in the short-term pursuit of another, for example log production.

There are other features which seem to prevent private forest owners from developing their forests, and might therefore justify the intervention of the State, once the necessity for forestry has been established. Forest crops take a long time to mature, sometimes longer than the life span of the persons who regenerated them. Apart from the psychological difficulties which some people experience when undertaking a task the results of which they know they will not live to assess, the private owner is sometimes unwilling to invest in projects with a long gestation period, whatever the possible financial and economic benefits. Moreover, in many developing countries, such as the Republic of Korea, privately owned forests often cover areas that are too small to be economically viable, and it is necessary to group these individual forests into economic units. This may, of course, be achieved through such institutions as cooperative societies. Experience has shown however that, unless they are voluntary, forestry cooperatives are seldom successful. The final recourse may therefore be state expropriation of such lands.

Again, although the liquidation of forest capital can be justified in certain circumstances, as a general rule it is desirable to ensure continuity of supply. The ability of the forest, if properly managed, to yield supplies in perpetuity is one of its chief assets. The forester is able to exploit his forests in such a way that he removes an amount more or less equal to the accumulation of interest or growth, leaving the capital behind. Unfortunately, the capital and interest of the forest are inextricably connected, and achieving the correct cut is a somewhat difficult operation. Private owners in developing countries generally either do not have the requisite knowledge for this operation or the means to employ persons with this knowledge. As a result, even with the best intentions their forest estates are frequently ravaged.

Another limitation to the progress of forestry in developing countries which arises from the private ownership of forest lands is the failure of owners to conduct research designed to improve the efficiency of their forest operations, or to utilize the research findings of the State. It has been shown that even government forest services in developing countries are not always provided with resources to undertake many types of

²⁹ See: J. Prats-Llauradó, *Forestry and agrarian reform*, document, World Land Reform Conference, Rome, 1966. (RU: WLR 66/B).

research projects. Private owners are considerably less active in this regard.

However, the impact of forestry and forest industries on development and the wide and pervasive influence of the sector on national economies are perhaps sufficient justification for advocating state ownership of forest lands. In the developing countries this sector may be likened to a public utility which has the capacity to provide basic socioeconomic services to the community. This characteristic has already been discussed in the earlier parts of this chapter. It is merely necessary to state here that those developing countries endowed with forests or in which conditions are suitable for the establishment of forests ought to consider the sector not only as one from which adequate financial returns may be obtained but, more important, as one which can be vital to sustained economic growth.

There are already signs in those developing countries in which the rights of private forest landownership impede development that the established systems are being questioned and means are being devised to change them. Even in those countries in which the sanctity of private ownership is enshrined in the national constitution the case is being argued, not necessarily by members of governments, for an extension of the State's power to limit the exercise of property rights in the interests of public welfare.³⁰

It may be that for political or ideological reasons, however, it is considered unwise to expropriate private forest lands. In such cases it is advisable to legislate so that private owners are directed to manage their forests in accordance with the principles of good forestry as determined by the State. These principles must be clearly defined and elaborated. If the owners fail to follow them, the State must be in a position either to supervise the management of the forest or to manage it itself. The State should also be in a position to direct the management of, or itself to manage, as a unit, those private forests which individually cover areas that are too small for economic exploitation and development. All these measures have been adopted in one or other of the developed countries in the fields of either agriculture or forestry.

Tenure

The principal defects are the apparently unnecessary number of types of forest tenure which exist and the unsuitability of many of them for forestry development. Apart from freehold and various forms of communal ownership which have already been discussed, the three most common tenurial systems in forestry are leases, licences and permits. A lease is an interest in land in which the owner confers upon another person, or group of persons or a corporate personality, the right to the exclusive possession of a defined area of land for a fixed period. A licence does not contain the special ingredients necessary for a lease -- its fixed duration and its right to

exclusive possession -- but confers a right to an individual or individuals to do something which would otherwise constitute a trespass. It is a personal agreement between the parties as the rights conferred cannot be transferred and the burden does not pass with the land. The legal distinction between a licence and a permit is not very clear but, in the special circumstances in which the latter is issued in connexion with forestry in some developing countries, it usually confers rights to fell and remove a smaller number of trees than is normal under a licence.

Although in most developing countries what are called forest leases are often issued, in many cases their conditions do not conform strictly to the requirements of the legal systems on which they are based. They sometimes do not give exclusive possession of the land, and they frequently do not permit its transfer. As a result, there are many reported cases from the developing countries in which the terms and conditions of certain leases have been found to be unenforceable mainly because, on interpretation, the judges have leaned toward the common law requirements of leases. Nor is the solution to be found in the issue of licences, in their legally acceptable connotation, because a licence does not necessarily give exclusive possession and is essentially a contractual arrangement which may be revoked at will. As a result, security of tenure, which forest operators consider so essential, is often lacking.

It appears that there is great opportunity for the developing countries to evolve arrangements applicable to the practice of forestry in local conditions. What are needed are contractual agreements which would encourage investment and at the same time safeguard the interests of governments. The agreements must also be such that the development of the forestry and forest industries sector is integrated with the development of other relevant sectors of the national economy.

If the policy of governments is to encourage the local conversion of their forest resource, it seems evident that concessions for the exploitation of the forests should be tied to the establishment of conversion plant, and if possible to integrated forest industries. However, many countries in which there are plans for industrial development continue to sign agreements in which there is no necessity for exploiters to ensure that any sort of conversion is done locally. Indeed, many agreements do not contain any clauses which insist on minimum processing requirements, and in some countries there is no legal compulsion on forestry authorities to choose the most efficient concessionaires.

Most developing countries either do not attempt to provide a rational body of rules to guide their personnel in deciding on the duration of forestry concessions or, if they do, base them on criteria which often bear little relation either to national aspirations or to the needs of entrepreneurs.

Yet this is an important policy decision. On the one hand, it might be argued that land owned by the State should not be granted for long periods: it ties the hands of governments for too long, restricts the possibility of transferring the land to some other form of land use which might be considered more economic in the future,

³⁰ See, for example: Yu Chin-O, Report of address to the Royal Asia Society, *Korea Times*, 8 February 1969. -- Hahn Pyong-Choon, *The Korean political tradition and law*, San Francisco, Tri-Ocean Books, 1967.

and might give inefficient operators too secure a tenure. Such operators are those who, although they follow the terms of the lease, do not innovate or explore new markets, do not manufacture new kinds of products or try to sell new species. There is also the argument that, because of the general shortage of local capital, it is usually foreign firms and companies which operate the concessions. All these considerations suggest that the duration of the concessions should be as short as possible.

On the other hand, it might be urged that as forestry is a long-term venture, agreements should be for long periods: roads and bridges have to be built, felling and extraction equipment must be purchased. If the concessions are appurtenant to processing plant, long concessions are also necessary to justify expenditure on conversion equipment.

Because of these often valid but conflicting views it is necessary to establish guidelines which control the length of concessions. These should be based not on the area of the concession, as is the custom in those few countries which have provided rules for the solution of this problem, but on factors which will depend upon the availability of forests, the degree of competition for concessions, and on whether the policy is to encourage log export or local conversion.

If there is much competition for forest land, the State will be in a position to impose its terms on prospective concessionaires. However, it seems advisable either to link the duration of concessions to the yield of the forest area and not to its size if the main object is merely the exploitation of raw material, or to relate it to the amortization period of the processing plant if the objective is forest industrialization.

The relevant legal provision in countries such as Guatemala, Honduras and Mexico might be of some interest to others which are experiencing difficulties in solving this problem. In these countries the regulations decree that concessions should be given to enterprises so that they may operate "industrial forest exploitation units." These units are blocks of forests which it is estimated are able to maintain a forest industry on a permanent basis. The size of the concessions varies from place to place, but the duration cannot exceed 25 years. The regulations also state that all concession agreements should contain timber processing clauses, and that preference should be given to the person or company which undertakes to bring about the greatest degree of industrialization.

There are other conditions which may be included in agreements in order to assist the development process: a "merchantable clause" which expressly lists the species which must be exploited and which provides for the alteration of the list as economic and technical conditions change; a provision for the equitable assessment and periodic revision of schedules of fees and royalties; a right of renewal which might indicate that the concessionaire will be given preferential treatment if he has satisfactorily complied with all the clauses of the agreement; a condition under which transfer of the concession might be granted, care being taken to ensure that transfer is not possible unless the proper authority approves; and a

clause which permits the repossession of the land in certain well-defined circumstances.

It might also be desirable to include clauses on the establishment of forestry villages. Too often the living conditions of rural workers in forestry and forest industries in the developing countries do not meet the planning requirements of urban centres: the result is the creation of forestry slums. Here governments might assist in the provision of schools, hospitals and communication services in much the same way as they provide these amenities in other areas.

Finally, in this review of the clauses of forest concessions in developing countries, it must be stressed that agreement should be reached on the manner of working the concessions, and that there should be frequent inspections to ensure that the terms are followed. This is important, for although the concession may be worked as a unit, its operation should fit into the national forestry plan.

Legislation and investment in forestry and forest industries

In many countries with large forest estates the existing forest legislation does not specifically encourage private investment in forestry and forest industries. Even in the comparatively new branch of legislative activity concerned with the promotion of private investment, forestry and forest industries often seem to be excluded.

Where the promotional legislation (which grants incentives in the form of tax-free periods, tax rebates, exemptions from certain import and export duties, depreciation allowances, permission to foreign concerns to repatriate a certain proportion of profits, differential locational taxes, etc.) is phrased in general terms, it is often possible to interpret the relevant clauses so that various forest industries may be included. Frequently, however, in this general type of investment legislation, operations such as logging are not covered if the clauses are strictly and legalistically interpreted.

There are countries which have deliberately considered forestry and forest industries in their investment legislation, and Indonesia, for example, has recently prepared a guide for foreign capital and investment that is specifically concerned with forestry.³¹ The scope of this study does not permit an examination of the various forms of incentives that may be granted by legislation for different forestry activities. But in order to assist those countries which, though their policy is to encourage investment in industry, have legislated in terms which inadvertently either do not include forestry or exclude certain important aspects, some possible areas which might be covered by forestry investment legislation are listed below. What is actually included in the laws will depend upon the industrialization and investment policy of each nation, and upon the nature of local participation in forestry and forest industries. Nevertheless, it should be understood that incentives must sometimes be given for the performance of a whole range of forestry

³¹ *Technical guide for foreign capital investment in forestry*. Indonesia, Jakohutan Ditusa, 1968.

activities that do not appear to be directly connected with the final stages of conversion.

Incentives may be granted for:

1. the establishment of forest plantations;
2. logging operations;
3. providing wood storage, wood seasoning, and wood preservation facilities;
4. the distillation of wood;
5. the establishment of various types of forest industries: sawmilling, plywood manufacture, pulp and paper production, etc.;
6. the establishment of integrated forest industries;
7. the exploitation of forests in certain areas;
8. increasing wood product exports;
9. the local manufacture of those wood products which may be demonstrated to earn or save foreign exchange;
10. employing a minimum number of workers.

Provision may also be made for:

1. employing a certain number of local technical and managerial staff;
2. training local staff;
3. local participation in investments.

All these conditions, whether they concern the types of tenure to be used in forestry, the terms of forestry agreements or the nature of the investment incentives to be given, should accord with the general aims and purposes of a country's overall development plan, and should be designed to encourage the development of the forestry and forest industries sector.

Forest resource evaluation

A considerable amount of general information concerning the forests of the developing countries is already available. It has been estimated, for example, that of the world's total area of 4 126 million hectares of forest land,³² 2 226 million hectares or approximately 53 percent lie in the developing countries, and that the world's forests (stocked forest land) cover a total area of 3 792 million hectares; of this, 2 141 million hectares or approximately 56 percent are situated in the less industrialized countries.

It is also known that one of the important characteristics of the tropical high forests, which are found mainly in developing countries, is the great number of species to be found within them. The total number of identified species of larger trees in the Indo-Malaysian rainforest has been estimated to be as great as 3 000. Next in order of numerical importance are the Latin American forests, intermediate between the Asian and African, and containing about 2 500 species of large trees. The least rich of the floras of the tropical regions, the African, has also by temperate

standards a prodigious number of species: just under 1 000 woody species. One significant factor about these tropical floras is that very few species, and not very many of the genera and families, are represented in all regions. In consequence, the total tropical flora is even more considerable than that found in individual continents.

Interesting though it may be and important though it is from the point of view of indicating the broad potentialities of the tropical forests, this sort of generalized forest resource information is of little value for programme and project planning. For although in some areas there is a tendency toward gregariousness in some families (e.g. *Dipterocarpaceae*, *Leguminosae*), genera (e.g. *Eperua*, *Shorea*), and even species (e.g. *Ocotea rodiaei*, *Tectona grandis*), in general the numerous tropical woody species are intimately mixed in a given area. They are also of such varying sizes and complexity that there is no known method of reasoning a priori, from an ecological knowledge of the associations and consociations within the forest community as a whole, to such specific facts as what species may be found in a particular area, the numbers of trees which represent the species, the spatial distribution of these trees, their sizes, and their growth and mortality rates. This, however, is the type of knowledge that is required if rational preinvestment decisions in forestry industry establishment or expansion are to be made, and if the forests are to be managed efficiently.

Forest services have long been aware of this need for a greater and more detailed knowledge of their resource base. Many of them have therefore attempted to obtain the necessary information, and the list of countries in which forest resource evaluations have to some extent been carried out is quite imposing. Forest inventories of at least parts of the forest area have been conducted in most of the forest-rich countries in Africa, Asia and Latin America. These have usually been made by private concerns before or after the granting of concessions and, on the whole, governments have not been active except in those countries which have only recently become independent.

Most of the forest inventories so far conducted suffer from various defects. In preparing them, certain important points seem, in many cases, to have been overlooked: that these inventories must ultimately be used for planning forestry and forest industries establishment and expansion; that planning implies looking into the future; that both present techniques and future advances in forestry and forest industries must therefore be considered as far as possible; and that both present and future markets must therefore be taken into account in forest evaluation. The result often is that the use of scarce resources of capital and trained manpower when enumerating the forests not only does not yield information which can be used by forest development planners and industrialists at the time that the inventories are made and on future occasions, but also these scarce resources have to be employed on subsequent occasions over the same areas in order to obtain additional information.

³²The term "forest land" is used here to mean all land which bears vegetative associations dominated by trees of any size, which are either capable of yielding forest products or are able to provide various protection services for the community. This is the definition used by FAO in its world forest inventories.

Despite more than 40 years of collecting forest resource data in a certain Latin American country, little information is available concerning those factors that are relevant to forest industries planning. In a west African country with an even longer history of forest evaluation activity, the data amassed lie idly on the shelves of various offices and have either not been analysed or are not analysable. In both instances the material collected has not been fully used. Many other examples can be found throughout the developing world. It therefore seems useful to state what information should be collected in forest resource surveys, and in what ways the data collected should be presented.

The industrialist, the planner and the forest manager need to know:

1. total area of the forests;
2. types of forest that are found, the area by types, and their location;
3. total number of trees, the number of trees per species, and the distribution of these trees;
4. size classes of these trees and the number of trees per size class;
5. quantity of wood in the forest, expressed in terms of volume or weight or other useful measure, and the distribution of the volume, etc.;
6. estimates of growth and drain;
7. physical characteristics of the area (site quality, climate, topography, etc.).

In addition, because the assessment of the forest may be used for certain nonwood products and services, it is sometimes necessary to provide information as to whether the area is suitable for recreation, protection, or wildlife conservation. Where possible, the cost of logging and transport to mill site and an assessment of existing and prospective road communications should also be obtained during forest inventory operations.

Generally, there are few problems connected with the estimation of the total forest area or the area of forest types. It is with the collection of the other data that the most common mistakes are made. In many cases measurements are made only for certain species and sizes because the evaluation of the forest is carried out to ascertain whether there is sufficient raw material for some particular end product or range of end products, and because the choice of species and the size of the trees to be valued are usually conditioned by the prevailing state of wood technology and merchantability. The result is that only a limited picture of the forest resource base is obtained. Another factor which often contributes to this narrow approach to forest evaluation is, of course, the fact that many developing countries do not possess personnel with the requisite knowledge to undertake more comprehensive surveys.

As was emphasized earlier, because of the rapid advances being made in forest technology certain species and sizes once considered unsuitable for particular processes are now being more widely used. Earlier examples referred to the use of small-dimensioned logs for plywood production, and the fuller utilization of

mixed tropical hardwoods for the production of pulp. There have been changes in the uses to which tropical woods are being put even in the less sophisticated field of sawtimber, and many species formerly thought to be unmerchantable are now gaining acceptance in the markets. This has come about partly as a result of the relative diminution in the availability of some of the more favoured woods, partly because of better marketing methods by interested producers, and partly because of the slow but purposeful expansion of seasoning and preservative treatment in the developing countries. There is also a growing tendency to use wood in the reconstituted form of particle board and fibreboard, and this too has led to a widening of the range of utilizable species and sizes. Resource evaluations made before these fundamental processing and use changes were evolved and became generally accepted were limited to a few species and sizes and are now almost valueless as a source of information for planning purposes. The conclusion is therefore inescapable that in evaluating forests the species and sizes considered should not be limited by present knowledge of markets and technology but, wherever possible, all species of minimal sizes should be included.³³

It might be argued that, desirable though this approach is, the costs of measuring all species and all sizes in the profuse and heterogeneous tropical forests would be extremely high. The ideal solution to this problem would be, of course, to carry out a cost/benefit analysis, in which the extra costs of the more thorough survey are weighed against the increased benefits that are likely to arise and the costs which might have to be met in resurveying the area at some future date. Unfortunately, it is frequently extremely difficult, if not impossible, to assess the benefits of such an operation, and it is therefore necessary to rely on a priori considerations. Certain factors suggest that the overall costs of a total survey would not be very much greater than those of the partial surveys so much in vogue and, as has been indicated, the benefits to be gained are often substantial.

First, it appears that an increase in the number of sizes and species measured does not result in a corresponding increase in costs. Secondly, although the number of species found in a comparatively large area of tropical forest may be considerable, all the species are not concentrated in any one area, and the number of representatives per species is often quite low. Thus, by recording and measuring the various trees by vegetation types or in small blocks, the amount of work expended in booking the measurements would not be as great as might otherwise be expected.

It might also be contended that, even if all the desirable information is collected, much of it would have

³³It is not being suggested here that there should be 100 percent enumerations, that is, that all the trees in all the forest should be measured. A scientifically designed sampling procedure is far less costly than 100 percent surveys, and produces the required results within acceptable limits of error. However, within the sample, it is often unwise to limit attention only to a few particular sizes and species of current value.

little relevance to situations which obtain at the time of its analysis, and that the methods now employed in recording enumeration data do not always permit subsequent analysis. To meet this argument FAO has evolved what has been termed the flexibility of analysis approach. In this approach, the inventory is so planned that the basic data collected are recorded in such a way that they are subsequently retrievable, permitting additional and future analyses and providing information not required on the occasion of the first analysis. A manual which describes this procedure has been prepared.³⁴

The forest is a dynamic organism subject to growth, decay and death. It is not enough, therefore, merely to know what exists in the forest at the time the survey is made. It is also essential that estimates be obtained of the growth and mortality rates of the different species, and the proportion of unsoundness due to decay, so that the status of the forest may be predicted for some limited time in the future. Over long periods there may, of course, be no substitute for a reinventory. Growth prediction is a complementary exercise which is often ignored in forest inventories in developing countries, with the result that the information acquired soon becomes out-of-date. It must therefore be stressed that in the overall planning of evaluation surveys provision must be made for estimates of growth and natural drain.

These considerations refer to the evaluation of natural forests for they, as has been seen, are a most complex organism. However, plantations must also be evaluated. It might be thought that information would be continually available about these forests because they have been established by man and because of the relative simplicity of their structure. Unfortunately, this is not always so. In quite a number of countries plantations have been established but subsequently, to all intents and purposes, have been left to fend for themselves. Indeed even an adequate knowledge of their location and extent is sometimes lacking. The silvicultural and management implications of this, though somewhat harrowing, need not be considered here. What is important in the present

³⁴ FAO, *Manual for forest inventory operations executed by FAO*, Rome, 1968.

Developing countries possess valuable forest resources and the demand for forest products is rising rapidly. They also have certain economic advantages over developed countries in the utilization of their forests both for domestic use and for exports. However, despite these attributes, the forestry and forest industries sector of most developing countries has failed to make the important contribution to economic development of which it is inherently capable.

context is that, here again, very little relevant information is readily available.

It should be evident that, apart from the need for data on the current status of the areas under plantations, facts are also required on growth and productivity. Evaluation systems should therefore be continuous. By this is meant that the necessary information on volume and growth should be obtained, in most cases, from the periodic measurement of either permanent or temporary sample plots. In this type of inventory as in the evaluation of the natural tropical forests it is helpful to record the data in such a way that they are amenable to modern processing methods, either at the time of measurement or at some future date.

There are two broad groups of personnel who are likely to be interested in the data collected: those who must use the figures for the management of the forests, and those who require the information for development planning and for investment decision making. The way in which the information is usually communicated to the first group is generally quite suitable, and the main concern here is therefore with the second one. It is not being suggested that an industrialist or a financier would accept the information supplied without subsequent investigation. However, if the original presentation is not phrased in terms that are intelligible to him, the danger is increased that he might give an unfavourable answer to investment proposals without further study.

The results of evaluation surveys should therefore be interpreted and reported upon by professional foresters who possess a knowledge of the wood requirements of particular forest industrial processes, and extraction economics. Their reports should clearly show how much wood, and of what species, is available for each end product, the probable duration of the supply of wood raw material for each conversion process, the location of this wood, the qualities of the terrain, and the problems that might be incurred in transporting the raw material to processing and marketing centres. Further, these reports should be conveyed to all interested persons, and should not be kept in the files of forest services. For it must be remembered that resource evaluation is a stage in the development process, and that the mere collection of information does not serve any useful purpose.

Conclusion

Although this failure may be said to arise directly from the inadequacy of investment in forestry and forest industries, it appears that this dearth of investment is largely the result of certain serious institutional weaknesses. The inadequacy of the training given to forestry personnel to equip them for their new tasks, the obsolescence of the forest administrative machinery, the inappropriate structures of many forest organizations, and the frequent irrelevance of the legal provisions under

which the sector operates often reduce the effectiveness of forest services and, consequently, restrict the growth and development of the sector.

Moreover, the potential contribution of forestry to economic development is, in many countries, not clearly understood and expressed by professional foresters. As a result, governments often do not create the environmental conditions that are necessary if their countries are to profit from their forest resources. Development-oriented institutions are not established, adequate funds are not voted for the forest services, and

investment is not encouraged. In consequence a vicious circle is created, and the flow of capital to the sector is often inadequate for the forestry and forest industries sector to demonstrate its development potential.

Even though, because of their tariff walls and trade practices, the more industrialized countries must share some of the responsibility in this matter, it is suggested that the possession of a skilled and properly motivated forest service, able to bring to bear both imagination and expertise to its manifold tasks, is the prime essential for forestry development in the developing countries.

ANNEX TABLES

EXPLANATORY NOTE

FAO index numbers of agricultural, fishery, and forest production and trade

Production index numbers ¹

The indices of agricultural production have been recalculated on a calendar year basis. They are therefore not comparable with the indices for crop years published in the 1966 and prior issues of this report.

The indices are calculated by applying regional weights, based on 1952-56 farm price relationships, to the production figures, which are adjusted to allow for quantities used for feed and seed. The indices for food products exclude coffee, tea, tobacco, inedible oilseeds, animal and vegetable fibres, and rubber.

For fishery production, quantities are weighted by the average unit values of fishermen's landings in 1957-59. For forest production, roundwood production is weighted by 1952-56 prices.

Trade index numbers

The indices of agricultural trade were revised in 1968, and the present series (1955-1968) are not comparable with the indices for earlier years published in previous issues.

¹ For full details, including a list of weights, see FAO, *Production Yearbook 1968*, Rome, 1969, p. viii and 693-697.

In calculating the indices of the volume of exports and imports of agricultural products, the volume figures for individual products are weighted by average unit values in 1957-59.

Average unit values are calculated on a regional basis, using quantity and value data covering a minimum of 85 percent of the region's total trade in each product. The unit values for individual products are weighted by the average volume of trade in 1957-59.

As far as possible, the indices for trade in fishery and forest products are calculated in the same way as those for agricultural products.

Regional coverage

The coverage of most of the regional groupings is self-explanatory. It should be noted, however, that western Europe is defined as including Yugoslavia, and the Near East as extending from Cyprus and Turkey in the northwest to Afghanistan in the east, and including from the African continent Libya, the Sudan, and the United Arab Republic. For China (Mainland) no estimates are included until more complete data are available.

Because of difficulties concerning exchange rates and the pricing of barter transactions, the trade of eastern Europe and the U.S.S.R. has been priced at the world average export unit values.

ANNEX TABLE IA. - WORLD :¹ VOLUME OF PRODUCTION OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
<i>Million metric tons</i>														
AGRICULTURAL PRODUCTS														
Wheat	183.88	201.90	197.58	228.81	219.37	220.85	211.46	237.15	217.75	250.61	239.86	282.48	270.02	306.79
Barley	62.30	70.45	64.25	70.28	68.33	77.11	69.58	83.67	86.15	93.12	89.01	99.32	101.47	109.81
Oats	62.68	61.09	57.72	60.92	54.80	57.18	49.16	48.63	45.66	42.55	44.79	46.67	48.80	52.36
Maize	144.19	148.12	148.82	161.42	177.51	185.65	186.58	188.79	198.99	191.31	200.90	214.52	238.19	224.69
Rice (milled equivalent) ²	85.59	89.35	84.28	92.98	97.81	103.38	104.60	105.37	111.94	115.47	107.61	107.61	119.63	124.94
Sugar (centrifugal)	38.91	38.94	44.33	51.48	50.63	52.17	52.65	50.10	51.89	60.77	62.89	61.72	65.05	63.74
Apples ³	13.83	16.08	10.06	20.93	13.69	20.78	14.66	19.14	18.02	18.90	18.83	18.41	21.06	18.93
Citrus fruit	18.36	18.50	18.86	20.28	20.88	21.11	23.26	21.15	22.74	25.09	26.57	30.98	28.23	32.81
Bananas	14.11	14.18	15.65	15.64	16.76	17.47	17.90	18.30	20.03	21.90	24.31	24.65	25.89	25.16
Olive oil	0.80	1.20	1.19	1.12	1.24	1.41	1.47	0.99	1.91	0.98	1.29	1.69	1.79	1.40
Soybeans	11.91	13.92	15.00	17.66	16.44	17.02	20.66	20.58	21.24	21.15	25.45	28.02	29.57	32.66
Groundnuts	9.24	10.07	11.23	11.58	10.76	11.80	12.37	13.35	13.48	13.86	13.21	13.77	14.78	12.82
Cottonseed	14.91	14.62	14.03	14.48	15.26	15.98	16.13	17.48	18.54	18.51	18.78	17.06	16.46	18.10
Copra	3.13	3.47	3.49	2.91	2.73	3.34	3.39	3.12	3.24	3.34	3.29	3.18	2.88	2.85
Total vegetable oils and oilseeds (oil equivalent)	15.38	17.00	16.87	17.64	16.84	18.31	19.50	19.66	20.69	20.43	21.74	22.41	22.81	23.68
Coffee	2.87	2.46	3.08	3.55	4.16	4.29	4.43	4.59	4.20	3.57	4.54	3.84	4.39	3.78
Cocoa	0.85	0.90	0.77	0.91	1.04	1.17	1.14	1.17	1.21	1.51	1.23	1.32	1.38	1.27
Tea	0.73	0.73	0.75	0.80	0.82	0.83	0.89	0.90	0.92	0.97	0.99	1.02	1.03	1.06
Wine	23.55	22.60	18.26	23.80	24.95	24.34	21.97	28.52	25.83	28.53	28.77	27.23	28.48	27.64
Tobacco	3.23	3.26	3.21	3.02	3.25	3.23	3.16	3.50	3.75	4.10	3.78	3.84	4.06	3.88
Cotton (lint)	8.13	8.00	7.57	7.81	10.09	8.72	8.71	9.55	10.10	10.12	10.22	9.31	8.88	9.80
Jute ⁴	2.35	2.32	2.27	2.60	2.30	2.18	3.37	2.85	2.99	2.90	3.13	3.35	3.15	2.19
Sisal, henequen and other agaves	0.59	0.62	0.65	0.68	0.74	0.55	0.77	0.80	0.83	0.88	0.85	0.84	0.79	0.76
Wool (greasy)	2.13	2.22	2.20	2.24	2.48	2.45	2.50	2.49	2.55	2.52	2.54	2.60	2.64	2.73
Rubber	1.95	1.92	1.93	1.95	2.05	2.00	2.09	2.12	2.08	2.22	2.35	2.46	2.48	2.64
Milk (total)	299.86	312.66	323.58	331.08	336.53	343.84	350.32	353.68	351.55	358.04	372.98	381.84	386.26	391.75
Meat ⁵	49.92	52.86	54.25	55.59	57.78	58.77	51.71	64.01	66.11	66.11	68.79	71.72	75.94	77.75
Eggs	10.68	11.00	11.48	11.76	12.24	12.56	13.16	13.41	13.46	14.00	14.24	14.63	15.59	15.95
FISHERY PRODUCTS^{6,7}														
Freshwater and diadromous fish	4.55	4.71	5.06	5.56	6.14	6.61	6.96	6.78	7.04	7.34	7.84	8.24	8.34	8.53
Marine fish	21.03	22.28	22.83	24.12	26.75	29.21	32.19	35.63	36.39	40.79	40.79	43.89	47.02	49.85
Crustacea, molluscs and other invertebrates	2.84	2.91	3.03	2.95	3.26	3.56	3.52	3.77	4.14	3.89	4.11	4.27	4.48	4.70
Seals and miscellaneous aquatic mammals	0.01	0.01	0.01	0.01	—	—	—	—	—	—	—	0.01	0.01	0.01
Miscellaneous aquatic animals and residues	0.04	0.03	0.03	0.04	0.04	0.04	0.04	0.03	0.04	0.04	0.04	0.04	0.05	0.05
Aquatic plants	0.43	0.45	0.54	0.52	0.51	0.58	0.69	0.79	0.69	0.64	0.72	0.75	0.80	0.86
FOREST PRODUCTS														
Fuelwood ⁸	779	776	791	789	795	778	784	790	817	831	836	837	831	829
Industrial roundwood ⁸	905	927	915	914	972	990	976	999	1 011	1 067	1 091	1 106	1 130	1 162
Sawn softwood ⁸	234.0	235.8	231.7	241.8	259.2	258.5	256.8	259.3	266.7	278.9	283.4	280.2	280.4	292.0
Sawn hardwood ⁸	61.3	64.1	59.5	62.0	65.1	67.1	68.2	69.5	72.9	78.3	79.3	80.8	81.6	80.8
Plywood ⁸	10.8	11.2	11.7	12.9	14.7	15.2	16.4	18.2	20.1	22.2	24.1	25.2	26.2	28.1
Fibreboard	3.2	3.3	3.4	3.7	4.1	4.3	4.6	4.9	5.4	5.9	6.2	6.2	6.1	6.6
Mechanical wood pulp	15.3	16.1	16.2	15.9	17.1	18.0	18.4	18.9	19.5	20.5	21.3	22.5	22.0	22.9
Chemical wood pulp	30.9	33.1	33.7	33.7	37.4	40.5	43.5	45.4	49.4	53.9	57.0	61.3	62.2	66.5
Newsprint	11.0	11.9	12.1	11.9	12.8	13.7	14.1	14.3	14.6	15.9	16.6	17.9	18.0	18.7
Other paper and paperboard	44.9	47.2	48.2	49.2	54.0	57.5	61.0	63.9	68.2	73.3	77.7	83.8	85.0	90.0

¹ Excluding China (Mainland). - ² Paddy converted at 65 percent. - ³ Excluding U.S.R.R. as well as China (Mainland). - ⁴ Including allied fibres. - ⁵ Beef and veal, mutton and lamb, pork, poultry meat. - ⁶ World total including China (Mainland). - ⁷ Nominal catch (live-weight). - ⁸ Million cubic metres.

ANNEX TABLE 1B. - WORLD:¹ VOLUME OF EXPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Pre- liminary)
..... Million metric tons														
Agricultural products														
Wheat and wheat flour (wheat equivalent)	24.85	31.75	29.56	27.68	29.37	33.29	40.83	36.92	45.19	54.45	53.76	56.53	45.91	44.03
Barley	5.46	7.04	6.35	6.50	6.18	4.93	6.19	5.63	5.05	7.18	5.91	6.04	6.58	5.67
Maize	4.64	5.79	7.07	8.80	9.99	11.12	12.47	17.48	18.99	20.05	23.43	24.74	25.68	27.83
Oats	0.88	1.32	1.44	1.46	1.40	1.28	1.14	1.34	1.20	1.39	1.68	1.34	1.20	1.01
Rye	0.94	1.03	0.73	0.62	0.59	0.56	0.70	0.77	0.64	0.50	0.40	0.44	0.36	0.29
Millet and sorghums	1.87	1.82	0.98	2.51	3.28	3.10	2.37	3.86	3.93	3.80	6.21	11.18	9.61	7.82
Rice (milled equivalent) ²	4.62	5.43	5.49	4.82	4.77	5.50	5.69	5.49	6.33	6.55	6.84	5.93	5.60	5.26
Sugar (raw equivalent) ³	13.28	13.51	14.61	14.42	13.34	16.13	17.22	15.63	15.15	15.13	16.53	16.10	17.08	17.93
Potatoes	2.31	2.33	1.87	2.58	2.47	2.38	2.34	2.67	2.42	2.41	2.93	2.70	2.62	2.67
Pulses (dry)	0.96	1.04	0.84	0.84	1.06	1.04	0.93	1.19	1.34	1.19	1.44	1.35	1.21	1.37
Apples	0.98	0.87	1.14	0.84	1.28	1.24	1.38	1.51	1.21	1.41	1.70	1.55	1.59	1.67
Bananas	3.06	3.05	3.36	3.53	3.68	3.88	3.98	3.89	4.04	4.22	4.51	5.17	5.38	5.63
Citrus fruit ⁴	2.83	2.37	2.67	2.77	3.09	3.34	3.23	3.58	3.27	4.14	4.20	4.21	4.37	4.10
Grapes (fresh)	0.31	0.36	0.31	0.39	0.38	0.43	0.44	0.50	0.45	0.55	0.60	0.60	0.63	0.59
Dates	0.32	0.32	0.29	0.30	0.34	0.32	0.24	0.30	0.40	0.35	0.33	0.36	0.34	0.31
Vegetables oils and oilseeds (oil equivalent) ⁵	4.50	4.83	4.96	4.63	4.96	5.31	5.22	5.62	5.72	6.05	6.01	6.02	5.74	6.29
Oilseed cake and meal	3.22	3.53	3.23	3.88	4.64	4.45	4.96	6.09	6.61	7.15	8.12	8.46	8.47	8.60
Cattle ⁶	2.14	2.12	2.97	3.15	2.63	2.82	3.68	3.67	3.78	3.46	3.83	3.50	3.73	4.25
Sheep, lambs and goats	2.54	2.26	1.86	1.92	2.54	2.80	3.46	3.99	4.45	4.08	4.13	3.94	4.06	4.89
Pigs ⁶	0.66	0.52	0.52	0.49	0.99	1.23	1.19	1.01	0.69	0.85	0.91	0.64	0.96	1.24
Meat ⁷	1.24	1.38	1.50	1.58	1.71	1.74	1.85	2.26	2.55	2.56	2.52	2.56	2.69	2.76
Milk (condensed, evaporated and powdered)	0.72	0.82	0.81	0.80	0.91	0.90	0.97	1.03	1.21	1.39	1.37	1.41	1.57	1.75
Eggs (in the shell)	0.35	0.35	0.37	0.39	0.43	0.41	0.39	0.34	0.29	0.24	0.20	0.18	0.21	0.30
Coffee (green)	2.06	2.33	2.22	2.19	2.55	2.61	2.67	2.80	3.01	2.78	2.68	2.99	3.09	3.23
Cocoa beans	0.70	0.75	0.78	0.64	0.75	0.90	1.00	1.02	1.03	1.03	1.29	1.11	1.09	1.05
Tea	0.43	0.50	0.48	0.52	0.49	0.49	0.52	0.54	0.55	0.54	0.57	0.54	0.59	0.60
Wine	2.57	2.48	2.81	2.78	2.42	2.69	2.66	2.80	2.37	2.52	2.30	2.53	2.14	2.09
Pepper and pimento	0.09	0.12	0.10	0.10	0.12	0.10	0.12	0.13	0.14	0.12	0.12	0.13	0.16	0.17
Tobacco (unmanufactured)	0.64	0.64	0.67	0.66	0.64	0.68	0.77	0.78	0.78	0.87	0.84	0.79	0.84	0.81
Wool (actual weight)	1.14	1.18	1.20	1.15	1.37	1.31	1.42	1.40	1.38	1.29	1.39	1.40	1.28	1.48
Cotton (lint)	2.37	2.82	3.06	2.65	2.79	3.50	3.28	3.00	3.37	3.45	3.20	3.36	3.25	3.25
Jute and kenaf	0.99	0.88	0.81	0.95	0.89	0.83	0.76	0.99	0.90	1.00	1.13	1.20	1.08	0.99
Rubber (natural) ⁸	2.02	1.94	1.96	1.97	2.28	2.01	2.22	2.28	2.25	2.24	2.32	2.22	2.36	2.50
Fishery products⁹														
Fresh, chilled or frozen fish	0.81	0.83	0.87	0.96	1.00	1.14	1.15	1.34	1.48	1.71	1.72	1.80	1.79	1.80
Dried, salted or smoked fish	0.65	0.67	0.63	0.61	0.58	0.56	0.55	0.55	0.54	0.50	0.50	0.50	0.50	0.50
Crustacea and molluscs, fresh, frozen, dried, salted, etc.	0.18	0.18	0.17	0.18	0.21	0.23	0.25	0.27	0.27	0.30	0.30	0.30	0.32	0.33
Fish products and preparations, whether or not in airtight containers	0.39	0.43	0.43	0.47	0.51	0.50	0.52	0.54	0.51	0.58	0.52	0.57	0.54	0.62
Crustacean and mollusc products and preparations, whether or not in airtight containers	0.03	0.04	0.04	0.04	0.05	0.04	0.04	0.05	0.05	0.06	0.06	0.06	0.07	0.07
Oils and fats, crude or refined, of aquatic animal origin	0.32	0.33	0.44	0.48	0.54	0.59	0.62	0.67	0.74	0.63	0.72	0.68	0.81	0.83
Meals, solubles and similar animal feed-stuffs of aquatic animal origin	0.46	0.53	0.57	0.67	0.83	1.03	1.36	1.72	1.78	2.44	2.47	2.47	3.04	3.56
Forest products⁹														
Pulpwood ¹⁰	10.9	10.6	10.3	8.5	9.0	10.8	13.1	12.4	11.7	13.2	13.8	14.2	14.8	15.0
Coniferous logs ¹⁰	1.8	1.8	2.1	2.7	3.3	4.2	5.9	6.4	8.7	9.9	11.6	13.5	17.1	19.6
Broadleaved logs ¹⁰	7.0	7.7	8.4	9.4	11.8	13.3	14.0	14.2	17.4	19.3	20.7	22.3	24.8	25.7
Sawn softwood ¹⁰	32.0	28.1	30.4	29.7	32.3	36.3	36.3	38.2	41.4	44.6	44.0	42.7	43.2	47.1
Sawn hardwood ¹⁰	3.7	3.4	3.5	3.6	3.9	4.5	4.2	4.3	4.4	5.4	5.7	5.9	5.8	6.3
Plywood and veneers ¹⁰	1.2	1.1	1.3	1.4	1.9	1.8	1.9	2.1	2.4	3.0	3.3	3.6	3.9	4.6
Fibreboard	0.5	0.6	0.7	0.7	0.8	0.8	0.9	0.9	1.0	1.1	1.1	1.1	1.2	1.2
Mechanical wood pulp	1.2	1.3	1.3	1.1	1.2	1.3	1.3	1.2	1.3	1.4	1.4	1.4	1.2	1.3
Chemical wood pulp	6.3	6.5	6.6	6.6	7.3	8.4	8.5	9.0	10.1	11.0	11.1	12.1	12.4	13.5
Newsprint	6.6	7.0	6.9	6.8	7.0	7.5	7.7	7.5	7.8	8.5	9.0	9.7	9.4	9.7
Other paper and paperboard	3.1	3.2	3.5	3.5	4.0	4.5	5.0	5.2	5.9	6.8	7.4	8.3	8.7	10.0

¹ Including exports to the U.S.S.R., eastern Europe and China (Mainland), but excluding exports from these countries. - ² Including paddy converted at 65 percent. - ³ Including refined sugar converted at 108.7 percent. - ⁴ Oranges, mandarines and lemons. - ⁵ Excluding re-exports of copra from Malaysia, but including unrecorded shipments of copra from Indonesia and the Philippines to Malaysia. - ⁶ Million head. - ⁷ Beef and veal, mutton and lamb, pork, poultry meat. - ⁸ Excluding imports into Malaysia for re-exports and exports from Hong Kong, but including unrecorded shipments from Indonesia to Malaysia. - ⁹ Excluding China (Mainland) only. - ¹⁰ Million cubic metres.

ANNEX TABLE IC. - WORLD:¹ AVERAGE EXPORT UNIT VALUES OF SELECTED AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Pre- limi- nary)
..... U.S. dollars per metric ton														
Agricultural products ²														
Wheat	65.8	62.9	63.5	62.5	62.2	61.7	63.3	66.2	64.6	66.1	61.0	63.2	66.2	63.4
Wheat flour	95.4	89.7	88.7	84.8	79.0	76.9	78.5	81.8	81.4	84.3	84.9	87.3	83.7	83.4
Barley	55.5	55.1	51.1	51.3	52.7	52.8	47.2	57.6	55.8	56.6	62.5	69.6	67.2	63.9
Maize	62.0	60.0	55.1	50.6	50.2	50.1	49.2	47.8	53.1	54.7	57.2	57.5	56.0	51.3
Rice (milled)	119.1	117.4	117.2	122.4	112.9	103.3	109.5	122.0	121.2	124.5	127.5	140.4	163.8	180.6
Sugar (raw)	96.2	95.4	114.1	99.9	96.0	93.1	95.4	95.6	135.9	134.3	102.8	102.3	104.4	102.9
Apples	109.9	128.4	136.7	154.3	111.8	138.0	125.7	137.1	146.0	134.9	142.9	158.7	157.3	158.0
Bananas	104.1	105.7	105.6	98.1	92.3	86.4	90.4	92.2	88.2	90.4	92.7	89.8	93.2	89.8
Oranges and tangerines	102.2	124.1	133.7	127.0	105.6	110.5	121.1	122.0	137.4	120.8	119.8	129.4	125.4	128.1
Raisins	241.4	275.4	279.8	326.4	317.1	272.0	282.3	263.3	272.4	335.0	332.4	330.2	325.1	321.1
Dates	48.1	42.1	56.4	51.6	50.4	62.5	63.7	99.8	83.9	89.3	82.5	90.3	93.9	102.3
Cottonseed	84.3	84.0	80.8	68.4	67.5	77.8	77.5	68.6	62.1	63.1	68.3	74.9	78.6	72.7
Copra	151.6	143.5	139.3	163.7	201.9	174.7	141.9	141.9	171.0	176.5	188.5	166.8	171.5	197.1
Palm kernels	121.7	123.7	121.1	125.7	158.4	157.9	126.8	120.7	136.9	139.5	167.3	164.3	128.9	166.1
Soybeans	95.2	95.8	91.2	86.8	84.7	83.3	94.4	92.4	99.1	99.4	104.9	113.5	107.2	101.1
Groundnuts (shelled)	186.0	195.2	204.1	171.8	164.6	182.1	179.5	170.4	168.7	175.3	191.3	187.3	173.0	165.1
Olive oil	590.1	763.6	668.6	589.3	507.0	511.9	532.9	564.8	802.6	553.7	629.0	638.4	679.5	686.5
Cottonseed oil	299.4	333.8	337.9	358.0	292.5	244.5	304.6	303.9	266.8	251.9	292.9	295.3	290.3	269.2
Coconut oil	243.6	235.2	243.5	273.6	342.6	292.5	233.0	221.0	256.4	279.9	305.7	260.0	260.5	319.1
Palm oil	202.7	219.2	220.8	202.6	206.5	194.1	206.4	193.8	188.7	202.1	237.5	203.7	199.0	150.9
Palm kernel oil	240.6	236.1	242.1	252.4	316.8	296.2	230.7	209.2	230.9	232.9	293.3	250.4	225.7	262.6
Soybean oil	321.7	343.4	338.6	303.6	254.1	233.0	284.5	244.9	239.4	239.1	293.8	299.2	256.4	220.6
Groundnut oil	319.6	399.5	397.2	361.2	325.8	343.1	344.3	300.1	307.2	322.6	336.1	310.5	318.4	262.9
Cattle ³	128.2	125.2	126.7	135.9	145.2	138.2	130.7	120.3	132.6	151.2	152.1	128.0	137.2	130.3
Pigs ³	60.1	56.8	43.3	51.2	49.1	47.7	47.1	45.9	53.6	56.7	56.0	67.9	62.2	60.8
Beef and veal	448.9	414.7	437.1	500.9	573.7	595.3	559.6	522.6	559.6	680.4	773.0	781.7	769.1	807.9
Mutton and lamb	428.9	453.5	460.3	429.1	377.9	401.2	378.1	372.2	414.2	464.1	519.5	497.5	461.6	439.5
Poultry meat	804.0	825.4	781.6	767.4	682.2	669.2	630.3	650.9	662.4	668.1	693.6	710.5	634.5	639.9
Bacon, ham, salted pork	664.7	726.3	684.1	712.5	675.0	686.0	661.6	667.0	717.5	782.0	759.7	868.0	830.7	715.2
Canned meat	877.0	873.6	820.8	848.1	883.5	901.8	937.1	911.3	878.0	924.3	951.2	1 020.2	1 017.9	1 018.4
Milk, condensed and evaporated	310.2	317.6	330.3	311.2	307.9	308.8	307.4	299.8	306.2	328.1	336.3	333.7	313.7	297.4
Milk, powdered	375.4	374.8	429.0	375.6	355.1	401.8	363.5	336.5	298.8	305.2	385.9	378.3	380.5	305.0
Butter	949.5	923.5	783.9	639.6	904.8	829.9	714.3	762.3	826.4	896.0	905.7	818.0	800.4	711.6
Cheese	678.7	736.9	708.5	699.0	739.3	721.8	719.3	701.7	709.6	763.9	841.3	867.8	875.5	864.8
Potatoes	48.4	58.8	51.8	59.4	57.3	56.1	52.3	72.6	62.1	57.1	67.4	75.4	71.0	57.5
Oilseed cake and meal	72.5	67.7	61.9	55.4	68.7	68.1	63.7	70.2	77.6	76.5	78.2	81.9	82.3	81.8
Coffee	1 077.1	1 051.0	1 025.2	922.8	749.1	723.4	684.2	656.5	647.2	840.6	781.2	774.3	707.4	738.6
Cocoa	818.5	580.8	562.9	844.0	738.8	593.4	474.3	454.1	486.4	502.8	378.9	400.0	525.8	621.3
Tea	1 383.4	1 215.5	1 191.0	1 170.6	1 144.5	1 168.0	1 144.6	1 103.0	1 111.1	1 089.4	1 051.4	1 004.1	989.6	907.5
Wine	141.7	155.1	170.3	207.2	176.2	177.6	182.2	174.3	202.6	204.7	213.3	211.9	252.1	260.2
Tobacco (unmanufactured)	1 267.6	1 227.6	1 334.5	1 280.8	1 290.2	1 280.1	1 211.7	1 182.2	1 299.8	1 234.3	1 252.9	1 353.8	1 332.4	1 321.9
Linseed	133.7	145.4	116.7	125.1	131.6	132.4	127.9	134.6	124.6	121.2	119.7	114.1	119.7	127.4
Linseed oil	205.3	313.6	245.6	250.7	212.5	246.8	254.1	230.1	200.7	208.4	201.6	189.1	174.4	210.6
Castor beans	96.9	134.7	182.0	117.4	110.4	134.1	123.9	106.9	110.8	114.2	105.7	106.9	120.1	126.9
Castor oil	206.2	288.8	279.5	273.0	238.2	282.2	280.1	263.4	249.4	240.9	205.1	238.7	312.6	328.9
Cotton	797.9	731.9	732.8	673.2	587.0	624.1	641.2	609.6	609.4	606.5	619.8	566.7	559.9	587.0
Jute and kenaf	189.1	183.8	208.5	193.0	174.8	220.2	291.0	194.7	199.6	161.1	215.6	224.3	225.7	195.8
Sisal	156.3	158.3	141.8	146.9	174.5	214.8	193.4	197.0	293.2	285.9	190.7	173.9	141.4	113.4
Wool (greasy)	1 358.7	1 378.0	1 598.4	1 132.8	1 083.6	1 162.4	1 143.8	1 138.2	1 325.1	1 445.2	1 175.1	1 223.1	1 128.3	1 007.4
Rubber (natural)	698.2	627.5	596.5	516.0	659.4	743.0	548.1	524.8	501.8	457.1	446.0	436.8	361.1	338.9
Fishery products ⁴														
Fresh, chilled or frozen fish	260.2	274.9	284.5	293.1	302.4	287.1	301.2	315.1	296.7	289.2	328.9	353.1	323.2	346.4
Dried, salted or smoked fish	272.6	291.2	296.4	296.5	307.9	328.3	331.1	345.0	361.2	390.9	426.9	451.9	460.7	441.9
Crustacea and molluscs, fresh, frozen, dried, salted, etc.	469.8	536.7	647.0	670.3	667.4	634.3	684.2	758.1	845.8	796.0	891.6	980.9	1 028.6	1 089.8
Fish products and preparations, whether or not in airtight containers	549.7	621.1	606.5	646.3	632.3	624.3	600.8	695.1	648.6	639.3	703.0	690.3	739.1	687.9
Crustacean and mollusc products and preparations, whether or not in airtight containers	1 005.8	1 071.1	1 075.5	1 105.6	1 066.6	1 099.5	1 150.5	1 146.4	1 210.8	1 283.1	1 319.2	1 462.9	1 472.2	1 510.3
Oils and fats, crude or refined, of aquatic animal origin	213.6	238.3	241.6	207.3	191.9	180.1	172.6	133.3	137.3	182.7	194.0	183.9	129.5	95.7
Meals, solubles and similar animal feed-stuffs of aquatic origin	144.0	145.7	136.9	133.3	134.0	92.6	86.8	103.8	107.9	109.9	125.3	146.1	119.7	109.4

ANNEX TABLE IC. - WORLD:¹ AVERAGE EXPORT UNIT VALUES OF SELECTED AGRICULTURAL, FISHERY AND FOREST PRODUCTS (concluded)

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Pre- limi- nary)
..... U.S. dollars per metric ton														
Forest products ¹														
Fuelwood ⁴	8.8	8.8	8.8	9.2	8.0	8.1	9.4	9.7	9.9	9.7	10.0	10.2	9.6	10.0
Charcoal	23.5	21.6	22.7	23.1	21.8	22.8	23.3	22.1	22.0	25.0	27.8	26.3	24.6	25.0
Coniferous logs ⁴	15.9	15.7	16.4	17.0	17.5	17.4	17.8	18.1	14.4	15.2	16.7	17.3	18.2	19.0
Broadleaved logs ⁴	21.7	19.6	18.4	18.6	19.0	22.2	21.7	22.6	23.5	22.7	23.3	23.7	24.2	27.0
Pulpwood ⁴	12.8	12.1	12.3	11.6	10.8	10.6	11.9	11.3	10.7	11.0	11.2	10.7	10.8	11.0
Pitprops ⁴	13.9	14.3	14.7	14.0	12.5	11.9	13.0	13.0	13.0	15.1	16.4	17.3	17.7	19.0
Poles, piling, posts ⁴	29.8	32.3	34.2	28.0	25.0	23.9	22.9	24.1	24.8	27.9	29.3	32.1	28.1	29.0
Sawn softwood ⁴	40.0	39.4	39.0	36.8	36.6	36.7	35.9	35.0	35.0	36.6	38.1	38.4	37.3	41.0
Sawn hardwood ⁴	60.9	62.2	60.2	58.7	58.5	59.4	59.0	59.2	63.8	61.3	58.8	60.2	59.1	63.0
Sleepers ⁴	33.4	37.6	39.2	37.1	37.6	36.9	35.1	36.1	39.7	42.5	40.7	40.0	42.1	43.0
Veneer sheets ⁴	271.6	260.6	271.8	263.5	262.4	259.0	253.3	262.2	254.9	241.6	261.4	256.7	247.2	255.0
Plywood ⁴	160.5	160.5	155.6	152.0	156.1	149.5	145.1	150.1	152.3	142.6	139.4	143.4	142.1	154.0
Particle board	147.3	135.1	143.3	131.1	116.5	108.8	113.9	110.1	108.5	109.2	107.2	107.2	106.1	107.0
Fibreboard	101.7	101.1	100.3	93.6	91.3	91.1	87.7	88.7	91.8	97.0	104.0	106.1	101.6	103.0
Mechanical wood pulp	70.3	76.6	77.1	70.5	67.4	66.6	66.1	65.6	64.6	64.9	68.9	68.4	67.8	69.0
Chemical wood pulp	144.9	147.5	149.6	140.5	134.2	133.4	132.3	125.4	125.0	134.1	136.8	131.6	135.2	134.0
Newsprint	131.1	135.9	141.1	138.4	140.0	134.8	129.1	127.1	125.8	126.2	124.7	126.4	130.6	137.0
Printing and writing paper	266.2	261.3	267.2	251.4	236.0	235.1	229.8	228.3	222.0	225.2	225.1	233.6	235.3	226.0

¹ Excluding China (Mainland). - ² Excluding the U.S.S.R., eastern Europe and China (Mainland). - ³ U.S. dollars per thousand head.
- ⁴ U.S. dollars per cubic metre.

ANNEX TABLE 1D. - MAIN FEATURES OF CURRENT DEVELOPMENT PLANS IN DEVELOPING COUNTRIES

	Duration	Scope	Currency	Total investment	Public investment	Share of agriculture in		Planned annual increase		
						Total investment	Public investment	GNP	Agricultural production	
				..... Million .....		..... Percentage			
Latin America										
Argentina	1965-69	Comprehensive	Pesos ¹	*1 339 200	427 000	17.0	2.0	5.9	4.2	
Bolivia	1962-71	"	Bolivianos ²	12 289 324	...	...	11.0	7.0	6.3
Chile	1961-70	"	Escudos ¹	10 149	5 074	9.0	6.0	5.5	5.0	
Colombia	1961-70	"	Pesos ²	70 000	...	12.0	12.0	5.6	4.0	
Costa Rica	1965-68	"	Colones	...	1 297	...	...	6.6	7.1
Ecuador	1964-73	"	Sucres	41 007	17 713	16.0	7.0	6.2	6.6	
El Salvador	1965-69	"	Colones	...	...	...	...	6.5	...
Guatemala	1965-69	Public sector	Quetzales	...	...	...	20.0	5.6	...
Guyana	1966-72	"	Guy \$	...	294	...	32.0	5.6	...
Haiti	1968/69	"	Gourdes	...	3	...	12.0	...	...
Honduras	1965-69	Comprehensive	Lempiras	...	...	...	13.0	6.6	4.6
Jamaica	1963-68	"	Jamaica £	...	91	...	15.0	5.0	3.3	
Nicaragua	1965-69	"	Cordobas	...	...	...	...	7.0	6.4
Panama	1963-70	"	Balboas	...	310	...	...	...	...
Surinam	1965-74	"	Sur. guilders	...	...	...	...	...	7.7
Trinidad and Tobago	1964-68	Public sector	£	...	63	...	13.0	...	...
Uruguay	1965-74	Comprehensive	Pesos ³	56 144	18 057	14.0	...	4.7	4.2	
Venezuela	1965-68	"	Bolivares ⁴	37 359	12 610	10.0	4.5	7.1	7.2	
Far East										
Bhutan	1966/67-1970/71	Public sector	B. rupees	...	212	...	21.0	...	...
Burma	1966/67-1969/70	Comprehensive	Kyats	...	623	...	...	8.0	6.0
Cambodia	1968-72	"	Riels	32 000	12 240	25.0	...	5.0	...	
China (Taiwan)	1969-72	"	NT \$	180 000	...	...	...	7.0	4.5
India	1969/70-1973/74	"	₹ rupees	243 980	143 976	20.4	22.1	5.5	5.0	
Indonesia	1969/70-1973/74	"	Rupiah	1 420 000	1 059 000	26.0	35.0	5.0	...	
Korea, Rep. of	1967-71	"	Won ⁵	980 070	401 090	16.0	23.0	7.0	5.0	
Laos	1969/70-1973/74	"	Kip	20 597	5 729	...	...	...	...
Malaysia	1966-70	"	M\$	10 500	4 839	...	24.0	5.5	5.5	
Mongolia	1966-70	Centrally planned economy	Tugrik	...	4 700	...	...	7.0	6.0
Nepal	1965/66-1969/70	Comprehensive	N. rupees	2 500	1 980	26.0	...	3.6	2.9	
Pakistan	1965/66-1969/70	"	P. rupees	52 000	30 000	...	25.0	6.5	5.8	
Philippines	1966/67-1969/70	"	Pesos	20 300	3 413	...	14.0	6.2	5.5	
Singapore	1966-70	"	M\$	2 820	1 520	5.0	9.0	5.0	...	
Thailand	1966/67-1970/71	"	Baht	130 700	37 900	...	20.0	8.5	4.3	
Near East										
Afghanistan	1967/68-1971/72	Public sector	Afghanis	...	33 000	...	29.0	4.3	3.5	
Iran	1968/69-1972/73	Comprehensive	Rials	810 000	443 000	14.0	17.0	9.4	5.0	
Iraq	1965/66-1969/70	"	₪ dinars	821	640	19.0	23.0	8.0	7.5	
Jordan	1964-70	"	₪ dinars	275	146	26.0	37.0	7.3	4.7	
Lebanon	1965-69	Public sector	₪ Leb.	...	1 080	...	19.0	...	...
Libya	1969/70-1973/74	"	₪ L.	...	1 150	...	13.0	...	...
Somalia	1968-70	"	So. shillings	...	698	...	15.0	...	...
Sudan, The	1961/62-1970/71	Comprehensive	₪ Sd.	565	337	21.0	27.0	4.3	4.0	
Syria	1966-70	"	₪ S	4 955	3 454	28.0	27.0	7.2	6.7	
Turkey	1968-72	"	T. liras	111 500	...	15.0	...	7.0	4.2	
Africa										
Algeria	1967-69	Comprehensive	Alg. dinars	5 400	...	...	...	...	...
Botswana	1968-73	Public sector	Rands	70	70	8.0	8.0	6.0	...	
Cameroun	1966-71	Comprehensive	CFAF	165 176	95 700	13.0	...	5.8	...	
Central African Republic	1967-70	"	CFAF	36 872	...	40.0	...	10.0	...	
Chad	1966-70	Public sector	CFAF	...	47 012	...	28.0	...	...
Congo (Brazzaville)	1964-68	Comprehensive	CFAF	50 347	30 347	6.0	...	7.3	104.3	
Dahomey	1966-70	"	CFAF	35 400	...	34.0	...	4.0	...	
Ethiopia	1968/69-1972/73	"	Eth. \$	2 865	1 484	10.9	7.0	6.0	3.1	
Gabon	1966-70	"	CFAF	94 000	36 000	27.0	...	7.5	...	
Gambia, The	1967-71	Public sector	₪	5	5	...	13.0	...	...
Ghana	1968-70	Comprehensive	Cedis	221.6	...	...	...	...	...
Ivory Coast	1967-70	Public sector	CFAF	224 000	117 000	...	30.0	4.8	...	
Kenya	1966-70	"	₪	317	102	...	26.0	6.3	...	
Madagascar	1964-68	"	FMG	1165 000	69 000	12.0	31.0	5.5	5.9	
Malawi	1965-69	"	₪	...	44.6	...	11.00	...	...
Malawi	1966-70	Comprehensive	Rupees	340	...	...	...	...	...
Mauritius	1968-72	Public sector	Dirhams	5 050	3 000	46.0	...	5.0	...	
Morocco	1965-68	"	CFAF	43 242	33 442	31.0	...	4.7	3.3	
Niger	1962-68	"	₪	1 066	677	...	14.0	4.0	...	
Nigeria	1966-70	"	RBF	7 079	...	36.0	...	4.4	...	
Rwanda	1969/70-1972/73	Comprehensive	CFAF	130 000	82 500	29.0	60.0	5.5	...	
Senegal	1969-74	Public sector	Rands	23	23	...	14.0	...	...
Swaziland	1969-74	Comprehensive	₪	404	153	...	23.1	6.5	5.0	
Tanzania	1966-70	"	CFAF	28 582	20 052	23.0	26.0	5.6	3.6	
Togo	1968-71	"	Dinars	522	420	25.6	...	6.5	3.0	
Tunisia	1966-71	"	₪	...	230	...	27.0	6.3	125.3	
Uganda	1967-70	"	CFAF	32 964	...	29.0	...	...	...
Upper Volta	1966-70	"	₪	429	282	10.0	15.0	...	...
Zambia	1966-70	"	₪	...	...	...	...	...	...
Oceania										
Fiji	1966-70	Public sector	₪ F	...	20.5	...	3.0	5.6	...	
Tonga	1965-70	"	₪ T	...	2.05	...	7.0	...	...
Western Samoa	1966-70	"	₪ WS	...	0.96	...	1.0	...	...

NOTE: Where possible, data refer to net investment. In many cases, however, no distinction is made in the plan, and data may refer to gross investment or may include some elements of recurrent expenditure. The agricultural sector includes animal production, fisheries, forestry, irrigation, land reclamation, community development and agricultural extension, etc.

¹ Of 1960. - ² Gross fixed investment. - ³ Of 1958. - ⁴ Gross domestic product. - ⁵ Of 1963. - ⁶ Of 1964. - ⁷ Total public outlay of which 91 percent investment, the rest current outlay. - ⁸ Of 1965. - ⁹ At constant prices. - ¹⁰ Food production only. - ¹¹ Including FMG 14 000 million investment in kind. - ¹² Commercial sector.

ANNEX TABLE 2A. - WESTERN EUROPE : VOLUME OF PRODUCTION OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
..... Million metric tons														
AGRICULTURAL PRODUCTS														
Wheat	37.80	31.98	40.48	39.08	42.66	39.62	37.62	47.87	41.54	46.90	48.64	44.59	52.04	51.81
Barley	14.74	19.04	17.51	17.73	20.35	22.14	22.54	25.92	28.50	29.57	30.91	32.57	38.01	38.03
Oats	14.78	15.98	13.23	12.88	12.57	13.29	12.96	12.63	12.62	11.97	11.86	11.89	13.42	13.05
Rye	6.69	7.14	7.21	6.99	7.18	7.04	5.41	6.03	5.85	6.34	5.40	4.86	5.56	5.61
Maize	9.76	10.15	12.20	11.08	14.32	14.83	13.13	12.38	15.15	15.38	14.86	18.25	17.82	19.12
Sugar (centrifugal)	6.88	6.49	7.06	8.18	7.31	9.92	7.80	7.34	8.56	10.17	9.04	9.45	10.12	10.33
Potatoes	73.17	84.40	79.09	72.43	72.75	79.78	72.99	73.94	80.57	68.41	63.10	64.97	68.97	66.35
Apples	8.51	10.12	4.23	13.45	7.17	13.58	7.94	11.97	10.14	10.53	10.89	9.84	11.91	10.26
Citrus fruit	2.54	1.84	2.76	2.91	3.28	3.26	4.06	3.25	4.25	4.43	4.53	5.12	4.77	4.95
Olive oil	0.67	0.88	1.02	0.79	1.06	1.09	1.20	0.80	1.60	0.63	1.06	1.07	1.15	1.07
Rapeseed	0.33	0.22	0.49	0.46	0.45	0.27	0.38	0.53	0.41	0.65	0.77	0.61	0.93	0.99
Total vegetable oils and oilseeds (oil equivalent) ¹	0.90	1.06	1.30	1.05	1.34	1.32	1.48	1.15	1.94	1.04	1.49	1.46	1.63	1.58
Wine	16.08	15.58	11.73	16.02	16.67	16.63	14.21	19.92	16.68	19.77	19.38	18.36	18.85	18.45
Tobacco	0.33	0.30	0.36	0.30	0.31	0.26	0.20	0.25	0.33	0.37	0.35	0.32	0.34	0.30
Cotton (lint)	0.12	0.11	0.11	0.11	0.14	0.14	0.20	0.21	0.20	0.15	0.16	0.18	0.17	0.14
Milk (total)	91.06	93.87	97.08	97.63	98.09	103.73	106.34	107.68	107.19	107.41	110.97	113.39	115.59	118.00
Meat ²	11.41	11.69	12.15	12.42	12.95	13.70	14.50	15.32	15.53	15.70	16.18	16.81	18.14	18.90
Eggs	2.76	2.84	2.98	3.08	3.24	3.32	3.45	3.57	3.71	3.93	3.82	3.95	4.05	4.18
FISHERY PRODUCTS ³	7.58	8.01	7.59	7.45	7.84	7.71	7.94	8.21	8.50	9.18	10.24	10.87	11.26	10.97
FOREST PRODUCTS														
Fuelwood ⁴	80.6	81.9	90.4	87.7	88.0	84.6	84.3	81.7	80.1	77.2	73.5	70.8	68.1	66.5
Coniferous logs ⁴	67.9	61.5	59.4	63.9	61.0	70.4	71.3	70.7	67.0	75.3	76.0	74.5	74.7	77.9
Broadleaved logs ⁴	17.2	17.4	17.6	18.6	18.3	19.4	21.1	20.2	21.0	22.8	23.2	23.5	23.3	22.9
Other industrial roundwood ⁴	66.9	70.2	73.9	70.0	69.3	75.8	81.5	83.2	77.7	82.2	82.7	83.9	90.7	95.6
Sawn softwood ⁴	38.0	36.4	36.1	36.7	35.7	40.1	40.5	39.9	39.2	42.1	42.1	41.0	40.7	42.9
Sawn hardwood ⁴	7.9	8.2	8.4	8.3	8.3	8.8	9.3	9.2	9.5	10.3	10.5	10.7	10.8	10.7
Plywood ⁴	1.6	1.5	1.6	1.7	1.8	2.1	2.1	2.2	2.5	2.5	2.6	2.6	2.6	2.8
Fibreboard	1.1	1.2	1.3	1.3	1.4	1.6	1.7	1.7	1.8	2.0	2.0	1.9	1.9	2.0
Particle board	0.2	0.3	0.4	0.5	0.7	1.0	1.2	1.5	1.8	2.2	2.7	3.2	3.4	4.2
Mechanical wood pulp	4.1	4.4	4.5	4.5	4.8	5.4	5.6	5.6	5.8	6.2	6.4	6.7	6.6	7.0
Chemical wood pulp	7.4	7.7	8.2	8.0	8.7	9.8	10.6	10.8	11.8	13.1	13.8	13.9	14.6	15.5
Newsprint	2.9	3.2	3.3	3.3	3.6	4.0	4.1	4.1	4.1	4.4	4.7	4.9	4.9	5.2
Printing and writing paper	3.2	3.3	3.5	3.6	3.8	4.4	4.7	4.8	5.2	5.7	6.0	6.8	7.1	7.6
Other paper and paperboard	8.3	8.7	9.4	9.6	10.4	11.7	12.3	16.5	13.9	14.8	15.5	16.1	16.3	17.3

¹ Olive oil, soybeans, groundnuts, cottonseed, sesame seed, sunflowerseed, rapeseed, linseed, hempseed, castor beans. - ² Beef and veal, mutton and lamb, pork, poultry meat. - ³ Nominal catch (liveweight). - ⁴ Million cubic metres.

ANNEX TABLE 2B. - WESTERN EUROPE: INDICES OF FOOD AND TOTAL AGRICULTURAL PRODUCTION

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
..... 1952-56 average = 100														
Total agricultural production														
WESTERN EUROPE	102	103	106	109	112	119	118	126	128	129	130	133	143	146
Austria	103	107	109	120	109	124	129	131	140	139	123	134	146	151
Belgium-Luxembourg	106	100	102	102	98	111	111	119	124	116	112	109	126	133
Denmark	103	103	112	108	107	116	118	125	117	122	122	121	123	126
Finland	96	98	108	107	111	127	123	117	133	137	141	133	143	145
France	102	103	103	105	110	124	120	133	131	133	143	138	160	166
Germany, Fed. Rep. of	101	102	103	112	106	121	109	123	128	126	118	127	137	144
Greece	108	111	127	120	126	117	137	134	147	157	162	170	173	161
Ireland	99	105	113	104	100	111	123	119	121	122	115	122	137	145
Italy	105	104	102	115	116	109	119	121	114	123	126	130	135	134
Netherlands	106	98	104	109	108	123	119	131	123	124	119	123	134	143
Norway	98	107	104	100	97	105	104	105	104	99	103	99	103	115
Portugal	102	101	107	100	104	107	109	120	124	122	125	112	125	127
Spain	97	102	105	107	115	116	120	123	140	127	126	139	139	150
Sweden	92	99	98	95	97	101	99	103	97	104	102	94	106	110
Switzerland	100	97	101	110	107	114	115	111	112	111	109	113	122	131
United Kingdom	99	108	108	107	113	120	122	132	133	140	145	143	149	145
Yugoslavia	121	102	145	121	166	144	132	138	152	157	147	183	178	172
Per caput agricultural production														
WESTERN EUROPE	102	102	104	106	108	113	111	117	118	118	117	120	128	129
Austria	103	107	109	120	108	122	126	128	136	134	118	128	138	142
Belgium-Luxembourg	106	99	100	99	95	107	107	114	118	110	104	101	116	122
Denmark	102	102	109	106	104	112	113	119	110	113	113	111	112	114
Finland	95	96	104	103	106	120	116	109	123	125	128	120	128	129
France	101	101	100	101	105	117	112	122	118	119	126	121	138	142
Germany, Fed. Rep. of	100	100	100	107	100	113	100	111	115	112	103	110	118	122
Greece	107	109	124	115	120	111	128	125	137	146	149	156	156	145
Ireland	99	106	115	107	103	115	128	123	125	125	118	124	138	146
Italy	104	103	100	113	113	105	114	115	108	115	117	119	124	121
Netherlands	105	96	100	103	102	114	109	118	110	109	103	105	113	119
Norway	97	105	101	96	93	100	98	98	96	91	94	90	93	102
Portugal	101	101	105	99	101	103	105	115	118	115	116	103	114	115
Spain	97	100	102	104	110	110	113	115	130	116	115	126	124	134
Sweden	91	98	96	93	94	97	95	99	92	98	95	87	97	100
Switzerland	99	95	97	105	100	105	103	97	96	93	90	93	99	105
United Kingdom	99	107	106	105	111	117	118	126	126	132	133	135	138	133
Yugoslavia	119	99	140	116	157	135	122	127	138	141	130	160	154	147

ANNEX TABLE 2B. - WESTERN EUROPE: INDICES OF FOOD AND TOTAL AGRICULTURAL PRODUCTION (concluded)

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
..... 1952-56 average = 100														
Total food production														
WESTERN EUROPE	102	103	106	109	113	119	118	126	128	130	130	134	144	147
Austria	103	107	110	120	110	124	130	132	141	139	124	135	146	151
Belgium-Luxembourg	106	106	103	103	100	112	112	120	125	116	113	111	130	136
Denmark	103	103	112	108	107	117	119	125	118	122	123	121	123	126
Finland	96	98	108	107	111	127	124	118	133	137	142	133	143	145
France	102	103	102	105	110	124	120	133	132	133	143	139	161	167
Germany, Fed. Rep. of	101	102	103	112	106	122	109	123	129	127	118	127	138	145
Greece	103	109	125	119	127	118	136	130	140	156	161	172	174	166
Ireland	99	105	113	103	99	111	123	119	121	122	115	121	137	145
Italy	105	104	103	117	117	110	122	123	115	125	128	132	137	136
Netherlands	106	98	105	110	110	124	121	132	124	125	120	125	137	145
Norway	98	107	104	99	97	105	104	104	103	98	102	99	103	115
Portugal	102	101	107	100	104	107	109	120	125	122	125	112	125	127
Spain	97	101	105	107	114	114	117	121	139	126	125	139	139	152
Sweden	92	99	98	95	97	101	100	104	97	104	102	94	106	111
Switzerland	100	97	101	110	106	114	115	111	112	111	108	112	122	130
United Kingdom	99	108	108	107	113	121	122	132	134	141	143	146	150	146
Yugoslavia	120	102	145	122	169	147	135	141	154	159	149	186	181	177
Per caput food production														
WESTERN EUROPE	101	102	104	106	108	114	112	118	118	119	118	120	129	130
Austria	103	107	109	120	108	122	127	129	136	134	118	128	138	143
Belgium-Luxembourg	105	98	101	101	97	108	108	114	118	110	106	102	120	125
Denmark	102	102	110	106	104	112	113	119	111	114	114	111	112	114
Finland	95	96	105	103	106	120	116	109	123	125	128	120	129	130
France	101	101	100	101	105	117	112	122	118	119	126	121	139	143
Germany, Fed. Rep. of	100	100	100	107	100	114	100	112	116	112	103	110	119	123
Greece	102	107	121	115	122	112	127	121	130	144	149	157	157	149
Ireland	99	106	115	106	102	115	128	123	124	125	117	123	138	146
Italy	104	103	101	114	114	106	117	117	109	117	118	121	126	124
Netherlands	105	96	101	105	103	115	110	119	110	109	104	106	115	121
Norway	97	105	101	96	93	99	98	97	95	90	93	89	92	102
Portugal	101	101	105	99	101	104	105	115	119	115	116	103	113	115
Spain	96	100	102	103	109	109	110	113	129	116	114	126	125	135
Sweden	91	98	96	93	94	98	96	99	92	98	96	87	98	101
Switzerland	99	95	97	105	100	105	103	96	95	93	90	92	99	105
United Kingdom	99	107	106	105	111	117	118	126	127	132	134	136	139	134
Yugoslavia	118	100	141	117	160	138	125	129	139	142	132	163	156	152

ANNEX TABLE 2C. - WESTERN EUROPE: VOLUME OF IMPORTS OF MAJOR AGRICULTURAL AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
..... Million metric tons														
AGRICULTURAL PRODUCTS														
Wheat and wheat flour (wheat equivalent)	13.33	15.89	14.16	12.35	12.89	11.17	15.13	13.32	12.05	10.56	12.39	12.42	10.47	10.91
Barley	3.57	5.06	4.61	4.69	4.77	4.27	4.19	4.72	3.63	4.51	4.84	5.02	4.96	4.07
Maize	4.51	5.02	4.78	6.32	7.66	8.93	9.43	12.91	13.87	14.48	16.95	18.69	17.52	18.73
Oats	0.70	1.11	0.98	1.32	1.41	1.24	0.86	1.32	1.07	0.97	1.32	1.28	1.05	1.01
Rye	0.92	0.76	0.77	0.56	0.59	0.76	0.75	1.02	0.74	0.46	0.36	0.41	0.40	0.27
Millet and sorghums	1.32	1.65	0.68	1.88	2.72	2.51	1.77	2.88	2.03	2.18	2.74	3.20	2.43	1.49
Rice (milled equivalent) ¹	0.44	0.54	0.48	0.51	0.60	0.59	0.51	0.53	0.52	0.54	0.55	0.62	0.50	0.59
Sugar (raw equivalent) ²	4.07	4.40	5.38	4.86	4.62	4.62	3.99	4.22	5.32	4.97	4.54	4.97	4.85	4.58
Potatoes	1.49	1.50	1.05	1.81	1.86	1.40	1.48	1.97	1.72	1.54	2.39	2.06	1.94	1.81
Pulses (dry)	0.48	0.56	0.47	0.50	0.62	0.61	0.45	0.61	0.68	0.66	1.03	1.00	0.81	0.85
Apples	0.71	0.66	0.94	0.68	0.99	0.95	1.11	1.23	0.96	1.13	1.36	1.28	1.24	1.31
Bananas	1.18	1.34	1.44	1.59	1.63	1.68	1.85	1.90	1.93	1.97	2.35	2.58	2.61	2.53
Citrus fruit ³	2.30	1.96	2.22	2.36	2.55	2.76	2.71	2.98	2.71	3.30	3.21	3.31	3.16	2.95
Grapes (fresh)	0.21	0.28	0.24	0.33	0.30	0.32	0.37	0.43	0.37	0.44	0.50	0.48	0.49	0.48
Vegetable oils and oilseeds (oil equivalent) ⁴	2.95	3.24	3.40	3.09	3.21	3.53	3.39	3.35	3.63	3.59	3.64	3.90	3.88	3.95
Oilseed cake and meal	2.85	3.14	2.95	3.69	4.42	4.44	4.60	5.67	5.91	6.17	7.00	7.99	7.48	7.42
Cattle	1.17	1.33	1.60	1.41	1.32	1.49	1.83	1.49	2.02	1.94	2.03	2.03	2.54	2.97
Sheep, lambs and goats ⁵	0.49	0.62	0.78	0.68	0.87	1.10	0.88	1.35	1.32	1.37	1.93	1.74	1.67	2.15
Pigs ⁵	0.80	0.65	0.40	0.76	1.16	1.29	1.04	0.96	0.74	0.91	1.24	1.25	1.14	1.30
Meat (fresh, chilled and frozen) ⁶	0.99	1.20	1.25	1.21	1.23	1.36	1.27	1.44	1.72	1.81	1.89	1.82	2.04	1.97
Butter	0.39	0.44	0.45	0.46	0.47	0.48	0.47	0.49	0.51	0.56	0.52	0.52	0.54	0.54
Cheese	0.28	0.30	0.31	0.33	0.34	0.34	0.36	0.39	0.42	0.43	0.46	0.47	0.50	0.49
Coffee (green)	0.67	0.74	0.75	0.79	0.87	0.93	0.99	1.04	1.12	1.19	1.18	1.24	1.28	1.38
Cocoa beans	0.40	0.39	0.45	0.39	0.43	0.47	0.52	0.56	0.56	0.54	0.59	0.60	0.60	0.58
Tea	0.26	0.27	0.31	0.30	0.27	0.28	0.29	0.29	0.30	0.29	0.30	0.28	0.32	0.34
Wine	2.40	2.13	2.53	2.64	2.18	2.45	2.39	2.55	1.95	2.10	1.92	2.16	1.62	1.67
Tobacco (unmanufactured)	0.41	0.40	0.41	0.41	0.40	0.47	0.48	0.52	0.52	0.54	0.53	0.52	0.56	0.54
Wool (actual weight)	0.80	0.85	0.89	0.77	0.89	0.83	0.86	0.88	0.86	0.81	0.80	0.80	0.73	0.79
Cotton (lint)	1.42	1.51	1.72	1.43	1.44	1.70	1.59	1.46	1.47	1.54	1.39	1.57	1.47	1.41
Sisal	0.25	0.28	0.30	0.32	0.34	0.36	0.36	0.39	0.40	0.37	0.38	0.39	0.34	0.37
Rubber (natural)	0.76	0.64	0.71	0.62	0.64	0.64	0.64	0.66	0.70	0.75	0.76	0.76	0.75	0.81
FOREST PRODUCTS														
Pulpwood ⁷	5.68	5.50	4.90	4.27	4.82	6.61	8.63	7.57	7.01	8.81	9.87	8.63	9.62	9.87
Coniferous logs ⁷	1.31	1.17	1.21	1.46	1.62	2.17	2.28	2.25	2.44	2.23	2.25	2.52	2.50	2.24
Broadleaved logs ⁷	3.17	3.17	3.55	3.79	4.51	5.76	5.78	5.51	6.08	6.76	6.21	6.41	6.30	6.98
Pitprops ⁷	3.32	2.98	3.01	2.50	1.81	1.76	1.82	1.44	1.30	1.34	1.16	0.87	0.45	0.39
Sawn softwood ⁷	16.69	14.37	16.00	15.01	16.87	20.08	19.62	20.22	21.68	24.25	23.57	21.85	22.11	23.60
Sawn hardwood ⁷	1.66	1.46	1.62	1.57	1.68	2.04	2.03	1.91	2.20	2.48	2.60	2.67	2.65	3.15
Plywood and veneers ⁷	0.66	0.50	0.64	0.64	0.74	0.96	0.90	0.98	1.10	1.33	1.40	1.38	1.64	1.86
Fibreboard	0.32	0.32	0.39	0.39	0.44	0.50	0.52	0.59	0.65	0.75	0.69	0.65	0.74	0.76
Mechanical wood pulp	1.03	1.05	1.02	0.92	0.95	1.11	1.06	0.96	1.04	1.16	1.21	1.14	1.00	1.05
Chemical wood pulp	3.53	3.57	3.73	3.73	4.08	4.99	4.89	4.97	5.80	6.23	6.04	6.48	6.70	7.31
Newsprint	0.90	0.98	1.09	1.14	1.09	1.34	1.43	1.49	1.56	1.69	1.70	1.84	1.76	1.97
Other paper and paperboard	1.57	1.52	1.77	1.81	2.11	2.60	2.98	3.24	3.72	4.30	4.65	5.02	5.28	6.17

¹ Including paddy converted at 65 percent. - ² Including refined sugar converted at 108.7 percent. - ³ Oranges, mandarines and lemons. - ⁴ Groundnuts, copra, palm kernels, soybeans, sunflowerseed, castor beans, cottonseed, olive oil, groundnut oil, coconut oil, palm oil, palm kernel oil, soybean oil, sunflowerseed oil, castor oil, cottonseed oil. - ⁵ Million head. - ⁶ Beef and veal, mutton and lamb, pork, poultry meat. - ⁷ Million cubic metres.

ANNEX TABLE 2D. - WESTERN EUROPE: VOLUME OF EXPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
<i>Million metric tons</i>														
AGRICULTURAL PRODUCTS														
Wheat and wheat flour (wheat equivalent)	3.40	2.30	3.09	3.88	3.78	3.37	3.19	3.69	5.07	5.27	6.99	6.43	5.72	8.30
Barley	0.40	0.99	1.96	0.76	0.64	1.05	2.51	1.69	2.29	3.16	2.63	3.37	4.00	4.15
Maize	0.12	0.13	0.11	0.61	0.37	0.81	1.09	0.34	0.94	1.27	1.89	2.15	2.77	2.52
Rye	0.24	0.32	0.14	0.09	0.21	0.20	0.31	0.18	0.16	0.05	0.05	0.06	0.05	0.09
Sugar (raw equivalent) ¹	1.81	1.56	1.72	1.37	1.34	1.57	1.47	1.26	1.59	1.45	1.54	1.27	1.11	1.60
Potatoes	1.78	1.64	1.35	2.01	1.80	1.58	1.75	1.83	1.64	1.70	2.26	1.98	1.88	1.88
Pulses (dry)	0.16	0.18	0.17	0.21	0.19	0.17	0.19	0.22	0.17	0.15	0.17	0.19	0.24	0.24
Apples	0.66	0.53	0.73	0.38	0.79	0.71	0.84	0.88	0.53	0.73	0.88	0.76	0.78	0.86
Citrus fruit ²	1.40	0.85	0.96	1.20	1.35	1.47	1.49	1.73	1.22	2.01	1.91	1.97	1.94	1.73
Grapes (fresh)	0.19	0.24	0.19	0.26	0.24	0.28	0.31	0.34	0.29	0.38	0.41	0.41	0.42	0.40
Vegetable oils and oilseeds (oil equivalent) ³	0.31	0.34	0.31	0.28	0.31	0.44	0.38	0.40	0.37	0.40	0.31	0.35	0.46	0.50
Oilseed cake and meal	0.61	0.68	0.65	0.61	0.77	0.76	0.91	0.92	0.89	1.03	1.07	1.13	1.26	1.20
Cattle ⁴	1.18	1.24	1.51	1.34	1.26	1.38	1.80	1.37	1.85	1.88	1.74	1.46	2.02	2.34
Sheep, lambs and goats ⁴	0.39	0.38	0.67	0.47	0.57	0.86	1.17	0.87	1.35	0.87	0.85	0.58	0.72	0.95
Pigs ⁴	0.53	0.37	0.25	0.32	0.58	0.80	0.58	0.49	0.39	0.66	0.82	0.49	0.83	1.12
Meat (fresh, chilled and frozen) ⁵	0.30	0.23	0.30	0.32	0.40	0.51	0.58	0.74	0.81	0.79	0.92	0.91	1.10	1.20
Bacon, ham and salted pork	0.29	0.28	0.30	0.30	0.31	0.37	0.36	0.37	0.35	0.35	0.36	0.36	0.35	0.35
Milk (condensed, evaporated and powdered)	0.39	0.43	0.45	0.46	0.51	0.58	0.64	0.69	0.72	0.75	0.90	1.03	1.16	1.34
Butter	0.19	0.19	0.25	0.25	0.21	0.25	0.26	0.23	0.24	0.23	0.27	0.27	0.31	0.35
Cheese	0.23	0.25	0.26	0.29	0.32	0.33	0.34	0.36	0.38	0.40	0.42	0.47	0.48	0.51
Eggs (in the shell)	0.27	0.28	0.30	0.31	0.34	0.31	0.29	0.28	0.23	0.19	0.15	0.14	0.16	0.25
Wine	0.64	0.91	0.88	1.17	0.75	0.91	1.01	1.01	1.26	1.21	1.19	1.30	1.31	1.30
Wool (actual weight)	0.07	0.08	0.09	0.08	0.11	0.11	0.11	0.12	0.13	0.10	0.11	0.11	0.10	0.11
<i>Thousand metric tons</i>														
FISHERY PRODUCTS														
Fresh, chilled or frozen fish	511.0	509.6	531.6	593.2	639.2	694.0	684.5	771.7	849.9	877.0	907.7	876.5	861.2	912.2
Dried, salted or smoked fish	431.0	466.0	417.0	391.0	346.2	331.0	333.3	353.8	334.3	314.7	323.2	317.4	312.4	311.5
Crustacea and molluscs, fresh, frozen, dried, salted, etc.	85.0	87.2	74.8	84.9	108.5	109.2	112.5	123.4	114.0	118.9	108.8	113.7	116.7	124.2
Fish products and preparations, whether or not in airtight containers	164.4	166.8	166.8	177.6	197.0	191.0	183.7	211.7	196.7	209.1	221.4	211.3	193.8	209.1
Crustacean and mollusc products and preparations, whether or not in airtight containers	4.0	5.0	5.0	6.0	7.0	6.0	8.0	9.0	9.0	13.0	13.0	11.9	13.0	13.7
Oils and fats, crude or refined, of aquatic animal origin	109.8	104.8	216.8	213.7	228.4	213.7	218.8	243.9	199.8	190.0	266.2	340.1	389.8	264.9
Meals, solubles and similar animal feed-stuffs of aquatic animal origin	231.0	284.0	253.0	266.0	252.8	234.6	286.2	240.2	306.9	434.8	555.0	581.8	821.4	762.7
<i>Million metric tons</i>														
FOREST PRODUCTS														
Pulpwood ⁶	5.08	4.60	4.55	3.76	3.93	4.88	6.10	4.42	3.46	3.62	3.61	3.82	3.82	4.22
Coniferous logs ⁶	0.93	0.72	0.70	0.97	1.03	1.34	1.30	1.14	1.05	1.06	1.03	1.35	1.52	1.31
Broadleaved logs ⁶	0.77	0.68	0.68	0.59	0.79	1.04	0.98	0.93	0.91	0.97	1.02	1.10	1.18	1.22
Pitprops ⁶	2.74	2.86	2.90	2.32	1.90	1.62	1.81	1.37	1.07	0.83	0.56	0.54	0.36	0.36
Sawn softwood ⁶	13.39	12.54	13.02	11.86	13.51	15.35	14.24	13.86	13.86	14.62	13.57	12.72	12.86	15.29
Sawn hardwood ⁶	0.97	0.72	0.82	0.79	0.87	1.06	0.93	0.96	0.98	1.14	1.21	1.26	1.24	1.39
Plywood and veneers ⁶	0.55	0.45	0.52	0.48	0.61	0.70	0.65	0.66	0.73	0.83	0.86	0.88	0.93	1.05
Fibreboard	0.44	0.47	0.53	0.56	0.66	0.74	0.75	0.78	0.83	0.88	0.82	0.76	0.82	0.85
Particle board	0.02	0.03	0.04	0.06	0.11	0.15	0.18	0.21	0.24	0.29	0.46	0.51	0.59	0.68
Mechanical wood pulp	0.99	1.06	1.02	0.88	0.93	1.10	1.06	0.97	1.05	1.15	1.12	1.13	1.00	1.06
Chemical wood pulp	3.66	3.86	3.84	3.90	4.36	4.73	4.50	4.80	3.36	5.86	5.79	6.24	6.16	6.44
Newsprint	1.08	1.26	1.24	1.30	1.32	1.51	1.62	1.63	1.71	1.88	1.97	2.07	2.11	2.32
Other paper and paperboard	2.31	2.34	2.57	2.49	2.84	3.25	3.57	3.77	4.23	4.77	5.05	5.54	5.65	6.39

¹ Including refined sugar converted at 108.7 percent. - ² Oranges, mandarines and lemons. - ³ Linseed, sunflowerseed, olive oil, groundnut oil, coconut oil, palm oil, palm kernel oil, soybean oil, sunflowerseed oil, castor oil, cottonseed oil, linseed oil. - ⁴ Million head. - ⁵ Beef and veal, mutton and lamb, pork, and poultry meat. - ⁶ Million cubic metres.

ANNEX TABLE 2E. - WESTERN EUROPE: INDICES OF VOLUME AND VALUE OF EXPORTS AND IMPORTS OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS, BY COMMODITY GROUPS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
..... 1957-59 average = 100														
Export volume														
AGRICULTURAL, FISHERY AND FOREST PRODUCTS	91	92	98	99	103	115	121	121	129	135	143	147	157	171
Agricultural products	89	89	98	100	102	114	124	123	133	137	147	150	164	181
Food and feed	91	87	98	99	103	116	127	126	133	140	152	155	171	191
Beverages and tobacco	77	94	98	118	84	98	107	101	121	121	121	129	134	127
Raw materials	82	100	94	89	116	110	117	130	142	113	113	117	118	124
Fishery products	88	95	97	100	103	104	108	114	115	120	133	134	141	142
Forest products	97	97	99	95	106	120	119	119	125	157	139	143	146	160
Export value														
AGRICULTURAL, FISHERY AND FOREST PRODUCTS	93	95	102	97	100	112	116	118	132	146	158	162	171	180
Agricultural products	89	91	101	98	100	111	116	120	139	151	163	168	181	187
Food and feed	90	91	101	98	102	113	118	121	139	153	169	173	187	194
Beverages and tobacco	79	86	101	110	89	100	109	116	145	149	150	162	179	171
Raw materials	92	110	113	84	103	104	108	117	134	117	102	109	101	112
Fishery products	83	94	98	99	103	104	111	123	125	141	170	178	176	170
Forest products	103	103	106	95	99	115	118	114	120	138	145	146	150	169
Import volume														
Agricultural products	89	96	100	97	103	107	109	114	116	118	122	127	125	127
Food and feed	86	96	97	98	105	109	110	118	121	124	133	138	136	136
Beverages and tobacco	92	93	100	101	99	109	114	120	120	123	123	126	128	132
Raw materials	97	99	108	93	99	103	101	101	100	101	97	102	95	99
Import value														
Agricultural products	94	101	106	96	98	104	102	108	117	124	128	133	129	124
Food and feed	87	101	102	95	103	106	106	115	130	138	150	156	152	144
Beverages and tobacco	96	91	101	105	94	98	98	102	103	114	111	114	116	119
Raw materials	108	107	120	88	89	101	95	93	95	99	88	92	81	79

ANNEX TABLE 2F. - WESTERN EUROPE: PER CAPUT FOOD SUPPLIES AVAILABLE FOR HUMAN CONSUMPTION IN SELECTED COUNTRIES

	Period	Ce- reals ¹	Pota- toes and other starchy foods	Sugars and sweets ²	Pulses, nuts and seeds ³	Vege- tables ⁴	Fruit ⁵	Meat ⁶	Eggs ⁷	Fish ⁸	Milk ⁹	Fats and oils
Grammes per day												
Austria	1934-38	360	264	67	10	158	124	134	18	4	580	47
	1948/-50/	355	295	64	7	166	134	83	10	6	474	42
	1960/-62/	285	230	102	10	170	312	164	32	10	579	49
	1967/68	258	205	99	12	187	276	182	38	10	555	55
Belgium-Luxembourg	1936-38	313	428	72	16	135	92	129	32	16	340	52
	1948/-50/	290	405	79	12	166	172	129	33	16	418	57
	1960/-62/	246	345	87	11	208	148	166	37	21	542	78
	1966/67	220	327	106	13	207	175	177	39	25	535	82
Denmark	1934-38	257	330	138	13	159	105	204	20	28	602	73
	1948/-50/	286	387	101	...	...	...	168	24	49	781	50
	1960/62	216	324	137	7	113	127	175	31	40	692	75
	1967/68	193	260	130	6	112	179	169	32	58	700	76
Finland	1934-38	351	495	77	9	82	58	89	8	16	773	36
	1949/-50/	336	325	85	5	49	45	79	14	34	890	42
	1960/-62/	293	304	110	5	42	119	94	22	29	953	53
	1967/68	227	248	108	7	50	127	106	23	30	934	53
France	1934-38	339	392	66	18	392	81	151	25	16	391	43
	1948/-50/	333	363	63	14	384	110	152	29	16	392	40
	1960-62	269	313	86	18	384	160	199	31	20	525	58
	1966	235	277	91	15	350	196	221	31	23	607	65
Germany, Fed. Rep. of	¹ 1935-38	310	508	72	9	142	129	145	20	18	526	58
	¹ 1948/-50/	314	574	67	11	140	115	80	14	22	460	43
	1960/-62/	217	359	89	10	135	284	171	36	18	564	73
	1967/68	192	303	97	12	172	308	193	40	16	558	73
Greece	1935-38	446	57	30	40	74	169	53	11	15	268	40
	1948/-50/	422	93	26	38	182	224	31	9	16	190	41
	1960-62	430	108	44	39	369	300	72	19	25	344	50
	1967	331	161	56	46	382	397	111	29	28	448	51
Ireland	1934-38	360	535	104	4	146	53	150	43	8	673	37
	1948-50	366	521	97	6	161	72	146	34	7	690	50
	1960-62	300	387	131	7	179	88	176	45	11	719	53
	1967	261	354	139	13	161	119	208	40	14	755	51
Italy	1934-38	440	100	22	52	153	87	55	20	12	216	32
	1948/-50/	410	105	32	27	223	152	42	16	11	258	27
	1960/-62/	368	143	63	24	380	249	84	26	14	342	45
	1966/67	360	120	72	26	430	321	106	26	16	418	48
Netherlands	1936-38	293	317	88	14	183	138	103	25	15	625	56
	1948/-50/	269	434	106	10	186	129	76	13	17	717	63
	1960/-62/	219	270	129	12	192	198	140	32	16	665	86
	1967/68	189	247	135	16	218	257	157	31	16	694	74
Norway	1934-38	326	356	95	8	53	102	104	19	58	653	68
	1948/-50/	319	350	69	9	78	80	92	19	67	846	63
	1960/-62/	214	272	115	10	99	171	109	24	55	667	63
	1967/68	197	260	120	11	97	190	115	28	54	693	64
Portugal	1937-38	287	209	28	22	300	118	41	9	44	42	40
	1948-50	330	296	34	34	294	155	44	7	44	60	37
	1960-62	345	271	52	25	301	230	54	10	55	125	42
	1967	357	312	54	44	476	181	74	11	59	152	46
Spain	1952/-53/	336	286	29	40	279	183	39	13	27	180	42
	1954/-56/	320	309	37	41	280	182	39	14	29	209	44
	1960/-62/	317	316	52	40	356	239	57	20	39	212	56
	1967/68	261	285	68	33	361	296	98	31	39	322	54

ANNEX TABLE 2F. - WESTERN EUROPE: PER CAPUT FOOD SUPPLIES AVAILABLE FOR HUMAN CONSUMPTION IN SELECTED COUNTRIES (concluded)

	Period	Ce-reals ¹	Pota-toes and other starchy foods	Sugars and sweets ²	Pulses, nuts and seeds ³	Vege-tables ⁴	Fruit ⁵	Meat ⁶	Eggs ⁷	Fish ⁸	Milk ⁹	Fats and oils
Sweden	1934-38	261	335	124	8	58	101	134	23	48	683	49
	1948/-50/	242	328	128	9	68	153	133	29	43	747	55
	1960/-62/	198	250	118	9	82	225	140	32	54	719	63
	1967/68	172	250	114	11	114	246	145	32	56	706	57
Switzerland	1934-38	300	248	105	12	170	235	146	24	4	887	42
	1948/-50/	319	243	105	16	200	287	121	24	5	876	40
	1960/-62/	262	188	120	21	206	396	164	27	10	706	55
	1966/67	230	163	125	30	228	389	183	29	11	661	59
United Kingdom	1934-38	261	226	122	14	149	144	184	35	33	402	58
	1948/-50/	291	314	111	14	167	135	136	36	32	559	59
	1960/-62/	224	270	141	16	160	144	203	42	26	593	63
	1967/68	200	283	135	16	173	139	204	44	26	600	60
Yugoslavia	1952-53	522	175	22	19	86	131	55	6	2	276	21
	1954-56	509	165	29	26	107	116	64	7	2	325	25
	1960-62	515	185	45	27	152	129	74	9	2	300	30
	1966	523	177	67	27	155	181	78	12	2	296	38

¹ In terms of flour and milled rice. - ² In terms of refined sugar including crude sugar, syrups, honey and other sugar products. - ³ Shelled equivalent for nuts, including cocoa beans. - ⁴ In terms of fresh equivalent; including processed vegetables. - ⁵ In terms of fresh equivalent; including processed fruit. - ⁶ Including poultry and game; expressed in terms of dressed carcass weight; including edible offals. - ⁷ In terms of fresh equivalent. - ⁸ Estimated edible weight. - ⁹ Milk and milk products, excluding butter, expressed in terms of fresh milk. - ¹⁰ Excluding the Saar.

ANNEX TABLE 2G. - WESTERN EUROPE: ESTIMATED CALORIES AND PROTEIN CONTENT OF NATIONAL AVERAGE FOOD SUPPLY PER CAPUT

	Calories					Total protein					Animal protein				
	Pre-war	1948/-1950/	1960/-1962/	1966/1967	1967/1968	Pre-war	1948/-1950/	1960/-1962/	1966/1967	1967/1968	Pre-war	1948/-1950/	1960/-1962/	1966/1967	1967/1968
	Number per day					Grammes per day									
Austria	2 930	2 670	2 970	2 950	2 920	88.3	77.2	86.8	86.4	85.6	40.9	30.2	47.5	49.4	49.5
Belgium-Luxembourg	2 820	2 880	3 060	3 090	...	83.7	83.1	89.6	87.5	...	35.3	37.7	49.0	50.6	...
Denmark	3 450	3 160	3 260	3 290	3 150	93.2	104.9	88.4	...	88.7	56.8	59.8	56.3	61.7	60.2
Finland	3 000	² 2 980	3 110	2 950	2 890	95.2	⁹ 96.2	93.8	...	87.2	43.8	⁵ 51.6	54.5	56.4	55.8
France	2 880	2 800	³ 3 080	³ 3 100	...	94.9	92.4	⁹ 99.2	¹⁰ 100.7	...	40.9	40.3	⁵ 53.4	⁵ 59.9	...
Germany, Fed. Rep. of ¹	¹³ 3 040	2 730	2 990	2 870	2 960	84.8	79.5	81.1	79.9	80.9	42.5	32.1	49.8	51.5	52.0
Greece	2 600	2 500	² 2 940	² 2 910	² 2 900	83.6	76.3	⁹ 96.3	⁹ 98.2	⁹ 98.9	23.0	16.6	³ 31.3	⁴ 41.7	⁴ 43.0
Ireland ²	3 400	3 430	3 840	3 440	3 460	98.5	100.6	91.6	92.3	94.1	47.4	47.6	54.7	57.7	59.9
Italy	2 510	2 350	2 730	2 860	...	76.6	69.7	79.6	85.4	...	20.3	19.3	29.8	35.5	...
Netherlands	2 960	2 950	3 160	2 900	3 080	82.3	80.6	84.9	82.7	84.6	40.1	38.6	50.4	52.8	53.6
Norway	3 210	3 110	2 930	2 970	2 950	89.7	99.5	82.1	81.4	81.2	49.1	53.2	49.7	49.2	50.4
Portugal ²	2 040	2 270	2 530	2 580	2 770	59.4	67.8	72.4	75.0	83.0	20.4	22.1	27.3	29.8	31.7
Spain . . . . .	...	...	2 820	2 860	2 790	...	...	77.8	85.1	81.9	...	...	24.0	36.7	34.8
Sweden	3 120	3 110	2 990	2 900	2 850	91.9	86.9	82.6	79.8	79.8	55.4	52.5	54.0	53.6	54.1
Switzerland	3 140	3 170	3 210	3 170	...	95.7	95.9	90.2	88.0	...	53.9	50.8	51.4	52.8	...
United Kingdom	3 110	3 130	3 270	3 220	3 150	80.2	90.3	89.0	88.9	87.5	43.9	45.1	53.4	53.3	53.8
Yugoslavia ² . . . . .	...	...	2 970	3 190	...	...	...	90.5	92.8	...	...	...	20.4	21.3	...

¹ From 1959/60 onward including the Saar. - ² Calendar years instead of split years. - ³ 1949/50.

ANNEX TABLE 3A - EASTERN EUROPE AND U.S.S.R. : VOLUME OF PRODUCTION OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
<i>Million metric tons</i>														
AGRICULTURAL PRODUCTS														
Wheat	59.30	78.23	71.41	88.43	83.06	77.23	80.04	84.68	63.13	88.83	78.33	118.59	98.09	116.68
Rye	27.74	24.79	25.88	26.99	28.80	27.81	28.05	26.73	21.92	23.78	27.73	23.69	23.70	24.59
Barley	15.53	17.57	13.83	17.79	15.81	22.37	19.24	25.90	25.95	34.72	27.20	34.89	32.40	33.78
Oats	17.19	18.26	18.05	18.68	18.68	17.53	14.30	10.83	8.79	9.49	10.43	13.73	16.66	16.86
Millet	3.04	4.61	1.62	2.94	1.36	3.29	2.94	2.82	1.88	3.52	2.24	3.14	3.25	3.03
Maize	22.57	17.58	16.43	18.31	17.16	21.15	27.68	25.86	23.27	26.82	19.32	23.26	22.17	21.96
Pulses	1.63	1.09	1.30	1.33	1.55	2.03	2.90	6.06	7.28	9.29	5.53	5.77	5.16	5.67
Cotton (lint)	1.36	1.52	1.48	1.52	1.63	1.51	1.54	1.51	1.78	1.82	1.96	2.09	2.08	2.11
Flax (fibre)	0.47	0.62	0.52	0.51	0.43	0.51	0.49	0.54	0.48	0.44	0.58	0.56	0.60	0.61
Sugar (centrifugal)	7.20	6.65	8.80	9.84	8.86	10.37	10.64	10.16	10.09	14.87	13.00	13.32	14.96	13.99
Vegetable oils and oilseeds (oil equivalent) ¹	2.01	2.03	1.69	2.18	1.87	2.09	2.39	2.44	2.42	2.79	2.84	3.18	3.38	3.45
Sunflowerseed	4.56	4.55	3.39	5.26	3.96	4.92	5.65	4.74	4.26	7.03	6.45	7.35	7.89	7.96
Potatoes	123.74	162.56	153.06	145.38	147.08	148.95	148.27	130.91	141.52	167.15	152.75	159.38	169.55	177.20
Milk, total	67.02	73.50	80.74	86.32	90.28	90.62	91.86	92.25	89.49	92.00	103.03	108.60	113.58	116.43
Meat, total ²	8.44	8.97	9.72	10.27	11.28	11.21	11.48	11.08	12.58	11.41	13.15	13.72	14.89	15.14
Wool (greasy)	0.32	0.32	0.35	0.39	0.42	0.43	0.44	0.44	0.44	0.42	0.43	0.45	0.48	0.50
Eggs	1.66	1.75	1.95	2.01	2.19	2.41	2.58	2.58	2.47	2.45	2.65	2.80	2.99	3.10
FISHERY PRODUCTS ³	2.73	2.87	2.82	2.91	3.08	3.40	3.63	4.02	4.47	5.05	5.73	6.02	6.43	6.93
FOREST PRODUCTS														
Fuelwood ⁴	142.6	139.8	142.7	141.5	145.0	125.3	114.5	112.6	118.1	124.2	120.3	117.1	111.9	107.5
Coniferous logs ⁴	132.6	133.5	138.5	154.7	168.5	170.7	171.5	171.3	173.0	178.1	145.5	144.1	154.4	154.1
Broadleaved logs ⁴	25.6	26.0	27.7	31.3	33.8	34.3	32.3	34.1	34.4	35.5	30.4	30.5	32.4	33.1
Other industrial roundwood ⁴	105.6	114.4	122.2	114.7	116.7	106.1	101.1	104.2	112.8	116.7	151.2	151.2	155.2	156.4
Sawn softwood ⁴	80.7	81.4	85.7	95.4	104.1	105.3	104.1	104.3	105.1	108.7	109.0	105.8	107.4	106.8
Sawn hardwood ⁴	14.3	14.5	15.6	17.9	19.5	20.0	20.2	20.6	21.1	21.9	21.8	21.5	22.0	21.7
Plywood ⁴	1.5	1.6	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.4	2.4	2.5	2.6	2.7
Particle board	—	—	—	—	0.1	0.3	0.4	0.6	0.7	0.9	1.1	1.3	1.6	1.8
Fibreboard	0.2	0.2	0.2	0.2	0.3	0.4	0.5	0.6	0.8	0.8	1.0	1.0	1.1	1.2
Mechanical wood pulp	1.3	1.4	1.4	1.5	1.5	1.6	1.7	1.8	1.8	⁵ 1.3	1.8	2.0	2.0	2.1
Chemical wood pulp	2.7	2.8	3.0	3.2	3.3	3.5	3.7	3.9	4.1	⁵ 1.4	4.3	4.7	5.1	5.2
Newsprint	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.9	1.0	1.2	1.3	1.3
Printing and writing paper	0.9	1.0	1.1	1.1	1.2	1.2	1.3	1.4	1.4	1.5	1.5	1.5	1.6	1.6

¹ Olive oil, soybeans, groundnuts, cottonseed, rapeseed, sesame seed, sunflowerseed, castor beans, hempseed, linseed. - ² Beef and veal, mutton and lamb, pork, poultry meat. - ³ Nominal catch (liveweight). - ⁴ Million cubic metres. - ⁵ Eastern Europe only.

ANNEX TABLE 3B. - EASTERN EUROPE AND U.S.S.R.: INDICES OF FOOD AND TOTAL AGRICULTURAL PRODUCTION

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
..... 1952-56 average = 100														
Total agricultural production . . .	105	115	118	128	130	132	135	138	133	145	148	165	167	174
Per caput agricultural production	103	111	113	121	121	121	122	123	117	126	127	141	141	146
Total food production	104	114	118	129	131	133	137	140	134	146	149	167	168	177
Per caput food production	103	111	113	122	122	122	123	124	118	127	128	143	142	148

ANNEX TABLE 3C. - EASTERN EUROPE AND U.S.S.R.: VOLUME OF IMPORTS OF MAJOR AGRICULTURAL AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
..... Million metric tons														
AGRICULTURAL PRODUCTS														
Wheat and wheat flour (wheat equivalent)	3.12	3.18	5.13	3.66	5.09	5.57	5.46	4.18	8.21	15.09	10.79	12.56	6.20	5.87
Barley	0.80	0.77	1.10	0.61	0.49	0.43	0.69	0.67	0.89	1.17	1.93	0.44	0.81	1.06
Maize	0.72	0.54	0.15	0.69	0.39	0.64	0.61	1.32	0.96	1.20	1.25	1.08	1.08	1.17
Rye	0.77	0.84	0.40	0.49	0.39	0.54	0.76	0.87	0.78	0.15	0.06	0.23	0.37	0.38
Rice (milled equivalent) ¹	0.66	0.81	0.62	0.76	1.10	0.93	0.24	0.55	0.50	0.63	0.49	0.59	0.65	0.51
Sugar (raw equivalent) ²	1.23	0.42	0.76	0.49	0.46	2.03	4.22	3.42	1.91	2.18	2.96	2.54	3.00	2.47
Citrus fruit ³	0.16	0.15	0.20	0.25	0.26	0.23	0.21	0.27	0.27	0.37	0.45	0.52	0.59	0.61
Vegetable oils and oilseeds (oil equivalent) ⁴	0.31	0.30	0.34	0.29	0.35	0.36	0.36	0.34	0.36	0.44	0.41	0.45	0.42	0.45
Sheep, lambs and goats ⁵	2.31	2.23	1.52	1.66	1.58	1.74	1.76	1.38	1.25	1.15	1.41	1.93	1.67	1.09
Meat (fresh, chilled and frozen) ⁶	0.27	0.23	0.16	0.22	0.25	0.21	0.17	0.26	0.22	0.25	0.34	0.29	0.24	0.23
Coffee (green)	0.01	0.02	0.03	0.03	0.06	0.06	0.08	0.07	0.09	0.10	0.11	0.12	0.13	0.14
Cocoa beans	0.04	0.04	0.07	0.04	0.08	0.10	0.07	0.10	0.11	0.13	0.16	0.12	0.16	0.19
Wine	0.08	0.08	0.11	0.13	0.12	0.18	0.19	0.18	0.22	0.25	0.26	0.31	0.40	0.49
Tobacco (unmanufactured)	0.11	0.13	0.15	0.14	0.16	0.13	0.12	0.13	0.16	0.20	0.17	0.13	0.15	0.14
Cotton (lint)	0.37	0.40	0.50	0.54	0.62	0.67	0.66	0.66	0.71	0.68	0.71	0.74	0.68	0.69
Rubber (natural)	0.09	0.20	0.21	0.34	0.35	0.34	0.52	0.49	0.45	0.35	0.43	0.48	0.44	0.51
FOREST PRODUCTS ⁷														
Sawn softwood ⁸	0.61	0.49	0.42	0.34	0.27	0.21	0.21	0.16	0.11	0.02	—	—	—	—
Sawn hardwood ⁹	0.08	0.15	0.17	0.18	0.22	0.24	0.27	0.27	0.24	0.31	0.27	0.27	0.30	0.30

¹Including paddy converted at 65 percent. - ²Including refined sugar converted at 108.7 percent. - ³Oranges, mandarines and lemons. - ⁴Groundnuts, copra, palm kernels, soybeans, sunflowerseed, castor beans, linseed, cottonseed, olive oil, groundnut oil, coconut oil, palm oil, palm kernel oil, soybean oil, sunflowerseed oil, castor oil, linseed oil, cottonseed oil. - ⁵Million head. - ⁶Beef and veal, mutton and lamb, pork, poultry meat. - ⁷U.S.S.R. only. - ⁸Million cubic metres.

ANNEX TABLE 3D. - EASTERN EUROPE AND U.S.S.R.: VOLUME OF EXPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
<i>Million metric tons</i>														
AGRICULTURAL PRODUCTS														
Wheat and wheat flour (wheat equivalent)	2.64	1.74	5.63	4.11	6.34	5.86	5.46	5.18	4.97	2.52	2.32	4.12	6.54	6.14
Barley	0.62	0.91	1.33	0.38	0.19	0.43	1.18	0.61	0.69	0.76	2.14	0.39	0.53	0.65
Maize	1.01	0.84	0.26	0.73	0.27	0.70	1.30	2.33	1.78	1.93	1.35	0.62	0.80	0.58
Rye ¹	0.77	0.67	0.45	0.47	0.55	0.76	1.15	1.35	0.89	0.17	0.06	0.32	0.41	0.30
Sugar (raw equivalent) ²	1.13	0.54	0.62	1.10	1.36	1.33	3.21	3.17	2.19	1.71	2.02	2.19	2.34	2.58
Potatoes	0.08	0.09	0.12	0.17	0.31	0.25	0.40	0.66	0.46	1.15	0.65	0.62	0.67	0.61
Sunflowerseed ¹	0.08	0.08	0.06	0.06	0.12	0.18	0.17	0.22	0.15	0.24	0.19	0.35	0.42	0.46
Oilseed cake and meal	0.19	0.15	0.22	0.38	0.59	0.53	0.42	0.39	0.24	0.08	0.16	0.43	0.40	0.44
Meat (fresh, chilled and frozer) ³	0.07	0.09	0.12	0.10	0.31	0.14	0.20	0.27	0.27	0.17	0.24	0.25	0.34	0.32
Butter	0.01	0.03	0.05	0.06	0.11	0.08	0.09	0.11	0.10	0.06	0.08	0.10	0.12	0.12
Eggs (in the shell)	0.04	0.05	0.04	0.06	0.07	0.10	0.13	0.11	0.08	0.08	0.11	0.09	0.13	0.11
Cotton	0.34	0.32	0.32	0.32	0.35	0.40	0.39	0.35	0.32	0.39	0.46	0.52	0.55	0.57
<i>Thousand metric tons</i>														
FISHERY PRODUCTS														
Fresh, chilled or frozen fish	0.8	1.0	1.2	2.5	5.5	9.9	17.9	33.7	80.9	88.9	178.3	229.5	215.8	236.5
Dried, salted or smoked fish	—	1.2	1.0	13.0	34.8	45.3	31.7	40.5	44.4	35.3	39.9	28.6	35.6	25.2
Crustacea and molluscs, fresh, frozen, dried, salted, etc.	0.1	0.1	0.1	0.4	0.2	0.3	0.2	0.3	0.6	1.1	1.2	1.3	1.3	0.6
Fish products and preparations, whether or not in airtight containers	6.5	7.5	9.3	9.4	18.0	22.0	25.3	24.3	19.3	18.9	19.6	20.0	24.2	27.0
Crustacean and mollusc products and preparations, whether or not in airtight containers	4.6	5.7	3.8	4.2	4.2	3.7	3.7	3.0	5.0	5.6	4.9	4.8	5.0	4.7
Oils and fats, crude or refined, of aquatic animal origin	5.4	6.3	4.6	5.3	8.6	35.9	18.2	15.2	32.2	40.0	57.1	71.9	58.2	59.4
Meals, solubles and similar animal feed-stuffs of aquatic animal origin	3.1	3.6	3.2	3.8	7.2	4.0	4.9	3.7	3.8	4.2	7.2	14.2	38.6	30.6
<i>Million metric tons</i>														
FOREST PRODUCTS¹														
Pulpwood ⁴	0.55	0.53	0.59	0.82	1.18	1.59	2.33	3.26	3.49	4.05	4.18	5.47	5.51	5.60
Coniferous logs ⁴	0.12	0.24	0.65	0.99	1.14	1.50	1.83	2.45	2.63	3.22	4.57	4.79	4.81	4.93
Pitprops ⁴	0.84	0.64	0.82	0.99	0.89	1.11	1.00	1.20	1.40	1.39	1.50	1.24	0.91	0.72
Sawn softwood ⁴	2.33	2.21	3.46	3.63	4.38	4.98	5.20	6.00	6.53	7.68	8.00	7.99	7.44	7.60
Plywood ⁴	0.09	0.05	0.10	0.11	0.12	0.13	0.13	0.14	0.15	0.19	0.21	0.22	0.23	0.28
Chemical wood pulp	0.14	0.15	0.15	0.22	0.20	0.24	0.27	0.27	0.25	0.26	0.26	0.30	0.37	0.40

¹ U.S.S.R. only. - ² Including refined sugar converted at 108.7 percent. - ³ Beef and veal, mutton and lamb, pork and poultry meat.
- ⁴ Million cubic metres.

ANNEX TABLE 3E. - EASTERN EUROPE AND U.S.S.R.: INDICES OF VOLUME AND VALUE OF EXPORTS AND IMPORTS OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS, BY COMMODITY GROUPS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
..... 1957-59 average = 100														
Export volume														
AGRICULTURAL, FISHERY AND FOREST PRODUCTS	72	69	90	92	118	121	145	156	152	146	168	182	203	204
Agricultural products	71	68	90	90	120	118	146	154	142	126	149	162	190	190
Food and feed	64	59	88	88	124	115	155	167	147	118	145	159	197	194
Beverages and tobacco	61	85	90	93	117	133	120	111	149	176	168	163	159	162
Raw materials	102	95	97	96	107	120	124	123	117	134	159	174	178	189
Fishery products	64	78	70	85	145	191	193	211	289	301	435	530	514	532
Forest products	74	67	89	93	102	120	129	149	165	187	197	211	210	214
Export value														
AGRICULTURAL, FISHERY AND FOREST PRODUCTS	77	72	94	91	115	113	135	142	152	143	165	179	202	196
Agricultural products	75	71	93	89	118	114	138	145	151	135	154	167	193	184
Food and feed	66	62	90	87	124	112	146	158	161	132	153	168	204	189
Beverages and tobacco	59	80	91	94	115	132	115	102	150	172	169	173	176	180
Raw materials	122	105	108	97	95	114	120	115	113	130	152	157	157	170
Fishery products	62	78	75	89	136	163	165	169	210	212	256	309	317	347
Forest products	77	70	93	92	99	116	125	142	155	182	197	212	209	225
Import volume														
Agricultural products	79	81	94	95	111	117	129	127	135	167	167	163	147	149
Food and feed	94	88	98	92	109	121	139	135	142	200	191	188	161	152
Beverages and tobacco	62	76	96	91	113	109	99	108	133	161	160	141	159	174
Raw materials	64	74	87	102	111	116	128	122	125	122	134	135	120	132
Import value														
Agricultural products	83	85	99	94	107	115	122	119	134	175	165	161	142	141
Food and feed	94	90	102	91	107	115	131	129	152	218	201	200	169	157
Beverages and tobacco	63	73	94	99	112	103	89	93	119	151	143	128	149	164
Raw materials	76	84	97	98	105	119	123	114	114	117	121	119	99	105

ANNEX TABLE 3F. - EASTERN EUROPE AND U.S.S.R.: PER CAPUT FOOD SUPPLIES AVAILABLE FOR HUMAN CONSUMPTION
IN SELECTED COUNTRIES

	Period	Ce- reals ¹	Pota- toes and other starchy foods	Sugars and sweets ²	Pulses, nuts and seeds ³	Vege- tables ⁴	Fruit ⁵	Meat ⁶	Eggs ⁷	Fish ⁸	Milk ⁹	Fats and oils
Hungary	1960-62	372	262	75	13	220	167	133	24	2	295	58
	1963-65	374	241	84	11	222	172	140	27	2	268	58
	1967	368	232	88	12	223	193	141	31	3	288	64
Poland	1960-62	409	548	81	5	25	60	126	21	10	517	37
Romania	1960-62	545	194	35	20	172	125	98	14	5	393	24
	1963	520	178	38	37	184	144	85	13	7	352	25

¹ In terms of flour and milled rice. - ² In terms of refined sugar including crude sugar, syrups, honey and other sugar products. - ³ Shelled equivalent for nuts, including cocoa beans. - ⁴ In terms of fresh equivalent; including processed vegetables. - ⁵ In terms of fresh equivalent; including processed fruit. - ⁶ Including poultry and game; expressed in terms of dressed carcass weight; including edible offals. - ⁷ In terms of fresh equivalent. - ⁸ Estimated edible weight. - ⁹ Milk and milk products, excluding butter, expressed in terms of fresh milk.

ANNEX TABLE 3G. - EASTERN EUROPE AND U.S.S.R.: ESTIMATED CALORIE AND PROTEIN CONTENT OF NATIONAL AVERAGE FOOD SUPPLY PER CAPUT

	Calories					Total protein					Animal protein				
	Pre- war	1948- 1950	1960- 1962	1966	1967	Pre- war	1948- 1950	1960- 1962	1966	1967	Pre- war	1948- 1950	1960- 1962	1966	1967
	<i>Number per day</i>					<i>Grammes per day</i>									
Hungary . . . . .	...	...	3 030	3 100	3 140	...	...	91.7	95.6	96.4	...	...	37.2	38.3	39.4
Poland . . . . .	...	...	3 350	...	...	...	...	92.9	...	...	...	...	37.6	...	...
Romania . . . . .	...	...	3 160	...	...	...	...	97.3	...	...	...	...	27.9	...	...

ANNEX TABLE 4A. - NORTH AMERICA : VOLUME OF PRODUCTION OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
..... Million metric tons														
AGRICULTURAL PRODUCTS														
Wheat	39.63	42.96	36.70	50.50	42.53	50.98	41.25	45.11	50.90	51.28	53.48	58.22	57.57	60.43
Barley	14.24	14.06	14.34	15.57	13.85	13.55	11.00	12.93	13.37	12.07	13.30	15.12	13.54	16.19
Oats	27.87	23.92	23.61	25.67	20.55	22.89	19.05	22.29	20.89	17.72	19.62	17.41	16.15	19.08
Maize	73.78	78.82	78.11	86.01	97.93	99.90	92.13	92.45	103.01	89.85	105.26	106.27	122.79	113.18
Sorghum	6.16	5.20	14.42	14.76	14.11	15.75	12.20	12.96	14.87	12.44	17.09	18.16	19.20	18.76
Rice (milled equivalent) ¹	1.65	1.46	1.27	1.32	1.58	1.61	1.60	1.95	2.07	2.16	2.25	2.51	2.64	3.11
Sugar (centrifugal)	3.26	3.41	3.58	3.38	3.70	3.79	4.08	4.28	5.04	5.25	4.87	4.94	4.93	5.60
Potatoes	12.17	13.09	13.01	13.92	12.76	13.62	15.32	14.16	14.41	13.10	15.30	16.42	15.99	15.41
Apples	2.31	2.21	2.61	2.78	2.60	2.23	2.58	2.58	2.61	2.87	2.78	2.61	2.45	2.46
Citrus fruit	7.51	7.61	6.47	7.45	7.28	6.93	7.88	5.95	5.66	6.93	7.97	10.37	7.56	10.36
Soybeans	10.32	12.37	13.33	15.97	14.69	15.24	18.65	18.39	19.16	19.27	23.23	25.52	26.78	29.63
Cottonseed	5.48	4.91	4.18	4.35	5.44	5.34	5.42	5.57	5.62	5.66	5.52	3.59	2.91	4.20
Total vegetable oils and oilseeds (oil equivalent) ²	3.24	3.72	3.44	4.08	3.77	4.06	4.47	4.51	4.74	4.76	5.65	5.59	5.56	6.33
Tobacco	1.06	1.06	0.83	0.88	0.89	0.98	1.03	1.14	1.15	1.08	0.92	0.96	0.99	0.88
Cotton (lint)	3.21	2.90	2.39	2.51	3.17	3.11	3.12	3.24	3.34	3.31	3.26	2.09	1.62	2.38
Milk (total)	63.51	64.40	64.45	63.98	63.39	63.96	65.35	65.62	65.16	66.00	64.66	62.73	62.16	61.53
Meat ³	16.03	17.08	16.72	16.61	17.71	18.04	18.85	18.89	19.84	21.08	21.01	22.00	22.96	23.43
Eggs	4.10	4.17	4.16	4.17	4.25	4.09	4.09	4.12	4.07	4.14	4.17	4.21	4.43	4.40
FISHERY PRODUCTS	3.79	4.13	3.80	3.75	3.98	3.79	4.00	4.15	4.01	3.91	4.04	3.95	3.78	3.97
FOREST PRODUCTS														
Fuelwood ⁴	61.9	59.8	58.3	55.8	54.0	49.4	48.3	39.4	36.5	37.6	36.8	35.1	34.7	34.0
Coniferous logs ⁵	190.0	185.8	169.6	166.0	193.8	188.5	176.6	193.5	196.8	208.8	212.5	216.1	216.2	228.0
Broadleaved logs ⁵	42.4	40.7	38.7	37.9	36.7	34.8	33.4	35.7	38.7	39.8	41.7	41.1	39.8	38.5
Other industrial roundwood ⁵	119.8	132.8	123.9	111.9	123.6	132.7	125.1	124.4	119.7	127.9	135.2	140.5	137.5	144.0
Sawn softwood ⁵	90.3	90.4	80.4	80.8	89.1	80.9	79.6	82.5	87.8	91.0	93.1	91.6	87.9	95.6
Sawn hardwood ⁵	18.8	19.9	14.8	15.1	16.7	15.8	15.1	15.8	17.0	18.4	18.9	19.0	18.2	17.2
Plywood ⁵	6.5	6.7	6.7	7.6	8.8	8.9	9.7	10.7	11.9	13.1	14.5	14.8	14.9	16.0
Fibreboard	1.67	1.72	1.63	1.71	1.97	1.81	1.87	1.97	2.16	2.25	2.39	2.37	2.14	2.50
Mechanical wood pulp	8.87	9.20	8.98	8.70	9.36	9.58	9.50	9.87	10.12	10.78	11.13	11.82	11.35	11.70
Chemical wood pulp	19.16	20.62	20.25	20.27	22.53	23.79	25.13	26.46	28.53	31.11	32.93	35.89	35.15	38.00
Newsprint	6.92	7.32	7.41	7.04	7.51	7.89	7.96	7.96	8.05	8.71	8.98	9.86	9.68	9.95
Printing and writing paper	5.16	5.64	5.35	5.38	6.03	6.24	6.39	6.74	7.09	7.50	8.12	9.00	8.77	9.40
Other paper and paperboard	20.88	21.55	21.00	21.15	23.14	23.44	24.34	25.65	26.77	28.58	30.52	32.63	32.11	34.30

¹ Paddy converted at 65 percent. - ² Olive oil, soybeans, groundnuts, cottonseed, sesame seed, sunflowerseed, rapeseed, linseed, castor beans. - ³ Beef and veal, mutton and lamb, pork, poultry meat. - ⁴ Nominal catch (liveweight). - ⁵ Million cubic metres.

ANNEX TABLE 4B. - NORTH AMERICA: INDICES OF FOOD AND TOTAL AGRICULTURAL PRODUCTION

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
..... 1952-56 average = 100														
Total agricultural production														
NORTH AMERICA	101	103	98	106	107	109	109	112	119	117	119	120	124	125
Canada	99	108	92	97	99	107	90	114	127	118	130	144	122	132
United States	101	103	99	107	108	110	111	112	118	117	118	118	124	125
Per caput agricultural production														
NORTH AMERICA	99	100	93	98	98	98	96	98	102	99	99	99	100	101
Canada	96	103	85	87	86	91	75	94	103	94	102	110	92	97
United States	100	99	94	99	99	99	98	98	102	99	99	98	101	101
Total food production														
NORTH AMERICA	101	104	101	109	110	111	110	114	121	119	122	127	132	133
Canada	99	106	91	96	99	105	88	114	127	118	130	144	123	132
United States	102	104	103	111	111	112	113	114	120	120	121	125	133	133
Per caput food production														
NORTH AMERICA	99	101	96	101	100	100	97	99	104	101	102	104	107	106
Canada	96	101	84	85	86	90	74	94	103	94	102	110	92	97
United States	100	101	97	103	102	101	100	99	104	102	102	104	109	108

ANNEX TABLE 4C. - NORTH AMERICA: VOLUME OF IMPORTS OF MAJOR AGRICULTURAL AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
..... Million metric tons														
AGRICULTURAL PRODUCTS														
Maize	0.13	0.24	0.28	0.38	0.34	0.41	0.51	0.92	0.61	0.55	0.49	0.54	0.76	0.81
Sugar (raw equivalent) ^{1,2}	4.22	4.46	4.43	5.01	4.86	4.93	4.55	4.98	4.84	4.36	4.34	4.64	5.16	5.41
Bananas	1.58	1.67	1.70	1.76	1.91	2.02	1.94	1.72	1.73	1.71	1.75	1.89	1.91	1.98
Citrus fruit ³	0.21	0.21	0.21	0.20	0.24	0.22	0.20	0.20	0.22	0.25	0.23	0.23	0.24	0.26
Vegetable oils and oilseeds (oil equivalent) ⁴	0.54	0.52	0.52	0.53	0.57	0.58	0.59	0.62	0.58	0.52	0.64	0.71	0.73	0.72
Cattle ⁵	0.32	0.16	0.73	1.16	0.74	0.67	1.05	1.25	0.86	0.58	1.13	1.11	0.78	1.05
Meat (fresh, chilled and frozen) ⁶	0.05	0.05	0.09	0.22	0.31	0.27	0.35	0.49	0.58	0.41	0.35	0.44	0.48	0.55
Coffee (green)	1.23	1.33	1.30	1.26	1.45	1.38	1.41	1.54	1.51	1.44	1.35	1.39	1.36	1.61
Cocoa beans	0.24	0.27	0.25	0.21	0.23	0.27	0.37	0.31	0.30	0.29	0.38	0.34	0.30	0.25
Wool (actual weight)	0.17	0.17	0.13	0.12	0.19	0.15	0.16	0.17	0.17	0.11	0.13	0.13	0.09	0.12
Rubber (natural)	0.70	0.64	0.61	0.52	0.63	0.45	0.43	0.47	0.42	0.50	0.50	0.49	0.51	0.60
FOREST PRODUCTS														
Pulpwood ⁷	4.08	4.42	4.18	3.31	3.05	3.42	3.43	3.39	3.08	1.35	1.83	1.98	1.86	1.64
Coniferous logs ⁷	0.91	0.90	0.74	0.64	0.75	0.90	0.97	1.21	1.23	1.20	1.56	1.24	1.30	1.45
Broadleaved logs ⁷	0.54	0.55	0.41	0.33	0.33	0.36	0.22	0.28	0.24	0.51	0.50	0.53	0.59	0.50
Sawn softwood ⁷	8.20	7.84	6.79	7.87	9.32	8.97	9.86	11.15	12.11	11.73	11.73	11.39	11.50	14.00
Sawn hardwood ⁷	0.87	0.92	0.81	0.83	1.09	0.94	0.83	0.97	0.97	1.00	1.08	1.26	1.19	1.05
Plywood ⁷	0.44	0.46	0.46	0.55	0.90	0.66	0.73	0.96	1.07	1.51	1.42	1.64	1.66	2.22
Mechanical wood pulp	0.23	0.25	0.21	0.18	0.21	0.24	0.28	0.30	0.31	0.52	0.31	0.28	0.25	0.20
Chemical wood pulp	1.83	1.93	1.76	1.78	2.06	1.98	2.01	2.34	2.28	2.42	2.60	2.80	2.64	2.96
Newsprint	4.68	5.05	4.74	4.43	4.77	4.91	4.96	4.97	4.91	5.40	5.74	6.34	5.99	5.85
Other paper and paperboard	0.30	0.28	0.24	0.26	0.29	0.26	0.29	0.30	0.28	0.51	0.33	0.42	0.42	0.41

¹ Including refined sugar converted at 108.7 percent. - ² Excluding trade between United States and its territories. - ³ Oranges, mandarines and lemons. - ⁴ Groundnuts, copra, palm kernels, soybeans, sunflowerseed, linseed, castor beans, cottonseed, olive oil, groundnut oil, coconut oil, palm oil, palm kernel oil, soybean oil, sunflowerseed oil, linseed oil, castor oil, cottonseed oil - ⁵ Million head. - ⁶ Beef and veal, mutton and lamb, pork, poultry meat. - ⁷ Million cubic metres.

ANNEX TABLE 4D. - NORTH AMERICA: VOLUME OF EXPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
..... Million metric tons														
AGRICULTURAL PRODUCTS														
Wheat and wheat flour (wheat equivalent)	13.64	21.98	20.27	19.18	19.64	23.30	29.84	24.98	31.11	37.45	31.63	39.44	28.70	27.42
Barley	2.96	3.56	2.55	4.25	3.83	3.01	2.40	2.59	1.62	2.48	2.11	2.04	2.02	1.03
Maize	2.78	3.02	4.52	4.57	5.59	5.61	7.35	10.81	11.12	12.14	15.21	15.60	12.97	15.00
Millet and sorghums	1.59	1.40	0.57	1.88	2.59	2.46	1.64	2.79	2.94	2.55	5.32	9.50	7.80	6.38
Rye	0.37	0.55	0.27	0.34	0.25	0.21	0.34	0.57	0.48	0.29	0.18	0.35	0.31	0.18
Rice (milled equivalent) ¹	0.52	0.82	0.74	0.57	0.69	0.89	0.80	1.05	1.20	1.33	1.47	1.28	1.72	1.71
Citrus fruit ²	0.36	0.48	0.40	0.27	0.33	0.29	0.30	0.27	0.26	0.30	0.33	0.37	0.42	0.27
Pulses (dry)	0.10	0.16	0.17	0.18	0.31	0.24	0.16	0.26	0.34	0.28	0.30	0.32	0.28	0.27
Vegetable oils and oilseeds (oil equivalent) ³	0.84	1.15	1.27	1.05	1.40	1.55	1.23	1.60	1.61	2.00	2.09	1.81	1.85	2.02
Oilseed cake and meal	0.76	0.83	0.61	0.44	0.93	0.83	0.79	1.37	1.69	1.95	2.47	2.60	2.75	2.91
Milk (condensed, evaporated and powdered)	0.21	0.27	0.24	0.22	0.25	0.21	0.23	0.22	0.35	0.47	0.31	0.19	0.15	0.17
Tobacco (unmanufactured)	0.27	0.25	0.24	0.23	0.23	0.24	0.24	0.23	0.25	0.26	0.23	0.27	0.28	0.29
Cotton (lint)	0.56	1.03	1.57	1.04	0.83	1.73	1.45	0.87	0.99	1.19	0.86	0.82	0.90	0.88
..... Thousand metric tons														
FISHERY PRODUCTS														
Fresh, chilled or frozen fish	128.5	142.0	148.7	148.2	139.6	147.3	141.9	157.3	159.1	197.5	216.4	240.0	224.9	252.1
Dried, salted or smoked fish	77.7	66.1	81.0	74.3	70.7	68.3	65.3	59.9	70.0	61.4	54.3	53.6	56.0	55.0
Crustacea and molluscs, fresh, frozen, dried, salted, etc.	15.4	14.5	15.0	13.9	14.4	16.4	19.0	18.9	22.8	24.5	25.6	23.7	24.2	12.6
Fish products and preparations, whether or not in airtight containers	58.0	48.9	40.4	49.4	46.0	30.0	24.2	26.4	31.2	42.8	36.0	37.0	42.4	34.6
Crustacean and mollusc products and preparations, whether or not in airtight containers	8.9	9.5	8.4	4.6	6.5	6.3	4.5	6.6	7.2	7.7	10.4	10.6	11.5	9.7
Oils and fats, crude or refined, of aquatic animal origin	77.0	76.0	57.3	52.0	82.7	80.9	61.2	61.7	129.8	87.4	58.7	41.1	46.7	39.7
Meals, solubles and similar animal feed-stuffs of aquatic animal origin	42.0	54.0	48.6	29.7	46.3	34.0	38.8	46.2	54.3	60.4	57.5	52.6	51.3	65.9
..... Million metric tons														
FOREST PRODUCTS														
Pulpwood ⁴	4.58	4.89	4.51	3.29	2.91	3.12	3.17	3.20	2.88	3.14	3.44	3.52	3.08	2.68
Coniferous logs ⁴	0.71	0.70	0.54	0.60	0.79	1.00	2.28	2.24	4.33	4.85	5.25	6.42	9.23	11.60
Broadleaved logs ⁴	0.22	0.26	0.25	0.27	0.24	0.34	0.31	0.40	0.41	0.38	0.45	0.43	0.53	0.51
Sawn softwood ⁴	12.60	10.81	10.22	10.76	11.38	12.55	13.28	14.50	16.68	17.36	17.43	16.51	17.70	19.10
Sawn hardwood ⁴	0.63	0.61	0.57	0.53	0.64	0.62	0.55	0.60	0.59	0.69	0.74	0.91	0.81	0.68
Plywood and veneers ⁴	0.17	0.16	0.13	0.13	0.22	0.19	0.21	0.29	0.31	0.45	0.47	0.52	0.62	0.62
Mechanical wood pulp	0.24	0.26	0.23	0.21	0.22	0.22	0.22	0.24	0.23	0.26	0.29	0.24	0.21	0.21
Chemical wood pulp	2.48	2.37	2.41	2.27	2.59	3.18	3.45	3.60	4.09	4.47	4.47	4.87	5.23	6.04
Newsprint	5.42	5.55	5.51	5.27	5.47	5.74	5.84	5.68	5.74	6.29	6.60	7.19	6.85	6.89
Other paper and paperboard	0.58	0.59	0.68	0.70	0.78	0.89	0.99	1.05	1.22	1.57	1.76	2.01	2.23	2.67

¹ Including paddy converted at 65 percent. - ² Oranges, mandarines and lemons. - ³ Groundnuts, soybeans, sunflowerseed, linseed, cottonseed, groundnut oil, coconut oil, soybean oil, linseed oil, castor oil, cottonseed oil. - ⁴ Million cubic metres.

ANNEX TABLE 4E. - NORTH AMERICA: INDICES OF VOLUME AND VALUE OF EXPORTS AND IMPORTS OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS, BY COMMODITY GROUPS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
..... 1957-59 average = 100														
Export volume														
AGRICULTURAL, FISHERY AND FOREST PRODUCTS	83	100	103	96	101	118	122	120	134	154	149	161	150	153
Agricultural products	73	100	101	95	101	121	124	120	135	153	149	162	144	144
Food and feed	74	102	96	96	108	117	128	134	152	179	175	191	164	164
Beverages and tobacco	113	104	104	99	98	103	104	100	106	109	99	114	118	125
Raw materials	52	90	137	90	74	143	121	74	83	102	76	76	79	78
Fishery products	106	101	97	104	99	92	91	96	115	123	121	118	125	125
Forest products	106	102	100	97	104	114	120	124	135	143	152	162	167	180
Export value														
AGRICULTURAL, FISHERY AND FOREST PRODUCTS	84	101	105	96	99	113	118	116	130	151	148	164	153	154
Agricultural products	76	102	107	96	97	115	123	119	135	159	153	170	151	146
Food and feed	76	103	98	97	105	111	126	133	152	182	180	202	174	165
Beverages and tobacco	102	94	102	99	99	108	111	108	115	120	110	137	144	153
Raw materials	66	101	145	90	65	131	117	73	78	94	69	65	66	67
Fishery products	91	94	93	102	105	99	93	97	114	135	142	151	159	162
Forest products	102	101	100	95	105	110	109	111	119	133	138	148	156	175
Import volume														
Agricultural products	92	95	95	97	108	101	106	115	113	104	107	112	113	123
Food and feed	80	82	90	105	105	103	109	121	121	105	110	123	130	138
Beverages and tobacco	92	100	98	95	107	106	112	117	115	112	111	111	110	123
Raw materials	117	110	101	87	112	88	89	95	91	84	90	86	83	92
Import value														
Agricultural products	102	102	101	97	102	95	93	97	102	101	98	104	103	114
Food and feed	77	80	89	104	106	101	105	115	129	110	110	127	136	150
Beverages and tobacco	111	113	109	97	94	88	86	86	84	101	93	92	89	100
Raw materials	132	121	109	79	112	99	84	88	86	85	82	81	68	69

ANNEX TABLE 4F. - NORTH AMERICA: PER CAPUT FOOD SUPPLIES AVAILABLE FOR HUMAN CONSUMPTION IN SELECTED COUNTRIES

	Period	Ce-reals ¹	Pota-toes and other starchy foods	Sugars and sweets ²	Pulses, nuts and seeds ³	Vegetables ⁴	Fruit ⁵	Meat ⁶	Eggs ⁷	Fish ⁸	Milk ⁹	Fats and oils
		Grammes per day										
Canada	1935-39	254	165	127	16	154	119	170	38	15	533	51
	1948/-50/	205	206	135	18	192	143	193	42	16	692	55
	1960/-62/	182	176	131	15	204	211	213	42	15	663	53
	1967	186	210	134	12	228	227	250	40	17	638	57
United States	1935-39	253	182	135	26	290	271	197	44	13	565	56
	1948-50	210	143	128	24	281	281	224	59	14	645	54
	1960-62	181	134	128	22	268	244	261	52	17	673	56
	1967	177	133	133	23	269	239	295	51	17	665	61

¹In terms of flour and milled rice. - ²In terms of refined sugar including crude sugar, syrups, honey and other sugar products. - ³Shelled equivalent for nuts, including cocoa beans. - ⁴In terms of fresh equivalent; including processed vegetables. - ⁵In terms of fresh equivalent; including processed fruit. - ⁶Including poultry and game; expressed in terms of dressed carcass weight; including edible offals. - ⁷In terms of fresh equivalent. - ⁸Estimated edible weight. - ⁹Milk and milk products, excluding butter, expressed in terms of fresh milk.

ANNEX TABLE 4G. - NORTH AMERICA: ESTIMATED CALORIE AND PROTEIN CONTENT OF NATIONAL AVERAGE FOOD SUPPLY PER CAPUT

	Calories					Total protein					Animal protein				
	Pre-war	1948-1950	1960-1962	1966/1967	1967/1968	Pre-war	1948-1950	1960-1962	1966/1967	1967/1968	Pre-war	1948-1950	1960-1962	1966/1967	1967/1968
	Number per day					Grammes per day									
Canada	3 020	3 110	3 020	3 180	3 180	84.6	93.1	91.2	95.9	95.4	47.9	57.2	60.4	64.2	64.1
United States	3 280	3 200	3 120	3 160	3 200	86.3	89.7	92.4	93.8	95.6	51.7	59.6	64.3	65.1	68.6

¹Split years instead of calendar years.

ANNEX TABLE 5A. - OCEANIA : VOLUME OF PRODUCTION OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
<i>..... Million metric tons</i>														
AGRICULTURAL PRODUCTS														
Wheat	5.43	3.73	2.74	5.96	5.57	7.69	6.98	8.57	9.17	10.31	7.32	12.99	7.90	15.13
Sugar (centrifugal)	1.36	1.36	1.51	1.64	1.60	1.55	1.55	2.13	2.06	2.29	2.30	2.69	2.67	3.15
Wool (greasy)	0.85	0.93	0.88	0.97	1.02	1.00	1.04	1.04	1.09	1.09	1.07	1.12	1.13	1.22
Milk (total)	11.65	11.60	11.09	11.87	12.01	11.63	12.16	12.28	12.49	12.83	13.16	13.67	13.30	13.09
Meat ¹	1.92	2.01	2.04	2.25	2.22	2.13	2.32	2.51	2.58	2.64	2.57	2.53	2.70	2.88
FISHERY PRODUCTS ²														
	0.10	0.10	0.11	0.11	0.12	0.13	0.14	0.15	0.15	0.16	0.18	0.19	0.20	0.21
FOREST PRODUCTS														
Fuelwood ³	8.8	8.9	9.0	9.1	9.1	9.2	9.2	9.2	9.2	9.2	9.3	9.3	9.3	9.0
Coniferous logs ³	4.3	4.1	4.2	4.7	5.0	5.6	5.4	5.2	5.4	6.0	6.2	6.4	6.5	7.0
Broadleaved logs ³	7.6	7.5	7.3	7.1	7.3	7.6	7.7	7.1	7.5	8.0	8.0	8.2	8.0	8.4
Other industrial roundwood ³	2.2	2.7	2.4	2.7	2.6	2.7	2.9	2.9	3.3	3.5	3.6	3.8	4.0	4.2
Sawn softwood ³	2.0	2.1	2.1	2.1	2.3	2.3	2.2	2.1	2.2	2.5	2.5	2.5	2.3	2.4
Sawn hardwood ³	2.8	2.5	2.4	2.6	2.7	2.7	2.6	2.4	2.5	2.6	2.8	2.7	2.6	2.7
Mechanical wood pulp	0.19	0.24	0.26	0.28	0.30	0.29	0.30	0.31	0.38	0.28	0.30	0.28	0.30	0.31
Chemical wood pulp	0.17	0.26	0.26	0.26	0.30	0.30	0.31	0.33	0.38	0.42	0.45	0.49	0.54	0.57
Newsprint	0.09	0.13	0.15	0.16	0.17	0.18	0.18	0.21	0.26	0.28	0.29	0.28	0.30	0.31
Other paper and paperboard	0.29	0.35	0.37	0.41	0.44	0.52	0.54	0.55	0.64	0.69	0.81	0.85	0.92	0.97

¹ Beef and veal, mutton and lamb, pork, poultry meat. - ² Nominal catch (liveweight). - ³ Million cubic metres.

ANNEX TABLE 5B. - OCEANIA: INDICES OF FOOD AND TOTAL AGRICULTURAL PRODUCTION

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
..... 1952-56 average = 100														
Total agricultural production														
OCEANIA	104	105	101	118	119	122	125	133	137	141	135	151	143	165
Australia	105	105	98	119	118	122	126	134	139	144	132	154	142	168
New Zealand	102	106	107	114	120	122	124	130	131	135	141	145	151	156
Per caput agricultural production														
OCEANIA	101	100	94	107	106	106	107	111	112	113	106	117	108	122
Australia	103	100	92	109	106	107	108	113	115	116	105	121	109	126
New Zealand	100	102	100	104	108	108	107	110	108	109	113	113	115	117
Total food production														
OCEANIA	104	100	97	118	115	121	124	135	138	144	136	158	145	173
Australia	105	98	94	120	114	123	125	139	142	149	137	167	146	181
New Zealand	101	105	106	111	116	118	120	125	127	133	134	138	145	152
Per caput food production														
OCEANIA	102	96	91	107	102	106	105	113	113	116	107	122	109	128
Australia	103	94	88	110	102	108	107	117	117	120	109	130	112	136
New Zealand	99	101	99	102	104	104	104	106	105	108	107	108	111	115

ANNEX TABLE 5C. - OCEANIA: VOLUME OF IMPORTS OF MAJOR AGRICULTURAL AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
..... Million metric tons														
AGRICULTURAL PRODUCTS														
Wheat and wheat flour (wheat equivalent)	0.28	0.32	0.34	0.32	0.27	0.22	0.23	0.26	0.26	0.27	0.24	0.19	0.14	0.09
Sugar (raw equivalent) ¹	0.13	0.11	0.11	0.15	0.12	0.13	0.16	0.14	0.15	0.13	0.16	0.16	0.17	0.17
Rubber (natural)	0.06	0.05	0.04	0.04	0.04	0.05	0.04	0.04	0.04	0.04	0.06	0.05	0.05	0.06
FOREST PRODUCTS														
Sawn softwood ²	0.77	0.66	0.65	0.60	0.56	0.70	0.71	0.60	0.58	0.73	0.72	0.72	0.70	0.75
Newsprint	0.26	0.23	0.21	0.31	0.22	0.25	0.30	0.20	0.23	0.26	0.29	0.28	0.28	0.30
Other paper and paperboard	0.14	0.14	0.11	0.12	0.12	0.15	0.20	0.15	0.17	0.17	0.19	0.17	0.19	0.20

¹ Including refined sugar converted at 108.7 percent. - ² Million cubic metres.

ANNEX TABLE 5D. — OCEANIA: VOLUME OF EXPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
<i>Million metric tons</i>														
AGRICULTURAL PRODUCTS														
Wheat and wheat flour (wheat equivalent)	2.55	3.57	2.56	1.42	2.68	3.60	6.41	4.79	6.44	6.82	7.25	4.79	8.69	5.41
Barley	0.36	0.63	0.64	0.32	0.88	0.38	0.95	0.40	0.28	0.36	0.38	0.25	0.43	0.12
Oats	0.08	0.20	0.09	0.07	0.38	0.22	0.39	0.27	0.31	0.37	0.31	0.25	0.42	0.17
Sugar (raw equivalent) ¹	0.80	0.82	0.98	0.89	0.84	1.04	0.99	1.40	1.45	1.60	1.47	1.66	2.03	2.55
Copra and coconut oil (oil equivalent)	0.17	0.17	0.18	0.16	0.17	0.17	0.18	0.17	0.18	0.18	0.17	0.18	0.17	0.18
Beef and veal	0.25	0.24	0.28	0.28	0.32	0.25	0.26	0.37	0.40	0.43	0.40	0.39	0.35	0.38
Mutton and lamb	0.33	0.31	0.30	0.34	0.39	0.42	0.41	0.41	0.43	0.48	0.44	0.47	0.51	0.54
Butter	0.24	0.25	0.21	0.24	0.28	0.22	0.25	0.24	0.27	0.28	0.27	0.28	0.32	0.28
Cheese	0.11	0.11	0.10	0.10	0.10	0.10	0.11	0.12	0.12	0.13	0.12	0.12	0.14	0.12
Wool (actual weight)	0.71	0.75	0.80	0.73	0.87	0.85	0.89	0.89	0.90	0.89	0.90	0.92	0.86	1.00
<i>Thousand metric tons</i>														
FISHERY PRODUCTS														
Fresh, chilled or frozen fish	3.0	3.0	4.0	3.0	4.0	4.0	3.0	3.0	3.0	4.0	8.0	11.0	10.0	9.0
Dried, salted or smoked fish	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Crustacea and molluscs, fresh, frozen, dried, salted, etc.	4.0	4.0	4.0	4.0	4.0	5.0	5.0	6.0	6.0	7.0	8.0	8.0	9.0	11.0
Fish products and preparations, whether or not in airtight containers	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3
Crustacean and mollusc products and preparations, whether or not in airtight containers	—	—	0.1	—	—	—	—	—	—	—	0.4	1.3	1.0	1.9
Oils and fats, crude or refined, of aquatic animal origin	17.0	14.0	16.0	19.0	15.0	17.0	11.0	8.0	4.0	5.3	9.0	6.0	4.0	7.0
Meals, solubles and similar animal feed-stuffs of aquatic animal origin	—	—	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	—	—	—	—
<i>Million cubic metres</i>														
FOREST PRODUCTS														
Coniferous logs	—	—	—	0.04	0.15	0.14	0.27	0.29	0.29	0.36	0.45	0.55	0.80	0.95

¹ Including refined sugar converted at 108.7 percent.

ANNEX TABLE 5E. - OCEANIA: INDICES OF VOLUME AND VALUE OF EXPORTS AND IMPORTS OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS, BY COMMODITY GROUPS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
..... 1957-59 average = 100														
Export volume														
AGRICULTURAL, FISHERY AND FOREST PRODUCTS	91	96	98	92	109	107	119	120	128	133	132	128	141	142
Agricultural products	92	96	98	92	110	106	120	120	128	132	131	127	139	140
Food and feed	96	102	97	93	111	106	128	128	142	153	149	138	171	153
Beverages and tobacco	71	82	92	94	113	131	158	194	231	270	303	299	349	426
Raw materials	89	90	100	92	109	107	112	112	114	111	114	115	108	126
Fishery products	96	92	101	100	98	117	103	113	108	128	171	197	199	217
Forest products	25	60	90	98	112	111	105	110	148	166	163	176	207	224
Export value														
AGRICULTURAL, FISHERY AND FOREST PRODUCTS	95	99	110	85	105	103	112	112	133	147	134	133	140	125
Agricultural products	96	99	110	85	105	102	112	112	133	147	133	132	138	122
Food and feed	96	101	94	89	117	108	126	126	152	170	164	154	186	152
Beverages and tobacco	82	73	80	103	117	120	128	158	187	217	229	226	304	390
Raw materials	96	98	126	81	93	97	99	99	115	124	104	110	93	92
Fishery products	79	89	103	96	100	110	106	141	134	149	203	257	274	297
Forest products	25	60	91	98	111	111	105	109	140	159	160	173	212	241
Import volume														
Agricultural products	101	93	98	102	100	101	104	95	105	110	120	116	109	106
Food and feed	87	91	96	107	97	95	105	105	114	118	127	130	123	116
Beverages and tobacco	100	91	100	98	102	104	107	94	99	105	109	112	103	101
Raw materials	124	101	98	101	102	105	98	82	100	106	127	102	97	101
Import value														
Agricultural products	114	97	101	99	100	100	97	88	102	109	113	110	100	96
Food and feed	87	93	99	105	96	91	101	101	124	133	138	141	129	123
Beverages and tobacco	120	91	100	98	103	96	93	83	87	94	94	97	91	87
Raw materials	141	111	105	95	101	118	100	77	97	102	111	88	76	73

ANNEX TABLE 5F. - OCEANIA: PER CAPUT FOOD SUPPLIES AVAILABLE FOR HUMAN CONSUMPTION IN SELECTED COUNTRIES

	Period	Cereals ¹	Potatoes and other starchy foods	Sugars and sweets ²	Pulses, nuts and seeds ³	Vegetables ⁴	Fruit ⁵	Meat ⁶	Eggs ⁷	Fish ⁸	Milk ⁹	Fats and oils
Australia	1936/-38/	278	133	149	7	178	205	330	33	14	395	44
	1948/-50/	265	136	153	15	181	217	300	32	12	444	40
	1960/-62/	229	129	142	12	174	222	298	33	14	571	40
	1966/67	219	139	144	14	196	231	283	34	18	618	39
New Zealand	1935-39	238	136	136	8	178	215	299	37	18	653	47
	1948-50	246	141	144	9	217	170	281	35	20	696	45
	1960-62	237	162	126	10	218	179	302	44	17	818	55
	1967	221	153	113	10	247	192	302	49	19	762	50

¹In terms of flour and milled rice. - ²In terms of refined sugar including crude sugar, syrups, honey and other sugar products. - ³Shelled equivalent for nuts, including cocoa beans. - ⁴In terms of fresh equivalent; including processed vegetables. - ⁵In terms of fresh equivalent; including processed fruit. - ⁶Including poultry and game; expressed in terms of dressed carcass weight; including edible offals. - ⁷In terms of fresh equivalent. - ⁸Estimated edible weight. - ⁹Milk and milk products excluding butter, expressed in terms of fresh milk.

ANNEX TABLE 5G. - OCEANIA: ESTIMATED CALORIE AND PROTEIN CONTENT OF NATIONAL AVERAGE FOOD SUPPLY PER CAPUT

	Calories					Total protein					Animal protein				
	Pre-war	1948/-1950/	1960/-1962/	1966/1967	1967/1968	Pre-war	1948/-1950/	1960/1962/	1966/1967	1967/1968	Pre-war	1948/-1950/	1960/-1962/	1966/1967	1967/1968
	Number per day					Grammes per day									
Australia	3 300	3 240	3 140	3 120	...	103.3	97.5	89.8	90.5	...	66.6	66.1	59.7	60.6	...
New Zealand ¹	3 260	3 360	3 490	3 470	3 290	100.7	100.1	109.4	109.4	107.3	67.8	66.8	74.8	74.8	74.3

¹Calendar years instead of split years.

ANNEX TABLE 6A. - AFRICA : VOLUME OF PRODUCTION OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
<i>Million metric tons</i>														
AGRICULTURAL PRODUCTS														
Wheat	3.92	4.37	3.81	4.02	3.78	4.26	2.87	4.31	4.82	4.39	4.44	2.95	4.41	6.35
Barley	2.94	3.68	2.26	3.44	2.79	2.94	1.55	2.94	3.27	2.44	2.62	1.58	2.42	4.81
Maize	9.84	10.38	11.10	10.69	11.70	12.26	12.91	14.57	14.59	12.77	13.31	15.62	19.98	15.60
Millet and sorghum	7.88	8.01	8.10	8.35	8.83	9.62	9.70	10.38	11.02	11.15	10.91	10.82	11.60	10.42
Rice (milled equivalent) ¹	1.91	1.82	2.10	2.06	2.11	2.26	2.12	2.29	2.32	2.45	2.35	2.57	2.87	2.72
Sugar (centrifugal)	1.92	1.95	2.13	2.22	2.32	2.03	2.51	2.61	3.01	3.00	2.94	3.69	3.95	3.69
Pulses ²	1.51	1.46	1.38	1.44	1.52	1.50	1.39	1.49	1.61	1.64	1.75	1.70	1.73	1.99
Citrus fruit	1.19	1.29	1.40	1.39	1.55	1.71	1.69	1.78	1.86	2.15	2.00	2.12	2.19	2.38
Bananas	0.94	0.90	0.98	0.91	0.96	0.95	0.95	1.00	1.07	1.11	1.13	1.12	1.14	1.18
Olive oil	0.05	0.16	0.08	0.18	0.08	0.19	0.08	0.09	0.15	0.14	0.12	0.05	0.10	0.15
Groundnuts	3.19	3.27	3.96	3.40	3.29	3.80	4.04	4.46	4.54	4.28	4.84	4.87	4.78	4.25
Total vegetable oils and oilseeds (oil equivalent) ³	2.66	2.87	2.95	2.92	2.79	3.06	2.99	3.11	3.21	3.16	3.25	3.15	2.93	3.77
Coffee	0.46	0.49	0.53	0.62	0.67	0.86	0.75	0.93	1.02	1.03	1.11	0.94	1.15	1.14
Cocoa	0.53	0.58	0.45	0.57	0.66	0.87	0.83	0.85	0.90	1.20	0.87	0.96	0.97	0.83
Wine	2.03	2.54	2.17	2.07	2.58	2.29	2.02	1.93	2.07	1.83	2.39	1.41	1.29	1.72
Tobacco	0.15	0.17	0.17	0.18	0.20	0.21	0.20	0.20	0.19	0.25	0.25	0.24	0.21	0.19
Cotton (lint)	0.29	0.27	0.30	0.31	0.30	0.32	0.25	0.30	0.33	0.36	0.38	0.42	0.42	0.43
Sisal	0.30	0.31	0.33	0.35	0.36	0.37	0.36	0.40	0.40	0.43	0.42	0.42	0.40	0.38
Rubber (natural)	0.10	0.12	0.12	0.13	0.14	0.15	0.14	0.15	0.15	0.16	0.16	0.17	0.16	0.16
Wool (greasy)	0.17	0.17	0.17	0.17	0.18	0.17	0.18	0.17	0.17	0.17	0.17	0.19	0.18	0.19
Milk (total)	7.58	7.71	8.11	7.84	8.25	8.45	8.51	8.54	8.61	8.82	8.94	9.18	9.32	9.47
Meat ⁴	1.87	1.94	1.96	2.03	2.08	2.14	2.32	2.33	2.29	2.42	2.51	2.60	2.60	2.66
Eggs	0.31	0.32	0.32	0.34	0.36	0.38	0.39	0.39	0.40	0.42	0.43	0.43	0.45	0.47
FISHERY PRODUCTS⁵	1.75	1.85	1.98	2.03	2.16	2.20	2.40	2.52	2.67	2.95	3.04	3.09	3.62	4.10
FOREST PRODUCTS														
Fuelwood ⁶	153.1	158.0	159.0	159.4	163.4	168.5	173.9	177.3	197.0	199.3	204.0	209.3	212.1	215.0
Industrial roundwood ⁶	17.0	17.5	18.6	19.5	20.7	21.6	22.4	23.5	25.0	26.0	29.2	30.2	31.1	32.0
Sawn softwood ⁶	0.5	0.6	0.5	0.5	0.6	0.6	0.9	0.8	0.9	1.0	1.2	1.1	1.2	1.2
Sawn hardwood ⁶	1.3	1.4	1.5	1.6	1.6	1.7	1.8	1.7	1.8	1.8	1.9	2.1	2.1	2.1
Plywood ⁶	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
All paper and paperboard	0.20	0.24	0.25	0.27	0.29	0.32	0.35	0.40	0.48	0.50	0.59	0.66	0.68	0.73

¹ Paddy converted at 65 percent. - ² Dry beans, dry peas, broad beans, chick-peas, lentils. - ³ Olive oil, palm oil, soybeans, groundnuts, cottonseed, sesame seed, sunflowerseed, rapeseed, copra, palm kernels, linseed, hempseed, castor beans. - ⁴ Beef and veal, mutton and lamb, pork, poultry meat. - ⁵ Nominal catch (liveweight). - ⁶ Million cubic metres.

ANNEX TABLE 6B. - AFRICA: INDICES OF FOOD AND TOTAL AGRICULTURAL PRODUCTION

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
..... 1952-56 average = 100														
Total agricultural production														
AFRICA	102	107	108	110	115	122	119	127	131	133	135	135	143	143
Algeria	96	106	97	90	97	101	78	91	92	82	91	69	81	92
Ethiopia	101	111	117	114	121	130	132	136	138	145	145	145	152	153
Morocco	96	103	88	110	101	105	86	114	119	121	127	106	119	169
South Africa	106	109	114	110	118	123	134	136	142	136	135	145	183	155
Tunisia	80	114	102	137	109	132	89	104	136	124	116	98	102	118
Per caput agricultural production														
AFRICA	99	103	101	101	102	106	100	105	105	104	103	101	104	102
Algeria	94	102	91	82	87	89	67	79	78	66	72	54	61	67
Ethiopia	99	108	112	106	111	117	118	119	119	123	120	119	122	121
Morocco	93	98	81	99	88	89	70	91	92	92	94	76	83	114
South Africa	104	103	106	100	104	106	113	112	114	107	104	108	134	111
Tunisia	78	109	97	128	101	121	80	93	121	108	100	84	86	98
Total food production														
AFRICA	101	107	107	109	113	119	117	124	128	129	130	131	139	139
Algeria	96	109	98	91	98	102	81	94	85	93	92	67	80	91
Ethiopia	100	112	117	114	120	124	127	130	132	136	139	139	144	145
Morocco	96	104	88	111	102	107	86	115	120	124	129	105	119	173
South Africa	108	109	117	111	119	127	139	143	150	142	139	154	201	165
Tunisia	78	115	102	139	110	133	88	104	138	125	115	96	103	116
Per caput food production														
AFRICA	99	102	100	99	100	103	99	102	103	101	99	98	101	99
Algeria	94	104	92	84	88	90	69	81	80	68	73	52	61	67
Ethiopia	98	108	112	106	111	112	113	114	114	115	115	113	116	114
Morocco	93	98	82	99	88	90	70	92	94	94	96	76	83	117
South Africa	105	104	109	100	105	110	117	118	121	112	107	116	148	118
Tunisia	77	110	96	130	101	122	80	93	122	109	99	82	84	96

ANNEX TABLE 5C. - AFRICA: VOLUME OF IMPORTS OF MAJOR AGRICULTURAL AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
	<i>Million metric tons</i>													
AGRICULTURAL PRODUCTS														
Wheat and wheat flour (wheat equivalent)	0.80	0.99	0.94	0.79	1.66	1.75	2.02	1.96	1.78	1.61	1.69	3.35	3.18	2.98
Barley	0.04	0.07	0.02	0.01	0.01	0.01	0.38	0.23	0.10	0.11	0.13	0.09	0.15	0.13
Rice (milled equivalent) ¹	0.36	0.35	0.46	0.38	0.53	0.50	0.52	0.61	0.55	0.69	0.77	0.77	0.65	0.70
Sugar (raw equivalent) ²	0.94	0.95	1.00	1.01	1.08	1.12	1.11	1.22	1.02	1.07	1.28	1.21	1.23	1.23
Potatoes	0.23	0.26	0.27	0.29	0.26	0.32	0.35	0.25	0.20	0.19	0.17	0.17	0.14	0.14
Cattle ³	0.22	0.21	0.21	0.22	0.23	0.27	0.29	0.27	0.29	0.24	0.18	0.26	0.24	0.24
Sheep, lambs and goats ³	0.27	0.32	0.28	0.25	0.33	0.38	0.25	0.30	0.49	0.27	0.10	0.16	0.15	0.16
Wine	0.28	0.33	0.25	0.20	0.22	0.26	0.30	0.24	0.22	0.24	0.26	0.27	0.25	0.26
FOREST PRODUCTS														
Sawn softwood ⁴	1.38	1.13	1.23	1.27	1.13	1.28	1.12	1.01	1.09	1.29	1.26	1.30	1.29	1.30
Sawn hardwood ⁴	0.61	0.50	0.53	0.55	0.45	0.55	0.40	0.30	0.37	0.41	0.38	0.34	0.36	0.37
Newsprint	0.11	0.13	0.13	0.14	0.14	0.16	0.16	0.13	0.14	0.14	0.14	0.13	0.09	0.10
Other paper and paperboard	0.31	0.25	0.30	0.31	0.28	0.35	0.36	0.35	0.36	0.38	0.45	0.46	0.50	0.51

¹ Including paddy converted at 65 percent. - ² Including refined sugar converted at 108.7 percent. - ³ Million head. - ⁴ Million cubic metres.

ANNEX TABLE 6D. - AFRICA: VOLUME OF EXPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
<i>Million metric tons</i>														
AGRICULTURAL PRODUCTS														
Wheat and wheat flour (wheat equivalent) ¹	0.63	0.36	0.30	0.38	0.28	0.36	0.13	0.15	0.20	0.19	0.15	0.20	0.09	0.11
Barley	0.46	0.48	0.10	0.25	0.25	0.16	0.04	0.01	0.28	0.35	0.02	0.07	0.01	0.01
Maize	1.02	1.31	1.39	1.56	0.83	0.87	1.54	2.69	2.85	1.61	0.62	0.32	2.70	3.60
Sugar (raw equivalent) ²	1.04	1.08	1.15	1.18	1.12	0.99	1.20	1.45	1.66	1.67	1.57	1.87	1.97	2.10
Bananas	0.37	0.35	0.40	0.39	0.37	0.38	0.43	0.43	0.46	0.45	0.43	0.40	0.38	0.36
Citrus fruit ³	0.68	0.58	0.79	0.71	0.75	0.88	0.83	0.92	0.91	1.04	0.95	0.98	0.96	1.00
Pulses (dry)	0.25	0.24	0.15	0.17	0.21	0.29	0.23	0.27	0.31	0.29	0.31	0.27	0.18	0.38
Groundnuts and oil (oil equivalent)	0.37	0.46	0.43	0.52	0.50	0.44	0.54	0.55	0.57	0.59	0.57	0.64	0.63	0.74
Palm kernels and oil (oil equivalent)	0.36	0.38	0.35	0.39	0.38	0.36	0.35	0.32	0.32	0.33	0.31	0.33	0.25	0.25
Palm oil	0.37	0.38	0.36	0.37	0.40	0.39	0.36	0.31	0.32	0.30	0.28	0.27	0.18	0.20
Oilseed cake and meal	0.36	0.41	0.42	0.50	0.55	0.56	0.62	0.59	0.54	0.67	0.70	0.76	0.85	0.86
Cattle ⁴	0.29	0.22	0.19	0.21	0.18	0.25	0.25	0.37	0.39	0.40	0.38	0.38	0.37	0.32
Sheep, lambs and goats ⁴	0.66	0.67	0.73	0.79	1.02	0.86	1.11	1.42	1.30	1.62	1.47	1.64	1.73	1.83
Coffee (green)	0.44	0.52	0.53	0.54	0.59	0.66	0.67	0.74	0.77	0.83	0.83	0.92	0.90	1.00
Cocoa beans	0.48	0.52	0.57	0.44	0.56	0.65	0.80	0.85	0.82	0.84	1.07	0.88	0.84	0.81
Wine	1.90	1.53	1.90	1.52	1.63	1.76	1.62	1.76	1.06	1.27	1.07	1.18	0.78	0.73
Tobacco (unmanufactured)	0.08	0.09	0.08	0.08	0.09	0.11	0.11	0.12	0.12	0.13	0.17	0.09	0.08	0.08
Cotton (lint)	0.24	0.26	0.24	0.27	0.29	0.27	0.27	0.20	0.28	0.27	0.27	0.31	0.33	0.36
Sisal	0.29	0.30	0.32	0.34	0.36	0.37	0.36	0.40	0.40	0.39	0.36	0.34	0.31	0.33
Rubber (natural)	0.10	0.12	0.12	0.13	0.14	0.15	0.14	0.15	0.15	0.15	0.16	0.17	0.16	0.17
<i>Thousand metric tons</i>														
FISHERY PRODUCTS														
Fresh, chilled or frozen fish	19.5	17.5	21.7	21.6	25.6	30.5	33.6	50.7	47.3	30.4	35.4	42.4	40.6	38.0
Dried, salted or smoked fish	44.0	49.0	53.8	54.0	52.8	51.1	55.5	44.0	41.2	37.9	44.9	43.9	40.0	42.0
Crustacea and molluscs, fresh, frozen, dried, salted, etc.	4.9	4.8	5.8	4.8	6.8	6.7	7.6	7.6	8.5	9.5	10.1	9.3	9.3	12.0
Fish products and preparations, whether or not in airtight containers	73.3	75.5	80.2	86.0	93.2	117.5	131.6	118.7	99.8	134.0	83.9	107.0	92.0	121.0
Crustacean and mollusc products and preparations, whether or not in airtight containers	2.5	1.5	1.1	0.7	0.5	0.9	0.2	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Oils and fats, crude or refined, of aquatic animal origin	23.0	12.0	38.0	31.0	54.4	59.3	64.8	64.0	49.8	65.1	58.5	48.0	37.0	97.0
Meals, solubles and similar animal feed-stuffs of aquatic animal origin	117.0	115.0	164.0	188.0	167.0	187.0	240.0	257.0	263.0	322.0	310.0	249.2	362.0	398.0
<i>Million cubic metres</i>														
FOREST PRODUCTS														
Broadleaved logs	2.54	2.64	3.00	3.38	3.92	4.60	4.44	4.13	4.79	5.64	5.23	5.12	5.26	5.65
Sawn hardwood	0.38	0.42	0.47	0.57	0.58	0.61	0.58	0.60	0.57	0.71	0.72	0.76	0.71	0.77

¹ Including coarse ground flour. - ² Including refined sugar converted at 108.7 percent. - ³ Oranges, mandarines and lemons. - ⁴ Million head.

ANNEX TABLE 6E. - AFRICA: INDICES OF VOLUME AND VALUE OF EXPORTS AND IMPORTS OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS, BY COMMODITY GROUPS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
	..... 1957-59 average = 100													
Export volume														
AGRICULTURAL, FISHERY AND FOREST PRODUCTS	91	95	98	98	105	109	117	124	124	128	130	130	127	138
Agricultural products	93	96	98	98	104	108	116	123	122	125	127	127	124	133
Food and feed	93	96	94	105	101	97	106	116	121	119	107	115	120	137
Beverages and tobacco	92	97	103	92	105	119	127	138	128	138	153	142	132	137
Raw materials	93	98	94	97	109	103	107	98	107	104	107	112	109	117
Fishery products	83	81	95	97	108	124	142	144	134	148	130	133	134	168
Forest products	66	76	88	101	111	124	124	125	146	174	173	182	181	190
Export value														
AGRICULTURAL, FISHERY AND FOREST PRODUCTS	93	95	98	102	100	101	104	106	115	124	114	119	116	126
Agricultural products	95	96	98	103	99	99	102	104	112	119	109	113	110	123
Food and feed	92	101	99	103	97	94	104	113	125	121	115	121	118	133
Beverages and tobacco	94	89	95	106	99	100	98	99	98	119	105	110	110	124
Raw materials	102	107	105	92	102	107	106	96	117	116	105	106	94	97
Fishery products	82	85	99	97	105	114	128	125	120	139	126	133	130	146
Forest products	65	78	88	101	111	131	134	136	170	200	198	203	201	227
Import volume														
Agricultural products	87	97	99	94	107	119	129	127	118	123	131	154	146	143
Food and feed	82	91	97	92	111	122	132	132	121	122	136	163	151	145
Beverages and tobacco	100	116	104	99	97	107	117	106	105	116	114	119	118	128
Raw materials	97	93	104	101	95	116	129	137	129	152	144	166	178	190
Import value														
Agricultural products	90	98	102	96	101	112	118	114	110	124	130	145	137	130
Food and feed	85	96	101	94	105	116	123	118	115	129	136	156	144	135
Beverages and tobacco	99	105	102	107	91	96	97	93	91	102	106	106	107	105
Raw materials	119	105	115	93	92	129	135	138	127	146	131	150	164	150

ANNEX TABLE 6F. - AFRICA: PER CAPUT FOOD SUPPLIES AVAILABLE FOR HUMAN CONSUMPTION IN SELECTED COUNTRIES

	Period	Ce- reals ¹	Pota- toes and other starchy foods ²	Sugars and sweets ³	Pulses, nuts and seeds ⁴	Vege- tables ⁵	Fruit ⁶	Meat ⁷	Eggs ⁸	Fish ⁹	Milk ¹⁰	Fats and oils
		<i>Grammes per day</i>										
Algeria	1961-62	427	72	46	14	95	120	31	3	3	123	17
	1963-65	453	51	48	12	92	131	24	2	2	78	13
	1966	365	39	47	11	66	127	23	3	2	58	18
Cameroon ²	1961-63	243	775	5	48	49	54	38	1	17	17	14
Ethiopia	1961	407	51	5	57	34	4	48	8	1	225	15
	1961-63	394	47	6	58	33	5	57	5	—	241	14
Gabon ²	1960-62	44	1 139	8	14	108	14	82	2	12	16	10
	1963-65	56	1 101	11	13	105	13	73	2	12	27	10
Gambia, The	1961-63	482	48	32	26	45	21	18	1	40	35	21
Ghana ²	1961-63	158	1 147	23	38	84	26	26	1	26	8	11
Ivory Coast ²	1961-63	276	799	21	23	44	45	31	1	23	14	11
Kenya ²	1961-63	350	334	29	58	64	13	49	2	3	98	4
Madagascar ²	1961-63	449	378	20	20	74	42	44	1	10	24	4
Mali	1961-63	468	71	15	32	51	19	32	1	15	88	8
Mauritius	1955-56	359	46	108	32	78	30	15	—	17	124	26
	1960-62	357	36	106	31	87	14	16	4	15	165	34
	1967	357	42	108	25	111	46	20	6	16	175	43
Morocco	1961-62	355	26	82	17	110	101	36	5	3	104	21
	1963-65	417	26	75	17	111	120	36	5	3	107	23
	1966	353	37	69	16	110	156	34	4	4	88	25
Mozambique	1961-63	258	976	20	56	53	56	15	1	5	5	4
Nigeria	1961-63	317	655	4	44	37	28	20	2	9	18	19
Rwanda	1961-63	146	608	—	136	9	230	20	—	—	13	6
Somalia	1961-63	320	128	33	13	36	41	55	2	—	210	6
South Africa	1935-39	426	43	63	6	70	48	104	5	9	491	9
	1948-50	427	44	115	9	94	74	115	7	15	217	13
	1959/-60/	456	39	112	11	99	108	122	9	24	226	15
Tanzania: Tanganyika ²	1961-63	345	478	18	47	70	69	35	2	7	39	5
Tunisia	1961-62	274	32	53	13	145	138	30	6	6	103	28
	1963-65	332	28	48	14	130	135	32	6	6	105	39
	1966	262	38	42	16	187	105	32	7	7	104	41
Uganda ²	1961	159	1 152	27	90	60	20	44	2	11	56	6
	1961-63	155	1 114	30	63	59	20	32	1	14	63	6

¹ In terms of flour and milled rice. - ² Cameroon, Gabon, Ghana, Ivory Coast, Kenya, Madagascar, Tanzania: Tanganyika, Uganda include plantains under starchy foods. - ³ In terms of refined sugar including crude sugar, syrups, honey and other sugar products. - ⁴ Shelled equivalent for nuts, including cocoa beans. - ⁵ In terms of fresh equivalent: including processed vegetables. - ⁶ In terms of fresh equivalent: including processed fruit. - ⁷ Including poultry and game: expressed in terms of dressed carcass weight: including edible offals. - ⁸ In terms of fresh equivalent. - ⁹ Estimated edible weight. - ¹⁰ Milk and milk products excluding butter, expressed in terms of fresh milk.

ANNEX TABLE 6G. - AFRICA: ESTIMATED CALORIE AND PROTEIN CONTENT OF NATIONAL AVERAGE FOOD SUPPLY PER CAPUT

	Calories					Total protein					Animal protein				
	Pre-war	1948-1950	1961-1963	1966	1967	Pre-war	1948-1950	1961-1963	1966	1967	Pre-war	1948-1950	1961-1963	1966	1967
	<i>Number per day</i>					<i>Grammes per day</i>									
Algeria	¹ 2 180	1 870	...	...	...	¹ 64.6	51.7	...	...	...	¹ 10.5	6.4	...
Cameroon	² 2 130	...	...	...	...	54.4	...	...	...	...	10.0	...	...
Ethiopia	2 040	...	...	...	...	68.8	...	...	...	...	14.8	...	...
Gabon	¹ 1 910	...	...	...	...	² 35.9	...	...	...	...	² 15.7	...	...
Gambia, The	2 300	...	...	...	...	60.4	...	...	...	...	12.2	...	...
Ghana	2 160	...	...	...	...	48.6	...	...	...	...	10.5	...	...
Ivory Coast	2 290	...	...	...	...	52.3	...	...	...	...	10.3	...	...
Kenya	2 120	...	...	...	...	64.4	...	...	...	...	12.1	...	...
Madagascar	2 330	...	...	...	...	52.3	...	...	...	...	9.4	...	...
Mali	2 120	...	...	...	...	64.2	...	...	...	...	10.9	...	...
Mauritius	² 2 330	2 370	2 420	...	...	² 47.2	48.2	47.9	...	...	² 12.3	13.5	12.8
Morocco	² 2 080	2 060	...	...	...	¹ 54.6	54.3	...	...	...	¹ 8.6	9.7	...
Mozambique	2 420	...	...	...	...	47.9	...	...	...	...	3.8	...	...
Nigeria	2 180	...	...	...	...	59.3	...	...	...	...	5.3	...	...
Rwanda	1 830	...	...	...	...	56.3	...	...	...	...	3.1	...	...
Somalia	1 780	...	...	...	...	51.6	...	...	...	...	16.3	...	...
South Africa	2 340	2 640	² 2 820	...	...	67.8	72.9	² 80.2	...	...	23.4	27.2	³ 31.5	...	...
Tanzania: Tanganyika	2 080	...	...	...	...	58.1	...	...	...	...	9.1	...	...
Tunisia	¹ 1 800	1 840	...	...	...	¹ 51.2	52.2	...	...	...	¹ 10.1	10.8	...
Uganda	2 070	...	...	...	...	50.1	...	...	...	...	10.2	...	...

¹ 1961/62. - ² 1960-62. - ³ 1960/61.

ANNEX TABLE 7A. - FAR EAST:¹ VOLUME OF PRODUCTION OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
..... Million metric tons														
AGRICULTURAL PRODUCTS														
Wheat	14.17	14.01	14.90	13.39	15.94	16.54	17.28	18.61	16.50	16.24	19.15	16.33	17.75	25.09
Maize	7.76	8.72	9.02	10.16	10.58	11.18	12.47	13.76	12.77	14.46	13.20	14.10	15.48	16.16
Millet and sorghum	15.35	15.22	16.92	18.25	17.30	18.00	17.01	18.92	18.33	19.40	15.22	18.02	20.40	19.05
Rice (milled equivalent) ²	75.55	79.52	73.75	82.91	86.80	91.56	92.78	92.07	98.25	101.12	92.46	92.96	102.82	107.41
Sugar (centrifugal)	4.68	4.94	5.50	5.67	5.87	6.03	6.97	6.66	6.31	6.86	8.00	8.40	6.79	6.81
Sugar (noncentrifugal)	5.70	5.38	6.80	6.92	7.44	7.09	7.83	7.96	8.39	8.78	9.52	9.48	8.70	8.97
Pulses ³	9.33	9.16	9.81	8.71	11.43	10.07	10.85	10.50	10.20	8.99	10.40	8.47	8.15	10.63
Soybeans	1.27	1.26	1.32	1.27	1.30	1.31	1.30	1.21	1.15	1.12	1.08	1.07	1.25	1.25
Groundnuts	4.69	5.23	5.69	6.25	5.66	6.08	6.26	6.43	6.50	7.19	5.54	5.84	7.15	5.83
Copra	2.60	2.86	2.89	2.33	2.13	2.75	2.73	2.47	2.65	2.70	2.69	2.85	2.53	2.51
Total vegetable oils and oilseeds (oil equivalent) ⁴	4.95	5.26	5.43	5.17	4.90	5.50	5.63	5.66	5.76	5.84	5.53	5.61	5.94	5.76
Tea	0.66	0.66	0.68	0.71	0.72	0.72	0.78	0.77	0.78	0.82	0.82	0.82	0.83	0.85
Tobacco	0.78	0.82	0.86	0.73	0.87	0.84	0.85	0.94	0.96	1.05	1.04	1.07	1.17	1.20
Cotton (lint)	1.21	1.26	1.31	1.24	1.08	1.36	1.28	1.49	1.61	1.50	1.44	1.52	1.73	1.69
Jute ⁵	2.22	2.20	2.14	2.47	2.17	2.04	3.23	2.71	2.85	2.75	2.97	3.20	2.99	2.02
Rubber (natural)	1.82	1.77	1.78	1.79	1.87	1.82	1.92	1.93	1.90	2.02	2.15	2.25	2.28	2.45
Milk (total)	30.30	31.18	31.77	32.33	32.87	33.45	34.10	34.78	35.50	36.20	36.84	37.39	38.14	39.10
Meat ⁶	2.38	2.50	2.64	2.71	2.83	2.82	2.97	3.20	3.29	3.39	3.58	3.90	4.07	4.13
Eggs	0.76	0.76	0.83	0.86	0.91	0.99	1.17	1.29	1.35	1.52	1.55	1.56	1.91	1.96
FISHERY PRODUCTS⁷	9.06	9.31	10.30	10.60	10.92	11.81	12.45	13.04	13.37	13.72	14.52	15.23	16.41	18.04
FOREST PRODUCTS														
Industrial roundwood ⁸	63.1	67.6	69.5	68.8	73.0	77.3	83.8	81.1	88.1	91.4	92.4	97.0	100.4	103.0
Sawn softwood ⁸	16.4	19.3	21.6	20.4	21.6	23.4	23.6	23.3	25.4	26.7	28.4	29.9	31.9	33.7
Sawn hardwood ⁸	8.7	9.9	10.0	9.8	9.8	11.6	12.6	13.0	14.3	16.1	16.1	17.1	18.3	18.9
Plywood ⁸	0.8	1.0	1.2	1.3	1.6	1.7	1.9	2.3	2.7	3.2	3.6	4.4	5.2	5.8
Mechanical wood pulp	0.68	0.74	0.80	0.75	0.90	0.97	1.00	0.99	0.98	1.03	1.05	1.09	1.13	1.20
Chemical wood pulp	1.25	1.49	1.70	1.65	2.15	2.63	3.21	3.31	3.72	4.13	4.30	4.81	5.33	5.65
Newsprint	0.48	0.55	0.59	0.61	0.75	0.82	0.90	1.05	1.14	1.26	1.31	1.32	1.47	1.60
Other paper and paperboard	2.08	2.43	2.84	2.90	3.70	4.48	5.40	5.62	6.36	7.31	7.25	8.23	8.95	9.60

¹ Excluding China (Mainland). - ² Paddy converted at 65 percent. - ³ Dry beans, dry peas, broad beans, chick-peas, lentils. - ⁴ Palm oil, soybeans, groundnuts, cottonseed, sesame seed, rapeseed, copra, palm kernels, linseed, castor beans. - ⁵ Including allied fibres. - ⁶ Beef and veal, mutton and lamb, pork, poultry meat. - ⁷ Nominal catch (liveweight). - ⁸ Million cubic metres.

ANNEX TABLE 7B. - FAR EAST:¹ INDICES OF FOOD AND TOTAL AGRICULTURAL PRODUCTION

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
..... 1952-56 average = 100														
Total agricultural production														
FAR EAST	104	107	108	112	117	121	126	128	131	135	133	135	143	149
Burma	99	106	94	109	116	116	119	130	131	140	134	117	131	141
Ceylon	108	102	104	108	110	118	123	128	135	143	141	139	143	150
China (Taiwan)	101	108	118	124	123	123	128	127	132	145	157	163	170	174
India	103	106	107	111	114	120	124	124	127	129	122	121	131	137
Indonesia	102	102	105	108	111	111	110	118	111	119	120	123	123	128
Japan	113	110	113	118	118	118	120	130	128	133	133	139	157	163
Korea, Rep. of	115	107	117	122	123	121	136	122	135	171	171	185	168	173
Malaysia: West Malaysia	106	105	108	108	113	121	127	127	135	137	147	156	160	178
Pakistan	100	105	107	106	113	116	120	120	128	128	131	130	142	148
Philippines	103	109	113	113	115	123	126	135	140	139	146	156	160	164
Thailand	104	113	93	108	115	130	140	146	158	157	167	201	170	183
Per caput agricultural production														
FAR EAST	102	103	102	103	105	107	108	108	108	108	104	103	106	108
Burma	97	103	89	101	106	104	104	112	111	116	108	93	102	107
Ceylon	105	97	97	97	97	102	103	105	108	112	107	103	104	107
China (Taiwan)	98	101	107	108	104	99	101	97	97	103	109	109	111	111
India	102	103	101	102	104	106	107	105	105	104	96	93	98	100
Indonesia	100	98	98	100	100	98	95	100	91	95	94	94	92	93
Japan	111	107	110	113	112	112	112	120	117	121	120	123	138	141
Korea, Rep. of	114	103	109	111	109	104	113	99	107	132	128	135	119	119
Malaysia: West Malaysia	103	100	99	96	98	101	102	100	102	101	105	109	108	116
Pakistan	97	100	98	95	99	98	98	96	100	96	96	93	98	99
Philippines	100	103	104	100	99	103	102	105	106	102	104	107	105	104
Thailand	101	107	86	96	99	109	114	115	121	117	120	140	115	120
Total food production														
FAR EAST	104	107	108	113	118	122	126	129	132	136	134	135	143	151
Burma	99	107	93	111	118	118	121	132	133	142	136	120	134	143
Ceylon	112	100	98	101	108	120	125	131	142	159	147	141	147	159
China (Taiwan)	100	108	117	123	122	122	128	126	130	144	157	163	169	173
India	104	106	106	111	116	120	124	124	126	128	122	121	130	138
Indonesia	102	104	106	111	113	115	112	122	114	124	123	127	124	131
Japan	112	110	113	119	118	120	121	132	130	134	135	141	160	167
Korea, Rep. of	115	107	118	124	125	124	138	123	139	175	173	185	168	171
Malaysia: West Malaysia	105	108	111	113	117	135	145	144	153	148	160	168	172	188
Pakistan	98	105	107	106	115	119	120	120	130	130	132	130	141	149
Philippines	103	108	112	112	114	121	124	131	137	136	145	155	159	163
Thailand	104	113	90	105	110	124	133	144	154	150	154	185	162	176
Per caput food production														
FAR EAST	102	103	102	104	106	108	109	108	108	109	105	103	107	110
Burma	97	104	89	103	108	106	107	114	112	118	110	95	104	109
Ceylon	109	95	91	91	95	103	105	107	113	124	112	105	107	113
China (Taiwan)	97	101	106	108	103	99	100	96	96	103	108	109	111	110
India	102	102	100	102	105	106	107	105	104	103	96	93	98	101
Indonesia	100	100	99	102	101	101	96	102	93	100	96	97	92	95
Japan	111	107	109	114	113	113	113	122	119	121	121	125	141	145
Korea, Rep. of	114	103	111	113	111	107	116	100	110	134	129	135	119	118
Malaysia: West Malaysia	102	102	102	101	101	113	117	113	116	109	115	117	116	122
Pakistan	96	100	99	96	100	101	99	96	101	98	97	92	97	100
Philippines	100	102	102	100	98	101	101	103	104	99	103	106	105	104
Thailand	101	107	82	94	95	104	108	113	118	111	111	129	109	116

¹ Excluding China (Mainland).

ANNEX TABLE 7C. - FAR EAST: VOLUME OF IMPORTS OF MAJOR AGRICULTURAL AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
..... Million metric tons														
AGRICULTURAL PRODUCTS														
Wheat and wheat flour (wheat equivalent)	4.41	5.49	7.55	7.85	8.45	10.31	8.86	8.53	11.48	13.32	14.46	15.31	15.61	14.32
Barley	0.60	1.20	1.12	1.07	0.50	0.02	0.18	0.11	0.39	0.68	0.75	0.46	0.64	0.85
Maize	0.44	0.49	0.68	0.82	1.15	1.65	2.20	2.78	3.10	3.55	3.82	3.94	4.62	5.78
Millet and sorghums.	0.11	0.05	0.01	0.09	0.07	0.07	0.17	0.43	0.79	1.06	1.58	3.87	4.79	2.82
Rice (milled equivalent) ¹	3.10	4.03	4.05	3.85	3.17	3.90	3.75	3.51	4.15	4.40	4.88	4.43	4.14	3.70
Sugar (raw equivalent) ²	2.24	2.07	1.91	2.08	1.91	2.08	2.31	2.48	2.35	2.44	2.77	2.96	3.02	3.37
Dates	0.10	0.11	0.12	0.07	0.07	0.08	0.08	0.04	0.08	0.04	0.08	0.08	0.09	0.06
Vegetable oils and oilseeds (oil equivalent) ³	0.52	0.50	0.58	0.53	0.60	0.65	0.66	0.75	0.81	0.92	0.82	0.93	1.00	1.02
Milk (condensed, evaporated and powdered)	0.33	0.38	0.42	0.36	0.36	0.38	0.42	0.45	0.50	0.49	0.46	0.48	0.47	0.47
Wool (actual weight)	0.09	0.13	0.13	0.13	0.17	0.19	0.26	0.22	0.25	0.24	0.26	0.30	0.29	0.31
Cotton (lint)	0.66	0.86	0.89	0.75	0.90	1.15	1.26	1.05	1.14	1.15	1.18	1.17	1.31	1.42
Jute and kenaf	0.29	0.23	0.17	0.14	0.12	0.21	0.16	0.18	0.15	0.16	0.23	0.19	0.14	0.16
Rubber (natural) ⁴	0.12	0.15	0.19	0.18	0.22	0.24	0.25	0.27	0.26	0.29	0.28	0.30	0.34	0.34
FOREST PRODUCTS														
Pulpwood ⁵	—	—	—	0.08	0.13	0.19	0.42	0.47	0.47	0.59	0.55	0.96	0.97	1.05
Coniferous logs ⁵	0.11	0.21	0.34	0.61	1.01	1.25	2.68	3.25	4.45	5.51	6.15	7.82	12.73	15.20
Broadleaved logs ⁵	2.41	2.83	2.84	3.96	5.09	5.65	6.78	8.00	9.61	10.64	12.19	15.92	17.89	18.60
Sawn softwood ⁵	0.24	0.23	0.30	0.38	0.56	0.37	0.75	0.81	1.07	1.15	0.97	1.31	2.05	2.20
Sawn hardwood ⁵	0.17	0.13	0.12	0.09	0.12	0.09	0.10	0.13	0.17	0.37	0.44	0.42	0.50	0.53
Chemical wood pulp.	0.12	0.18	0.25	0.13	0.22	0.30	0.38	0.49	0.75	0.78	0.73	0.96	1.02	1.10
Newsprint	0.23	0.21	0.21	0.19	0.23	0.23	0.29	0.24	0.26	0.35	0.29	0.35	0.34	0.40
Other paper and paperboard	0.34	0.31	0.35	0.30	0.33	0.37	0.39	0.38	0.42	0.49	0.45	0.54	0.59	0.68

¹ Including paddy converted at 65 percent. - ² Including refined sugar converted at 108.7 percent. - ³ Groundnuts, copra, palm kernels, soybeans, sunflowerseed, castor beans, linseed, cottonseed, olive oil, groundnut oil, coconut oil, palm oil, palm kernel oil, soybean oil, linseed oil, castor oil, cottonseed oil. - ⁴ Excluding imports into Malaysia for re-export. - ⁵ Million cubic metres.

ANNEX TABLE 7D. - FAR EAST: VOLUME OF EXPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1955	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
..... Million metric tons														
AGRICULTURAL PRODUCTS														
Maize	0.18	0.20	0.19	0.31	0.45	0.71	0.71	0.64	0.89	1.28	0.92	1.37	1.18	1.64
Rice (milled equivalent) ¹	3.36	3.50	3.98	3.23	3.55	3.82	3.85	3.57	4.25	4.26	4.25	3.39	2.64	1.93
Sugar (raw equivalent) ²	1.89	1.99	2.03	2.06	1.81	2.23	2.25	2.19	2.68	2.58	2.55	2.60	1.96	2.04
Pulses (dry)	0.22	0.14	0.12	0.12	0.17	0.17	0.18	0.16	0.20	0.17	0.22	0.23	0.18	0.18
Vegetable oils and oilseeds (oil equivalent) ^{3,4}	1.42	1.47	1.40	1.19	1.10	1.29	1.40	1.34	1.48	1.49	1.36	1.64	1.38	1.68
Oilseed cake and meal	0.59	0.51	0.46	0.60	1.00	0.90	1.01	1.32	1.55	1.64	1.48	1.45	1.37	1.46
Coffee (green)	0.04	0.10	0.11	0.08	0.08	0.09	0.16	0.13	0.17	0.11	0.15	0.16	0.25	0.18
Tea	0.40	0.47	0.44	0.49	0.45	0.45	0.46	0.48	0.48	0.47	0.49	0.44	0.48	0.48
Pepper and pimento	0.07	0.10	0.09	0.09	0.11	0.08	0.10	0.11	0.11	0.09	0.09	0.09	0.13	0.14
Cotton (lint)	0.28	0.23	0.17	0.18	0.12	0.14	0.10	0.15	0.22	0.23	0.18	0.13	0.24	0.26
Jute and kenaf	0.99	0.87	0.81	0.94	0.89	0.83	0.75	0.99	0.89	1.00	1.12	1.19	1.07	0.98
Rubber (natural) ⁵	1.92	1.82	1.83	1.83	2.12	1.85	2.06	2.12	2.09	2.08	2.14	2.04	2.18	2.32
..... Thousand metric tons														
FISHERY PRODUCTS														
Fresh, chilled or frozen fish	119.6	108.7	121.7	155.0	195.8	212.4	223.7	277.4	292.2	375.7	332.9	356.7	391.2	312.0
Dried, salted or smoked fish	87.0	78.3	70.3	70.2	68.9	57.7	55.4	46.3	42.6	39.4	35.8	43.5	43.2	54.0
Crustacea and molluscs, fresh frozen, dried, salted, etc.	37.9	36.6	35.7	36.0	37.1	38.0	41.5	44.6	50.5	66.0	72.3	76.8	87.1	87.0
Fish products and preparations, whether or not in airtight containers	65.4	108.8	106.6	133.7	138.7	125.9	110.9	138.7	139.6	156.7	146.7	173.6	180.7	224.0
Crustacean and mollusc products and preparations, whether or not in airtight containers	11.0	15.0	16.0	20.0	24.0	22.0	23.0	25.0	25.0	27.0	26.0	29.4	30.4	30.0
Oils and fats, crude or refined, of aquatic animal origin	55.5	79.0	75.3	110.0	106.0	107.9	114.9	113.9	172.9	107.8	97.7	55.9	56.0	28.0
Meals, solubles and similar animal feed-stuffs of aquatic animal origin	7.0	19.0	7.0	26.0	31.0	12.0	13.0	30.0	16.0	21.0	35.0	43.0	38.0	36.0
..... Million metric tons														
FOREST PRODUCTS														
Broadleaved logs ⁶	2.95	3.57	3.99	4.66	6.51	6.92	7.81	8.31	10.83	11.69	13.21	14.75	16.98	17.30
Sawn hardwood ⁶	1.06	1.08	1.04	1.09	1.17	1.41	1.25	1.19	1.29	1.84	1.99	1.85	1.94	2.30
Plywood ⁶	0.25	0.30	0.38	0.49	0.69	0.53	0.59	0.67	0.83	1.08	1.24	1.50	1.56	2.08
All other paper and paperboard	0.12	0.15	0.14	0.13	0.14	0.20	0.29	0.24	0.25	0.26	0.29	0.40	0.33	0.36

¹ Including paddy converted at 65 percent. - ² Including refined sugar converted at 108.7 percent. - ³ Groundnuts, copra, palm kernels, soybeans, cottonseed, groundnut oil, coconut oil, palm oil, palm kernel oil, soybean oil, cottonseed oil. - ⁴ Excluding re-export of copra from Malaysia, but including unrecorded shipments of copra from Indonesia and the Philippines to Malaysia. - ⁵ Excluding imports into Malaysia for re-export and exports from Hong Kong, but including unrecorded shipments from Indonesia to Malaysia. - ⁶ Million cubic metres.

ANNEX TABLE 7E. - FAR EAST:¹ INDICES OF VOLUME AND VALUE OF EXPORTS AND IMPORTS OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS, BY COMMODITY GROUPS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
..... 1957-59 average = 100														
Export volume														
AGRICULTURAL, FISHERY AND FOREST PRODUCTS	96	98	98	98	104	103	109	113	120	125	124	123	125	131
Agricultural products	100	101	100	98	102	101	108	111	117	117	116	113	114	116
Food and feed	101	103	106	95	98	111	117	113	131	135	129	131	108	112
Beverages and tobacco	83	102	98	104	98	96	109	112	117	111	114	106	127	122
Raw materials	106	99	96	96	108	96	101	108	107	108	109	104	111	117
Fishery products	68	85	82	104	114	103	100	122	121	135	129	132	137	142
Forest products	67	79	85	95	120	123	132	136	165	196	218	244	261	308
Export value														
AGRICULTURAL, FISHERY AND FOREST PRODUCTS	102	99	98	94	108	111	106	109	119	119	118	120	117	122
Agricultural products	108	101	101	93	107	109	104	103	113	111	108	105	100	99
Food and feed	96	96	103	95	102	106	111	110	143	151	138	139	126	129
Beverages and tobacco	97	105	100	104	96	99	102	102	107	105	105	97	109	100
Raw materials	121	103	99	86	115	116	100	99	95	86	89	85	78	77
Fishery products	59	82	82	107	110	108	105	144	134	147	151	172	164	183
Forest products	68	84	84	93	123	133	135	150	183	205	221	264	293	369
Import volume														
Agricultural products	79	93	101	97	103	120	126	123	142	154	163	177	186	188
Food and feed	79	90	101	100	99	116	113	117	141	159	171	185	194	191
Beverages and tobacco	102	113	104	92	104	102	137	153	156	145	137	193	178	201
Raw materials	75	97	101	90	110	133	153	133	143	143	150	159	169	179
Import value														
Agricultural products	86	98	109	95	96	113	119	115	139	160	161	176	185	183
Food and feed	82	91	107	99	94	106	106	109	141	170	173	189	202	195
Beverages and tobacco	110	107	100	95	105	103	128	134	140	148	144	200	197	197
Raw materials	92	111	113	89	98	129	146	125	136	140	139	145	147	155

¹ Excluding China (Mainland).

ANNEX TABLE 7F. - FAE EAST: PER CAPUT FOOD SUPPLIES AVAILABLE FOR HUMAN CONSUMPTION IN SELECTED COUNTRIES

	Period	Ce- reals ¹	Pota- toes and other starchy foods ²	Sugars and sweets ³	Pulses, nuts and seeds ⁴	Vege- tables ⁵	Fruit ⁶	Meat ⁷	Eggs ⁸	Fish ⁹	Milk ¹⁰	Fats and oils ¹¹
..... Grammes per day												
Ceylon	1952-53	323	93	44	89	114	10	8	4	15	41	11
	1960-62	368	95	54	81	115	24	6	3	16	39	10
	1967	373	78	57	79	106	26	5	5	16	46	10
China (Taiwan) ⁴	1935-39	270	331	30	15	170	54	51	6	35	12	8
	1948-50	377	209	26	15	170	61	30	4	16	2	6
	1960-62	440	175	26	28	159	58	44	4	33	21	13
	1967	432	144	24	44	152	93	63	7	39	11	18
India ^{10,11,12}	1934-38	377	21	36	60	68	72	8	1	4	177	7
	1949/-50/	324	24	32	56	...	36	4	---	2	122	8
	1960/-62/	383	29	49	63	...	48	4	1	3	127	11
	1965/66	346	39	50	41	...	44	4	1	3	110	9
Indonesia	1961-63	350	329	19	22	...	41	14	3	13	2	13
Japan ^{4,13}	1934-38	432	127	39	46	193	42	8	6	26	9	2
	1948-50	431	171	11	19	168	37	5	2	36	11	2
	1960-62	411	181	44	46	310	83	21	19	80	69	13
	1967	380	188	57	45	362	121	37	31	84	118	19
Korea, Rep. of	1962	551	122	5	19	138	20	16	4	26	---	1
	1963-65	569	198	3	17	134	22	14	5	33	6	1
	1966	556	212	4	16	142	28	10	6	36	5	1
Malaysia: West Malaysia-Singapore ²	1961-63	392	113	80	23	97	71	39	10	28	112	26
Pakistan ^{10,11,12}	1934-38	377	21	36	60	68	72	8	1	4	177	7
	1949/-50/	438	...	33	22	50	39	13	1	2	152	8
	1960/-62/	424	13	39	14	51	71	11	1	4	208	15
	1966/67	429	38	51	19	43	128	11	1	5	208	17
Philippines	1953	308	120	38	11	88	122	43	8	32	20	5
	1960-62	324	117	35	19	81	150	44	9	38	34	7
	1967	342	98	46	23	76	123	48	6	45	40	9
Thailand	1963-65	412	91	29	52	108	128	28	9	19	13	4

¹ In terms of flour and milled rice. - ² West Malaysia-Singapore includes plantains under starchy foods. - ³ In terms of refined sugar including crude sugar, syrups, honey and other sugar products. - ⁴ Shelled equivalent for nuts, including cocoa beans. China (Taiwan) includes soybean curd in terms of soybean. Japan includes "miso" and "shoyu" (soybean preparations) in terms of soybean. - ⁵ In terms of fresh equivalent; including processed vegetables. - ⁶ In terms of fresh equivalent; including processed fruit. - ⁷ Including poultry and game; expressed in terms of dressed carcass weight; including edible offals. - ⁸ In terms of fresh equivalent. - ⁹ Estimated edible weight. - ¹⁰ Milk and milk products excluding butter, expressed in terms of fresh milk. However, India and Pakistan include milk for making butter. - ¹¹ India and Pakistan exclude butter. - ¹² Prewar figures refer to India-Pakistan. - ¹³ Refers to fiscal year, April-March.

ANNEX TABLE 7G. - FAR EAST: ESTIMATED CALORIE AND PROTEIN CONTENT OF NATIONAL AVERAGE FOOD SUPPLY PER CAPUT

	Calories					Total protein					Animal protein				
	Pre-war	1948-1950	1960-1962	1966	1967	Pre-war	1948-1950	1960-1962	1966	1967	Pre-war	1948-1950	1960-1962	1966	1967
	..... <i>Number per day</i> .....					..... <i>Grammes per day</i>									
Ceylon . . . . .	...	...	2 080	2 180	2 170	...	...	46.1	44.5	48.0	...	...	7.9	10.3	8.3
China (Taiwan)	1 870	1 980	2 350	2 400	2 520	45.1	43.3	58.5	62.2	68.2	15.5	8.3	15.3	19.3	23.9
India ¹	¹ 1 950	¹ 1 700	2 020	¹ 1 810	...	² 52.2	⁴ 44.9	49.6	⁷ 45.4	...	³ 8.2	⁴ 5.4	5.6	⁷ 5.4	...
Indonesia ¹ . . . . .	...	...	⁴ 1 980	...	...	...	...	⁵ 38.2	...	...	...	...	⁴ 4.5	...	...
Japan ²	2 020	1 900	2 330	2 350	2 460	59.7	49.4	70.7	77.6	74.7	7.7	8.6	22.8	24.6	28.2
Korea, Rep. of . . . . .	...	...	² 2 240	2 390	...	...	...	⁷ 2.6	70.5	...	...	...	¹ 1.4	11.5	...
Malaysia: West Malaysia-Singapore . . . . .	...	...	² 2 400	...	...	...	...	⁵ 4.3	...	...	...	...	¹ 6.3	...	...
Pakistan ¹	¹ 1 950	² 2 020	2 090	2 230	...	² 52.2	⁴ 49.5	49.0	51.5	...	³ 8.2	⁴ 8.9	11.1	11.2	...
Philippines . . . . .	...	...	1 880	2 070	2 000	...	...	48.0	48.6	50.5	...	...	17.7	18.2	18.7

¹ Split years. - ² Fiscal year April-March. - ³ India and Pakistan. - ⁴ 1949/50. - ⁵ 1961-63. - ⁶ 1962 - ⁷ 1965/66.

ANNEX TABLE 8A. - LATIN AMERICA: VOLUME OF PRODUCTION OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
..... Million metric tons														
AGRICULTURAL PRODUCTS														
Wheat	9.51	11.25	9.81	10.70	9.52	8.09	9.64	9.87	12.94	15.83	10.51	10.39	11.77	10.33
Maize	17.26	19.08	18.79	21.56	22.32	22.57	24.67	25.98	26.34	28.10	30.94	32.63	35.65	34.30
Rice (milled equivalent) ¹	3.80	3.67	4.14	4.03	4.26	4.92	5.28	5.53	5.54	5.98	6.98	5.85	6.75	7.00
Sugar (centrifugal)	12.91	13.43	14.97	16.13	16.47	17.30	18.08	15.96	15.69	16.88	21.45	17.76	19.84	18.51
Citrus fruit	4.15	4.30	4.61	4.64	4.78	4.90	5.12	5.44	5.74	5.79	5.95	6.44	6.54	6.92
Bananas	9.20	9.40	10.56	10.45	11.27	11.69	11.58	11.69	12.78	14.34	15.24	15.08	16.15	15.43
Groundnuts	0.48	0.57	0.67	0.78	0.79	0.82	1.04	1.29	1.11	1.02	1.38	1.53	1.32	1.27
Cottonseed	2.18	2.03	1.93	2.29	1.89	2.23	2.46	2.86	2.95	3.00	2.98	2.98	2.67	3.02
Sunflowerseed	0.41	0.87	0.74	0.94	0.49	0.92	0.67	0.97	0.59	0.57	0.84	0.94	1.31	1.01
Copra	0.16	0.22	0.23	0.23	0.23	0.24	0.27	0.27	0.24	0.24	0.24	0.24	0.24	0.24
Palm kernels	0.12	0.12	0.14	0.15	0.14	0.15	0.18	0.20	0.20	0.22	0.24	0.24	0.24	0.24
Total vegetable oils and oilseeds (oil equivalent) ²	1.04	1.35	1.39	1.53	1.45	1.57	1.74	2.02	1.86	1.92	2.10	2.17	2.12	2.19
Coffee	2.30	1.86	2.40	2.80	3.32	3.24	3.45	3.43	2.92	2.28	3.14	2.61	2.87	2.32
Cocoa	0.29	0.31	0.32	0.31	0.33	0.33	0.33	0.32	0.32	0.31	0.33	0.33	0.37	0.40
Tobacco	0.38	0.38	0.40	0.38	0.40	0.43	0.44	0.48	0.52	0.51	0.56	0.51	0.55	0.55
Cotton (lint)	1.20	1.15	1.11	1.25	1.06	1.24	1.37	1.58	1.65	1.69	1.61	1.68	1.52	1.68
Sisal	0.13	0.15	0.15	0.16	0.18	0.18	0.20	0.21	0.21	0.22	0.23	0.22	0.22	0.21
Wool (greasy)	0.32	0.33	0.34	0.34	0.34	0.34	0.34	0.34	0.35	0.36	0.36	0.36	0.35	0.35
Milk	17.48	18.65	18.66	18.46	18.61	19.12	19.27	19.49	19.94	21.17	21.47	22.41	22.18	22.85
Meat ³	6.78	7.44	7.73	8.05	7.42	7.37	7.83	8.18	8.48	8.10	8.30	8.63	9.05	9.04
Eggs	0.75	0.81	0.89	0.92	0.90	0.95	1.04	0.99	1.00	1.06	1.10	1.16	1.19	1.27
FISHERY PRODUCTS ⁴	0.98	1.11	1.36	1.87	3.23	4.73	6.62	8.62	8.78	11.40	9.43	11.57	12.71	13.48
FOREST PRODUCTS														
Sawn softwood ⁵	5.3	5.1	4.6	5.3	5.2	4.9	5.1	5.3	5.0	5.6	5.8	6.2	6.5	6.7
Sawn hardwood ⁵	7.2	7.5	6.7	6.6	6.2	6.3	6.3	6.6	6.4	6.9	6.8	7.2	7.2	7.3
Plywood ⁵	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.5
Mechanical wood pulp	0.15	0.16	0.16	0.20	0.22	0.24	0.28	0.27	0.33	0.37	0.48	0.49	0.49	0.51
Chemical wood pulp	0.13	0.19	0.22	0.23	0.28	0.35	0.48	0.50	0.60	0.73	0.77	0.93	0.95	0.99
All paper and paperboard	1.04	1.18	1.23	1.39	1.49	1.57	1.80	1.88	1.97	2.24	2.34	2.57	2.65	2.74

¹ Paddy converted at 65 percent. - ² Olive oil, palm oil, soybeans, groundnuts, cottonseed, sesame seed, sunflowerseed, rapeseed, copra, palm kernels, linseed, hempseed. castor beans. - ³ Beef and veal, mutton and lamb, pork, poultry meat. - ⁴ Nominal catch (diveweight). - ⁵ Million cubic metres.

ANNEX TABLE 8B. - LATIN AMERICA: INDICES OF FOOD AND TOTAL AGRICULTURAL PRODUCTION

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
	..... 1952-56 average = 100													
Total agricultural production														
LATIN AMERICA	103	107	111	118	118	121	128	130	133	136	142	140	148	145
Argentina	96	110	102	111	104	97	106	111	124	123	110	110	126	116
Bolivia	96	121	126	138	139	147	150	147	160	166	162	165	166	177
Brazil	107	106	116	124	133	137	145	150	144	143	166	157	163	163
Chile	105	108	105	117	112	113	119	118	126	127	122	124	126	129
Colombia	106	101	102	109	115	120	123	129	130	136	142	139	146	152
Costa Rica	98	95	118	121	127	140	140	138	146	144	159	166	179	184
Cuba	92	95	108	107	112	114	122	100	86	94	113	94	115	103
Dominican Republic	101	111	115	117	121	138	125	130	130	129	118	127	136	130
Ecuador	116	124	136	141	154	150	166	172	168	192	209	207	215	212
Guatemala	102	108	116	123	134	137	140	170	178	180	198	179	198	194
Honduras	96	106	111	120	123	123	127	137	141	150	170	151	168	169
Mexico	113	115	131	141	133	141	148	153	161	170	175	180	186	189
Panama	106	105	114	122	125	123	133	132	139	144	164	168	177	184
Paraguay	102	102	105	112	112	104	109	112	118	125	137	130	137	138
Peru	104	101	102	109	112	123	126	129	131	136	133	132	134	131
Uruguay	98	95	97	88	78	90	92	97	98	109	108	92	86	86
Venezuela	107	107	115	117	125	137	142	152	166	179	191	204	218	219
Per caput agricultural production														
LATIN AMERICA	101	102	103	106	103	102	105	104	104	103	105	100	102	97
Argentina	94	106	96	102	94	86	93	95	106	103	90	96	101	91
Bolivia	95	118	121	131	130	135	136	132	142	145	139	140	139	146
Brazil	104	100	106	110	115	115	118	119	111	107	120	111	111	108
Chile	102	102	97	106	99	98	100	97	102	100	94	94	93	93
Colombia	102	95	93	97	99	99	99	101	98	99	101	95	97	98
Costa Rica	94	88	105	103	104	110	106	100	102	97	103	103	107	106
Cuba	90	91	101	98	101	100	106	85	71	76	89	72	87	77
Dominican Republic	97	103	104	102	101	112	98	98	95	91	80	83	86	79
Ecuador	112	117	124	125	133	126	135	135	127	141	148	142	143	135
Guatemala	99	101	106	109	115	114	113	133	135	133	142	124	133	126
Honduras	93	100	102	107	106	102	102	108	107	110	120	104	111	108
Mexico	110	108	119	124	113	116	117	118	119	122	121	121	121	119
Panama	104	99	105	109	108	104	109	105	107	106	118	117	119	120
Paraguay	100	97	98	102	99	91	93	93	94	97	103	95	97	95
Peru	102	96	95	99	99	106	105	104	103	103	98	95	93	88
Uruguay	97	93	93	83	72	83	83	87	86	94	92	78	72	71
Venezuela	103	99	103	101	103	108	108	112	118	123	126	131	135	131

ANNEX TABLE 8B - LATIN AMERICA: INDICES OF FOOD AND TOTAL AGRICULTURAL PRODUCTION (concluded)

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
..... 1952-56 average = 100														
Total food production														
LATIN AMERICA	102	109	111	117	116	118	124	126	132	137	142	141	151	148
Argentina	97	111	102	110	103	96	105	111	126	124	109	119	130	118
Bolivia	95	123	130	143	142	151	154	151	167	174	168	171	172	184
Brazil	105	111	118	122	125	131	137	142	145	154	170	166	176	178
Chile	105	108	105	118	111	114	119	118	128	128	122	124	127	130
Colombia	107	104	103	105	112	114	119	126	125	136	142	142	145	151
Costa Rica	102	91	108	109	116	130	124	127	131	136	144	143	157	160
Cuba	91	95	108	108	112	113	122	98	85	92	114	93	116	103
Dominican Republic	101	112	116	120	122	141	126	131	130	130	120	131	139	135
Ecuador	116	124	134	141	158	156	167	172	173	196	209	205	216	212
Guatemala	99	105	107	116	119	124	123	141	143	146	149	153	160	165
Honduras	94	106	109	117	119	121	128	132	135	142	156	147	162	165
Mexico	109	116	132	142	140	145	154	158	165	175	182	186	195	199
Panama	107	107	115	122	126	123	132	133	139	144	166	169	178	185
Paraguay	102	104	108	115	115	108	111	111	111	124	134	132	139	138
Peru	105	99	102	109	111	121	123	123	126	132	130	130	136	135
Uruguay	100	97	98	87	77	90	91	95	96	113	112	93	84	87
Venezuela	108	110	118	117	125	139	144	158	171	187	200	213	229	231
Per caput food production														
LATIN AMERICA	100	103	103	105	101	100	103	101	102	104	104	101	104	100
Argentina	95	107	96	102	93	86	92	95	107	104	90	96	104	93
Bolivia	94	120	124	135	133	139	140	136	147	152	144	145	144	152
Brazil	102	104	108	109	108	110	112	112	112	115	123	117	120	118
Chile	103	103	97	107	98	98	101	98	103	101	94	94	94	94
Colombia	104	98	94	93	95	95	96	98	94	100	100	97	97	97
Costa Rica	98	85	97	93	95	102	94	92	92	92	93	89	94	92
Cuba	89	91	101	99	101	100	106	83	71	75	90	72	88	77
Dominican Republic	98	105	104	104	103	114	98	99	95	91	81	86	88	82
Ecuador	112	117	122	125	136	130	135	135	131	144	148	140	143	136
Guatemala	96	99	97	103	102	103	100	110	109	107	106	106	108	108
Honduras	92	100	100	104	103	101	103	103	102	104	111	101	107	105
Mexico	105	109	120	125	119	119	123	122	123	126	126	125	127	125
Panama	104	101	106	109	109	103	108	105	106	107	119	117	120	121
Paraguay	100	99	100	105	102	94	95	92	89	97	101	97	99	95
Peru	103	95	95	99	98	104	103	100	99	101	96	94	95	91
Uruguay	99	94	94	82	71	83	82	85	85	98	96	79	70	72
Venezuela	104	101	105	101	103	110	109	116	122	128	132	136	141	138

ANNEX TABLE 8C. - LATIN AMERICA: VOLUME OF IMPORTS OF MAJOR AGRICULTURAL AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
..... Million metric tons														
AGRICULTURAL PRODUCTS														
Wheat and wheat flour (wheat equivalent)	3.79	3.31	3.25	3.40	3.95	4.20	4.24	4.89	5.12	5.99	5.54	6.68	6.87	7.03
Maize	0.08	0.20	0.86	0.96	0.16	0.21	0.22	0.38	0.65	0.66	0.37	0.45	0.37	0.65
Rice (milled equivalent) ¹	0.22	0.22	0.32	0.40	0.34	0.35	0.35	0.32	0.34	0.49	0.55	0.46	0.40	0.35
Sugar (raw equivalent) ²	0.47	0.28	0.49	0.37	0.39	0.24	0.50	0.24	0.28	0.22	0.27	0.31	0.25	0.22
Bananas	0.20	0.14	0.21	0.27	0.25	0.27	0.27	0.24	0.24	0.24	0.25	0.26	0.23	0.24
Pulses (dry)	0.11	0.13	0.13	0.17	0.17	0.14	0.17	0.13	0.11	0.14	0.13	0.18	0.19	0.18
Cattle ³	0.17	0.20	0.26	0.24	0.21	0.30	0.35	0.40	0.43	0.30	0.27	0.31	0.33	0.30
Sheep, lambs and goats ³	0.13	0.14	0.04	0.05	0.05	0.08	0.09	0.12	0.29	0.15	0.07	0.09	0.12	0.10
Milk (condensed, evaporated and powdered)	0.15	0.14	0.15	0.15	0.17	0.14	0.18	0.20	0.21	0.22	0.22	0.23	0.25	0.25
Rubber (natural)	0.10	0.07	0.09	0.10	0.08	0.09	0.09	0.67	0.08	0.07	0.08	0.08	0.09	0.09
FOREST PRODUCTS														
Broadleaved logs ⁴	0.37	0.41	0.32	0.34	0.24	0.27	0.28	0.23	0.22	0.25	0.37	0.35	0.32	0.33
Sawn softwood ⁴	1.48	1.10	1.62	1.42	1.08	1.05	1.32	1.09	1.03	1.23	1.39	1.50	1.38	1.47
Chemical wood pulp	0.51	0.43	0.45	0.40	0.44	0.40	0.49	0.38	0.41	0.50	0.50	0.54	0.48	0.55
Newsprint	0.42	0.48	0.55	0.54	0.52	0.60	0.64	0.58	0.54	0.56	0.60	0.66	0.68	0.70
Other paper and paperboard	0.27	0.35	0.36	0.36	0.31	0.30	0.31	0.28	0.29	0.41	0.43	0.57	0.56	0.60

¹ Including paddy converted at 65 percent. - ² Including refined sugar converted at 108.7 percent. - ³ Million head. - ⁴ Million cubic metres.

ANNEX TABLE 8D. - LATIN AMERICA: VOLUME OF EXPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
<i>Million metric tons</i>														
AGRICULTURAL PRODUCTS														
Wheat and wheat flour (wheat equivalent)	4.23	3.03	2.83	2.45	2.48	2.50	1.10	2.87	1.97	4.31	7.44	5.26	2.37	2.46
Maize	0.53	1.11	0.84	1.74	2.74	3.11	1.79	3.00	3.18	3.75	4.79	5.29	6.06	5.07
Millet and sorghums	0.02	0.17	0.16	0.34	0.33	0.20	0.39	0.67	0.64	0.89	0.34	1.18	1.16	0.86
Rye	0.33	0.16	0.31	0.19	0.06	0.14	0.04	0.01	—	0.11	0.10	—	—	0.02
Rice (milled equivalent) ¹	0.13	0.24	0.12	0.16	0.12	0.13	0.34	0.31	0.18	0.15	0.45	0.60	0.32	0.47
Sugar (raw equivalent) ^{2,3}	17.76	7.90	8.64	8.83	8.17	10.01	10.92	9.06	7.65	7.63	9.26	8.60	9.89	9.51
Bananas	2.37	2.37	2.63	2.79	2.94	3.11	3.10	3.02	3.14	3.16	3.33	3.94	4.17	4.50
Vegetable oils and oilseeds (oil equivalent) ⁴	0.31	0.15	0.31	0.39	0.34	0.36	0.41	0.56	0.49	0.41	0.59	0.49	0.57	0.43
Oilseed cake and meal	0.67	0.79	0.82	1.39	1.07	1.09	1.27	1.43	1.42	1.29	1.74	1.82	1.60	1.50
Cattle	0.38	0.35	0.61	0.71	0.61	0.66	0.85	1.13	0.96	0.63	0.79	0.84	0.82	0.97
Beef and veal	0.21	0.40	0.42	0.46	0.42	0.37	0.37	0.49	0.66	0.60	0.49	0.52	0.50	0.40
Coffee (green	1.57	1.70	1.57	1.56	1.87	1.85	1.83	1.92	2.06	1.82	1.69	1.89	1.92	2.04
Cocoa beans	0.22	0.21	0.20	0.19	0.17	0.23	0.19	0.15	0.18	0.16	0.19	0.20	0.22	0.21
Tobacco (unmanufactured)	0.07	0.08	0.08	0.08	0.08	0.09	0.12	0.13	0.14	0.17	0.14	0.13	0.14	0.10
Wool (actual weight)	0.17	0.19	0.13	0.18	0.20	0.19	0.23	0.21	0.19	0.14	0.21	0.21	0.18	0.22
Cotton (lint)	0.69	0.76	0.52	0.59	0.73	0.61	0.76	1.01	0.97	0.91	1.02	1.05	0.80	0.82
<i>Thousand metric tons</i>														
FISHERY PRODUCTS														
Fresh, chilled or frozen fish	16.5	18.0	15.3	23.4	41.4	28.7	30.5	33.7	35.9	24.3	30.6	32.0	39.1	36.0
Dried, salted or smoked fish	0.3	0.1	—	—	0.3	—	—	1.1	—	1.6	1.6	0.4	0.8	0.8
Crustacea and molluscs, fresh, frozen, dried, salted, etc.	28.4	34.5	33.0	39.1	43.6	51.6	59.0	62.1	62.2	64.5	68.5	65.3	69.8	65.0
Fish products and preparations, whether or not in airtight containers	17.0	19.1	20.6	14.6	18.0	17.0	22.8	20.6	17.8	18.2	14.0	14.0	8.6	8.0
Crustacean and mollusc products and preparations, whether or not in airtight containers	3.2	2.6	2.7	2.6	3.6	4.1	3.9	4.0	4.7	3.5	5.0	4.6	2.5	3.6
Oils and fats, crude or refined, of aquatic animal origin	27.0	42.0	33.7	45.0	49.3	79.1	140.8	161.3	154.2	137.6	171.3	121.9	216.5	339.5
Meals, solubles and similar animal feed-stuffs of aquatic animal origin	60.0	53.1	94.8	159.2	325.4	554.0	775.5	1143.7	1139.4	1590.6	1500.3	1510.4	1732.7	2 264.2
<i>Million cubic metres</i>														
FOREST PRODUCTS														
Pulpwood	—	—	0.05	0.18	0.24	0.18	0.24	0.34	0.24	0.41	0.34	0.36	0.33	0.30
Broadleaved logs	0.40	0.48	0.37	0.39	0.28	0.31	0.35	0.31	0.28	0.42	0.55	0.56	0.42	0.45
Sawn softwood	1.60	0.99	1.75	1.44	1.22	1.26	1.37	1.06	1.05	1.39	1.49	1.66	1.48	1.60

¹ Including paddy converted at 65 percent. - ² Including refined sugar converted at 108.7 percent. - ³ Excluding trade between United States and its territories. - ⁴ Groundnuts, copra, palm kernels, soybeans, sunflowerseed, linseed, castor beans, cottonseed, olive oil, groundnut oil, coconut oil, palm oil, palm kernel oil, sunflowerseed oil, linseed oil, castor oil, cottonseed oil.

ANNEX TABLE 8E. - LATIN AMERICA: INDICES OF VOLUME AND VALUE OF EXPORTS AND IMPORTS OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS, BY COMMODITY GROUPS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
..... 1957-59 average = 100														
Export volume														
AGRICULTURAL, FISHERY AND FOREST PRODUCTS	90	96	95	99	106	110	114	121	121	117	129	132	130	133
Agricultural products	92	98	95	99	106	110	112	118	119	113	125	128	126	127
Food and feed	86	91	98	104	98	110	110	113	107	111	135	134	134	131
Beverages and tobacco	95	103	95	95	110	112	111	114	124	112	105	115	118	122
Raw materials	106	110	83	99	118	102	127	148	140	125	151	149	122	127
Fishery products	67	77	77	95	128	168	214	266	262	317	318	308	346	422
Forest products	19	36	108	100	91	90	102	88	87	114	125	138	125	133
Export value														
AGRICULTURAL, FISHERY AND FOREST PRODUCTS	101	104	105	99	96	100	102	105	115	123	128	127	123	126
Agricultural products	104	106	105	99	96	99	100	103	112	120	124	122	118	119
Food and feed	87	88	104	100	96	103	102	105	121	131	143	142	145	141
Beverages and tobacco	113	119	109	98	93	94	88	87	91	102	97	98	93	99
Raw materials	128	126	97	100	103	101	131	144	146	134	144	128	106	111
Fishery products	47	66	77	96	127	137	175	254	260	306	333	389	380	428
Forest products	22	37	114	99	87	85	94	84	84	107	124	136	125	141
Import volume														
Agricultural products	92	89	99	102	99	103	108	116	123	137	133	147	143	147
Food and feed	90	88	98	101	101	104	108	118	125	141	133	147	149	153
Beverages and tobacco	96	96	106	110	84	95	109	108	104	112	121	147	117	113
Raw materials	103	94	104	102	94	106	104	108	118	125	142	141	125	128
Import value														
Agricultural products	101	91	103	102	96	101	101	112	122	140	133	146	147	147
Food and feed	98	90	101	101	97	100	103	116	126	146	135	149	155	156
Beverages and tobacco	101	91	107	112	81	79	83	84	89	105	104	129	102	94
Raw materials	118	102	109	96	95	119	102	106	116	128	139	138	123	126

ANNEX TABLE 8F. - LATIN AMERICA: PER CAPUT FOOD SUPPLIES AVAILABLE FOR HUMAN CONSUMPTION IN SELECTED COUNTRIES

	Period	Ce- reals ¹	Pota- toes and other starchy foods ²	Sugars and sweets ³	Pulses, nuts and seeds ⁴	Vege- tables ⁵	Fruit ⁶	Meat ⁷	Eggs ⁸	Fish ⁹	Milk ¹⁰	Fats and oils
..... Grammes per day												
Argentina	1935-39	291	180	74	7	67	129	293	19	6	419	26
	1948	345	241	96	6	108	160	319	20	5	399	43
	1960-62	250	241	96	7	131	219	273	22	6	285	43
	1963-65	344	232	92	9	119	224	256	18	7	326	44
	1966	268	202	90	6	124	229	309	21	8	338	41
Bolivia ^a	1961-62	292	331	53	9	155	218	70	3	—	90	13
	1963-65	293	379	67	9	177	192	68	3	—	95	16
	1966	282	349	62	8	171	190	69	3	—	76	13
Brazil	1935-39	215	312	68	60	55	186	136	7	4	205	14
	1948-50	233	405	85	68	43	205	78	6	5	94	11
	1960-62	299	409	110	81	48	239	75	9	7	144	14
	1966	269	453	100	88	52	242	74	8	10	145	18
Chile	1935-39	339	201	70	28	137	114	105	5	9	116	13
	1948	367	218	68	16	148	112	104	5	...	236	15
	1961-62	338	199	88	25	214	130	99	4	10	245	22
	1966	433	167	90	31	212	120	93	5	11	274	23
Colombia ^a	1957-59	183	138	124	16	38	253	87	7	2	160	11
	1961-62	213	190	137	20	138	417	95	6	4	290	14
	1966	176	191	131	20	133	374	82	5	4	280	20
Costa Rica ^a	1961-62	234	134	156	38	39	370	73	6	3	284	23
	1963-65	260	123	162	46	36	416	74	5	4	260	25
	1966	273	114	162	40	36	361	82	7	5	265	28
Dominican Republic ^a	1961-62	159	249	138	34	29	412	39	7	7	160	20
	1963-65	181	236	174	38	27	408	39	7	9	174	26
	1966	147	219	175	37	26	411	35	7	11	183	24
Ecuador ^a	1954-56	226	376	62	26	53	263	30	10	6	203	13
	1961-63	172	323	72	39	165	521	61	4	9	171	15
	1966	167	329	84	39	168	644	68	5	9	190	12
El Salvador ^a	1961-62	314	8	61	39	19	71	34	6	2	134	22
	1963-65	365	9	77	33	20	71	31	5	3	148	17
	1966	326	8	78	22	19	71	27	5	2	135	14
Guatemala ^a	1961-62	397	22	76	23	67	47	34	4	1	75	9
	1963-65	401	18	70	25	67	46	36	5	2	88	13
	1966	416	16	76	30	66	50	40	5	3	65	17
Honduras ^a	1961-62	297	116	58	41	13	550	35	9	2	249	11
	1963-65	294	117	62	40	13	540	33	8	2	251	11
	1966	249	116	68	46	13	417	34	9	1	249	17
Jamaica ^a	1961-62	219	337	92	36	112	656	49	7	23	148	26
	1963-65	239	364	113	22	123	583	53	5	26	157	28
	1966	226	356	70	23	107	602	41	4	26	174	26
Mexico ^a	1954-56	346	45	88	53	...	135	54	12	6	190	26
	1961-62	354	27	99	63	38	174	53	12	6	172	28
	1966	356	24	109	67	25	187	53	11	9	156	26
Nicaragua	1961-62	227	196	122	42	43	248	67	7	1	355	21
	1963-65	245	191	123	45	42	218	65	7	2	316	23
	1966	279	182	110	44	40	222	59	8	4	297	19
Panama ^{a,11}	1961-62	340	179	86	35	61	163	99	10	17	129	15
	1963-65	360	180	100	31	61	160	97	10	22	144	16
	1966	348	183	89	31	57	214	104	11	13	137	20

ANNEX TABLE 8F. - LATIN AMERICA: PER CAPUT FOOD SUPPLIES AVAILABLE FOR HUMAN CONSUMPTION IN SELECTED COUNTRIES (concluded)

	Period	Ce-reals ¹	Potatoes and other starchy foods ²	Sugars and sweets ³	Pulses, nuts and seeds ⁴	Vegetables ⁵	Fruit ⁶	Meat	Eggs ⁷	Fish ⁸	Milk ¹⁰	Fats and oils
Paraguay	1957-59	205	726	42	42	44	383	130	2	—	196	11
	1960-62	202	702	53	39	43	383	120	2	1	177	13
Peru ⁹	1957-59	246	400	68	26	...	...	49	2	15	95	21
	1960-62	256	492	72	28	89	150	60	4	22	152	20
	1966	268	458	84	23	83	117	67	4	20	162	26
Surinam ⁹	1958-59	338	74	72	23	30	93	21	6	23	97	24
	1960-62	282	72	72	22	30	78	24	7	25	118	27
	1966	407	60	77	32	49	39	40	8	21	104	34
Uruguay	1948-50	272	140	91	8	61	165	315	20	3	427	39
	1961-62	267	183	123	8	109	148	366	14	4	595	29
	1966	277	150	134	6	108	136	310	13	7	584	36
Venezuela ⁹	1952-53	223	238	88	39	27	180	51	12	17	200	18
	1960-62	239	275	93	43	37	207	69	9	18	232	26
	1966	254	335	106	35	41	295	81	10	32	202	30

¹ In terms of flour and milled rice. - ² Bolivia includes bananas and plantains under starchy foods. Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Panama, Surinam, Venezuela include plantains under starchy foods. Peru includes plantains starting with 1960-62. - ³ In terms of refined sugar including crude sugar syrups, honey and other sugar products. - ⁴ Shelled equivalent for nuts, including cocoa beans. - ⁵ In terms of fresh equivalent; including processed vegetables. - ⁶ In terms of fresh equivalent; including processed fruit. - ⁷ Including poultry and game; expressed in terms of dressed carcass weight; including edible offals. - ⁸ In terms of fresh equivalent. - ⁹ Estimated edible weight. - ¹⁰ Milk and milk products excluding butter, expressed in terms of fresh milk. - ¹¹ Data on consumption of coconuts, bananas and plantains include Indian jungle population.

ANNEX TABLE 8G. - LATIN AMERICA: ESTIMATED CALORIE AND PROTEIN CONTENT OF NATIONAL AVERAGE FOOD SUPPLY PER CAPUT

	Calories				Total protein				Animal protein			
	Pre-war	1948-1950	1961/1962	1966	Pre-war	1948-1950	1961/1962	1966	Pre-war	1948-1950	1961/1962	1966
	Number per day				Grammes per day							
Argentina	2 780	¹ 3 240	² 2 810	2 920	96.5	¹ 110.4	² 81.6	88.0	59.6	¹ 66.1	² 52.4	58.7
Bolivia	1 830	1 980	...	...	48.6	50.6	...	...	12.4	13.2
Brazil	2 190	2 240	² 2 720	2 690	63.8	54.9	² 66.4	66.3	27.9	15.3	¹ 17.9	18.3
Chile	2 250	² 2 420	2 480	2 830	69.6	¹ 74.8	71.0	81.8	21.4	² 25.5	26.0	27.1
Colombia	2 370	2 200	...	...	55.6	48.9	...	...	25.2	22.6
Costa Rica	2 420	2 610	...	...	54.9	57.9	...	...	21.9	21.8
Dominican Republic	2 180	2 290	...	...	40.1	41.7	...	...	14.1	15.3
Ecuador	1 990	2 020	...	...	48.5	51.5	...	...	17.0	17.9
El Salvador	1 890	1 840	...	...	50.2	44.2	...	...	10.5	9.4
Guatemala	2 050	2 220	...	...	53.4	56.8	...	...	8.2	8.3
Honduras	2 160	2 010	...	...	56.4	51.0	...	...	14.9	14.5
Jamaica	2 230	2 260	...	...	51.1	52.6	...	...	18.2	18.7
Mexico	2 500	2 550	...	...	65.0	65.7	...	...	15.5	15.2
Nicaragua	2 300	2 350	...	...	56.5	59.0	...	...	22.6	20.1
Panama	2 420	2 500	...	...	62.3	62.9	...	...	23.6	23.9
Paraguay	² 2 520	...	...	...	² 63.3	...	...	...	² 23.7	...
Peru	² 2 260	2 340	...	...	² 55.5	54.1	...	...	² 20.0	19.9
Surinam	¹ 1 900	2 470	...	...	² 43.0	54.3	...	...	¹ 14.5	15.8
Uruguay	2 900	3 200	3 170	...	94.5	110.5	101.6	...	61.2	75.5	67.1
Venezuela	² 2 300	2 490	...	...	² 58.7	65.9	...	...	² 23.0	26.4

¹ 1948. - ² 1960-62.

ANNEX TABLE 9A. - NEAR EAST : VOLUME OF PRODUCTION OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
	<i>Million metric tons</i>													
AGRICULTURAL PRODUCTS														
Wheat	14.12	15.36	17.73	16.73	16.32	16.45	15.78	18.13	18.73	17.44	17.99	18.42	20.48	20.98
Barley	5.42	6.23	7.52	6.48	6.00	6.12	6.00	7.21	7.66	6.30	6.75	6.56	7.13	6.88
Maize	3.09	3.24	3.03	3.43	3.31	3.58	3.41	3.59	3.66	3.74	3.87	4.17	4.08	4.13
Rice (milled) ¹	1.31	1.63	1.79	1.37	1.72	1.83	1.52	2.24	2.45	2.32	2.22	2.16	2.74	2.88
Sugar (centrifugal)	0.69	0.72	0.78	0.83	1.02	1.17	1.03	0.97	1.13	1.45	1.28	1.48	1.80	1.77
Pulses ²	0.86	0.86	0.93	0.90	0.87	0.91	0.79	1.05	0.96	1.14	1.14	1.07	1.02	1.02
Citrus fruit	1.23	1.24	1.36	1.41	1.52	1.57	1.51	1.68	2.05	2.10	2.29	2.55	2.87	2.88
Dates	1.23	1.36	1.30	1.42	1.21	1.38	1.47	1.52	1.49	1.35	1.48	1.53	1.40	1.49
Olive oil	0.06	0.14	0.08	0.13	0.09	0.11	0.18	0.09	0.15	0.17	0.12	0.22	0.14	0.16
Cottonseed	1.43	1.50	1.70	1.63	1.83	1.92	1.80	2.23	2.23	2.31	2.53	2.32	2.33	2.45
Total vegetable oils and oilseeds (oil equivalent) ³	0.50	0.62	0.55	0.63	0.63	0.64	0.71	0.67	0.78	0.83	0.81	0.87	0.82	0.81
Tobacco	0.15	0.15	0.16	0.15	0.17	0.18	0.14	0.12	0.16	0.25	0.19	0.22	0.24	0.21
Cotton (lint)	0.76	0.79	0.89	0.88	0.99	1.04	0.95	1.22	1.18	1.29	1.39	1.31	1.33	1.40
Wool (greasy)	0.10	0.10	0.10	0.11	0.12	0.11	0.12	0.12	0.12	0.12	0.12	0.12	0.13	0.13
Milk (total)	8.81	9.27	9.17	10.08	10.42	10.24	10.05	10.33	10.41	10.77	11.09	11.59	11.85	12.08
Meat ⁴	1.13	1.22	1.27	1.26	1.31	1.38	1.44	1.50	1.52	1.45	1.50	1.54	1.53	1.57
FISHERY PRODUCTS ⁵	0.40	0.40	0.39	0.38	0.39	0.40	0.42	0.44	0.51	0.54	0.52	0.51	0.49	0.53
FOREST PRODUCTS														
Industrial roundwood ⁶	7.4	7.6	8.0	7.9	7.8	8.1	7.9	8.3	9.1	9.7	9.9	10.0	10.3	10.5
Sawn softwood ⁶	0.8	0.6	0.7	0.6	0.7	0.8	0.8	1.1	1.2	1.4	1.5	2.0	2.0	2.2
Sawn hardwood ⁶	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.6	0.7

¹ Paddy converted at 65 percent. - ² Dry beans, dry peas, broad beans, chick-peas, lentils. - ³ Olive oil, soybeans, groundnuts, cottonseed, sesame seed, sunflowerseed, rapeseed, linseed, hempseed, castor beans. - ⁴ Beef and veal, mutton and lamb, pork, poultry meat. - ⁵ Nominal catch (liveweight). - ⁶ Million cubic metres.

ANNEX TABLE 9B. - NEAR EAST: INDICES OF FOOD AND TOTAL AGRICULTURAL PRODUCTION

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
..... 1952-55 average = 100														
Total agricultural production														
NEAR EAST	100	110	115	118	123	124	124	135	139	142	145	149	155	158
Afghanistan	102	111	108	115	119	122	123	127	124	130	132	126	132	132
Cyprus	99	94	104	94	108	105	124	136	136	128	177	175	189	179
Iran	102	112	118	119	126	122	131	130	138	135	147	147	159	177
Iraq	87	105	124	107	93	101	115	128	105	119	129	131	138	161
Israel	103	125	133	137	169	175	186	204	211	245	255	255	297	309
Libya	99	105	144	125	122	117	127	129	125	123	181	182	209	203
Sudan, The	107	120	129	115	135	131	129	156	154	141	153	165	193	178
Syria	82	116	135	94	98	92	112	158	142	154	153	115	146	134
Turkey	100	108	106	123	125	126	127	133	140	146	141	158	161	164
United Arab Republic	103	107	115	116	120	127	112	135	136	141	144	144	140	147
Per caput agricultural production														
NEAR EAST	98	105	107	107	108	107	104	111	110	110	110	110	112	111
Afghanistan	100	108	103	107	109	111	110	111	106	109	109	103	105	104
Cyprus	97	92	99	88	100	96	112	123	120	114	155	151	161	150
Iran	99	106	108	106	110	104	108	104	108	103	109	106	111	118
Iraq	85	99	114	95	80	84	93	101	79	87	91	90	91	102
Israel	100	116	117	117	140	141	145	151	152	169	169	166	190	192
Libya	97	99	131	110	104	96	100	99	92	87	124	120	133	124
Sudan, The	104	113	118	102	117	110	106	124	119	106	116	118	133	120
Syria	80	110	124	84	85	77	91	124	108	113	109	79	97	86
Turkey	97	102	98	110	108	106	104	107	110	111	105	115	114	114
United Arab Republic	101	102	107	105	107	110	95	111	109	111	110	107	102	104
Total food production														
NEAR EAST	100	110	115	119	122	122	124	133	137	138	140	145	153	155
Afghanistan	102	110	107	114	117	120	121	122	117	125	127	122	129	128
Cyprus	97	94	104	96	109	108	127	138	137	129	178	178	196	185
Iran	101	112	118	119	126	119	127	128	135	130	138	143	156	171
Iraq	85	104	123	106	91	99	114	129	104	117	129	131	138	162
Israel	102	124	131	135	165	167	175	192	204	235	239	237	276	284
Libya	99	104	146	122	119	118	125	127	122	120	185	184	215	203
Sudan, The	108	119	123	128	133	127	128	136	147	147	154	161	189	170
Syria	71	112	131	81	86	75	98	148	127	131	127	93	137	111
Turkey	99	108	107	124	125	127	128	134	140	139	136	151	153	158
United Arab Republic	106	112	115	112	117	124	117	137	139	141	143	149	146	156
Per caput food production														
NEAR EAST	98	105	107	107	107	105	104	109	109	107	106	107	110	108
Afghanistan	100	106	102	107	108	109	108	107	100	105	105	99	103	100
Cyprus	95	92	100	90	100	98	115	124	122	115	157	154	166	155
Iran	98	106	108	106	109	101	105	103	105	99	102	103	108	114
Iraq	83	99	113	94	78	83	93	101	79	86	91	90	91	103
Israel	100	116	115	115	136	135	136	143	147	162	159	154	176	177
Libya	97	99	133	107	101	97	99	97	90	85	126	121	137	125
Sudan, The	105	112	113	114	115	107	105	108	114	111	113	114	131	114
Syria	69	107	120	72	75	63	79	116	97	96	90	64	91	72
Turkey	97	102	99	111	108	107	105	108	110	106	102	110	108	109
United Arab Republic	104	107	107	102	104	108	99	113	112	110	109	111	106	110

ANNEX TABLE 9C. - NEAR EAST: VOLUME OF IMPORTS OF MAJOR AGRICULTURAL AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
	<i>Million metric tons</i>													
AGRICULTURAL PRODUCTS														
Wheat and wheat flour (wheat equivalent)	1.25	2.18	2.51	2.29	2.90	3.99	4.24	3.78	4.43	3.46	4.60	4.64	4.34	4.39
Maize	—	0.13	0.15	0.12	0.23	0.21	0.31	0.48	0.44	0.68	0.37	0.47	0.46	0.46
Rice (milled equivalent) ¹	0.17	0.23	0.25	0.19	0.35	0.35	0.41	0.36	0.26	0.33	0.27	0.34	0.31	0.34
Sugar (raw equivalent) ²	0.86	0.94	0.93	1.05	1.13	1.16	1.51	1.14	0.93	1.32	1.61	1.47	1.44	1.30
Dates	0.11	0.10	0.08	0.11	0.06	0.05	0.05	0.05	0.06	0.06	0.04	0.04	0.06	0.04
Vegetable oils and oilseeds (oil equivalent) ³	0.07	0.08	0.11	0.13	0.17	0.17	0.14	0.29	0.31	0.31	0.25	0.23	0.27	0.24
Sheep, lambs and goats ⁴	1.63	1.63	0.94	1.13	1.62	1.23	1.53	2.37	2.30	2.39	2.30	3.07	2.63	3.50
FOREST PRODUCTS														
Sawn softwood ⁵	0.65	0.52	0.60	0.53	0.65	0.69	0.63	0.72	0.62	0.68	0.76	0.75	0.77	0.80
All paper and paperboard	0.11	0.11	0.12	0.14	0.15	0.16	0.18	0.20	0.23	0.24	0.28	0.29	0.43	0.50

¹ Including paddy converted at 65 percent. - ² Including refined sugar converted at 108.7 percent. - ³ Groundnuts, copra, soybeans, sunflowerseed, castor beans, linseed, cottonseed, olive oil, groundnut oil, coconut oil, palm oil, palm kernel oil, soybean oil, sunflowerseed oil, linseed oil, castor oil, cottonseed oil. - ⁴ Million head. - ⁵ Million cubic metres.

ANNEX TABLE 9D. - NEAR EAST: VOLUME OF EXPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
<i>Million metric tons</i>														
AGRICULTURAL PRODUCTS														
Wheat and wheat flour (wheat equivalent)	0.33	0.42	0.44	0.27	0.44	0.08	0.06	0.30	0.23	0.26	0.08	0.10	0.11	0.07
Barley	0.46	0.78	0.53	0.58	0.26	0.02	0.16	0.76	0.54	0.29	0.47	0.19	0.07	0.17
Rice (milled equivalent) ¹	0.23	0.23	0.30	0.39	0.05	0.31	0.23	0.14	0.38	0.53	0.34	0.36	0.44	0.58
Potatoes	0.09	0.12	0.12	0.10	0.18	0.24	0.15	0.26	0.21	0.20	0.19	0.24	0.25	0.23
Pulses (dry)	0.14	0.21	0.14	0.09	0.10	0.08	0.09	0.18	0.18	0.20	0.31	0.14	0.18	0.14
Citrus fruit ²	0.30	0.35	0.37	0.39	0.46	0.51	0.40	0.48	0.62	0.55	0.69	0.68	0.81	0.88
Dates	0.29	0.30	0.27	0.27	0.31	0.29	0.22	0.26	0.37	0.31	0.30	0.32	0.31	0.28
Oilseed cake and meal	0.22	0.29	0.24	0.31	0.31	0.29	0.35	0.42	0.49	0.54	0.63	0.68	0.62	0.64
Sheep, lambs and goats ³	1.18	0.95	0.23	0.47	0.69	0.71	0.90	1.32	1.25	1.15	1.43	1.26	1.02	1.31
Cotton (lint)	0.57	0.51	0.55	0.54	0.76	0.72	0.66	0.70	0.84	0.80	0.84	1.00	0.90	0.88
<i>Thousand metric tons</i>														
FISHERY PRODUCTS														
Fresh, chilled or frozen fish	15.9	25.8	25.6	10.4	7.6	13.1	10.7	8.9	9.5	10.9	14.7	13.9	9.2	9.4
Dried, salted or smoked fish	13.0	11.7	7.9	5.5	5.3	8.2	7.7	4.7	6.2	6.7	8.3	10.6	11.8	10.0
Crustacea and molluscs, fresh, frozen, dried, salted, etc.	0.2	0.6	0.5	0.4	0.9	1.3	2.8	5.1	4.0	3.5	3.6	2.9	4.6	4.6
Fish products and preparations, whether or not in airtight containers	1.3	0.9	1.2	2.3	1.1	0.6	0.6	0.6	0.6	0.3	0.4	0.4	0.3	0.4
Crustacean and mollusc products and preparations, whether or not in airtight containers	0.5	0.5	0.3	0.5	0.8	1.1	0.9	—	—	—	—	0.4	0.6	0.7
Oils and fats, crude or refined, of aquatic animal origin	0.5	0.1	0.7	—	—	0.1	0.1	0.1	0.1	0.3	0.3	0.1	—	0.1
Meals, solubles and similar animal feed-stuffs of aquatic animal origin	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Million cubic metres</i>														
FOREST PRODUCTS														
Industrial roundwood	7.4	7.6	8.0	7.9	7.8	8.1	7.9	8.3	9.1	9.7	9.9	10.0	10.3	10.5
Sawn softwood	0.8	0.6	0.7	0.6	0.7	0.8	0.8	1.1	1.2	1.4	1.5	2.0	2.0	2.2
Sawn hardwood	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.6	0.7

¹ Including paddy converted at 65 percent. - ² Oranges, mandarines and lemons. - ³ Million head.

ANNEX TABLE 9E. - NEAR EAST: INDICES OF VOLUME AND VALUE OF EXPORTS AND IMPORTS OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS, BY COMMODITY GROUPS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968 (Preliminary)
..... 1957-59 average = 100														
Export volume														
AGRICULTURAL, FISHERY AND FOREST PRODUCTS	91	91	99	90	112	110	107	120	126	124	133	144	139	137
Agricultural products	91	90	99	90	112	110	107	120	126	124	133	144	138	137
Food and feed	90	106	106	97	97	110	106	138	139	136	150	130	134	140
Beverages and tobacco	84	86	126	82	92	81	117	119	68	80	94	114	129	121
Raw materials	93	83	89	87	124	117	105	111	132	127	132	158	142	139
Fishery products	112	130	125	100	75	95	98	94	89	85	102	104	109	109
Forest products	65	68	76	85	138	147	138	169	230	262	299	307	343	350
Export value														
AGRICULTURAL, FISHERY AND FOREST PRODUCTS	94	100	109	91	99	103	97	103	115	114	124	129	127	131
Agricultural products	95	100	109	91	99	103	97	103	115	114	123	128	125	131
Food and feed	88	113	108	98	94	101	100	132	144	138	152	146	150	164
Beverages and tobacco	84	89	133	82	85	62	79	86	68	84	84	98	114	97
Raw materials	100	95	105	90	105	113	99	91	111	108	117	126	115	122
Fishery products	101	117	111	97	92	108	116	113	115	129	152	167	186	179
Forest products	68	71	77	84	139	144	133	168	233	248	278	294	323	356
Import volume														
Agricultural products	73	86	94	96	110	121	133	139	142	146	158	173	165	168
Food and feed	67	87	95	94	111	126	140	143	147	150	165	173	168	176
Beverages and tobacco	93	85	96	99	105	101	111	116	120	122	120	164	142	122
Raw materials	72	74	86	100	115	133	134	166	158	181	202	204	219	243
Import value														
Agricultural products	78	88	103	93	104	112	122	124	137	155	155	167	154	150
Food and feed	69	88	103	92	105	115	128	130	148	167	167	175	163	163
Beverages and tobacco	114	91	104	97	99	95	95	93	94	104	105	132	114	92
Raw materials	79	81	100	97	103	132	150	173	161	184	194	183	183	190

ANNEX TABLE 9F. - NEAR EAST: PER CAPUT FOOD SUPPLIES AVAILABLE FOR HUMAN CONSUMPTION IN SELECTED COUNTRIES

	Period	Ce- reals ¹	Pota- toes and other starchy foods	Sugars and sweets ²	Pulses, nuts and seeds ³	Vege- tables ⁴	Fruit ⁵	Meat ⁶	Eggs ⁷	Fish ⁸	Milk ⁹	Fats and oils ¹⁰
..... Grammes per day												
Afghanistan	1961-62	495	—	18	1	85	33	31	1	—	86	7
	1963-65	468	—	16	1	81	35	30	2	—	87	8
	1966	441	—	39	1	78	37	31	2	—	88	8
Iran	1960	394	10	52	11	22	101	44	5	2	176	18
	1963-65	312	9	61	13	96	167	40	3	—	131	17
	1966	323	9	71	12	95	169	41	3	—	142	16
Iraq	1960-62	355	15	81	15	156	196	55	3	2	207	10
Israel	1950/51	365	124	65	26	282	298	42	52	44	426	42
	1960/-62/	318	103	94	26	307	386	109	55	19	374	48
	1966/67	286	98	111	29	316	431	144	60	17	374	50
Jordan	1957-59	348	34	59	40	243	257	21	3	2	72	20
	1960-62	368	28	63	27	319	315	33	5	2	81	26
	1966	290	43	113	25	309	236	28	8	2	137	26
Lebanon	1960-62	321	40	67	26	267	435	71	8	7	188	29
	1963-65	358	54	73	75	284	486	87	10	6	268	32
	1966	383	64	112	13	312	379	84	23	6	353	26
Libya	1959	282	42	70	16	116	164	26	4	2	152	18
	1960-62	320	25	41	10	58	110	34	3	5	111	20
	1967	375	13	94	22	212	164	56	3	5	130	26
Saudi Arabia	1963-65	320	6	35	12	103	364	41	2	5	81	4
	1966	337	6	29	12	132	406	47	2	5	99	4
Sudan ¹¹	1961-63	342	54	36	25	95	112	56	2	6	365	21
	1964-65	350	62	34	24	95	79	73	3	4	290	22
	1966	310	69	33	15	95	99	76	3	4	352	24
Syria	1960-62	432	24	46	32	153	435	38	4	—	146	30
	1963-65	438	25	44	39	169	396	30	4	—	108	26
	1966	575	21	39	23	146	257	32	4	—	121	26
Turkey	1934-38	520	16	20	27	87	156	41	6	1	212	20
	1948/-50/	511	50	27	26	152	191	39	3	2	201	19
	1960/61	611	105	51	36	288	340	37	5	6	221	22
United Arab Republic ^{9,10}	1948/-50/	474	29	39	32	125	138	28	2	9	163	10
	1960/-62/	545	32	44	29	242	227	32	3	14	125	16
	1965/66	551	38	49	35	292	230	36	4	9	122	19

¹ In terms of flour and milled rice. - ² In terms of refined sugar including crude sugar, syrups, honey and other sugar products. - ³ Shelled equivalent for nuts, including cocoa beans. - ⁴ In terms of fresh equivalent; including processed vegetables. - ⁵ In terms of fresh equivalent; including processed fruit. - ⁶ Including poultry and game; expressed in terms of dressed carcass weight; including edible offals. - ⁷ In terms of fresh equivalent. - ⁸ Estimated edible weight. - ⁹ Milk and milk products excluding butter, expressed in terms of fresh milk. However, United Arab Republic includes milk for making butter. - ¹⁰ United Arab Republic excludes butter. - ¹¹ Data relate to an area covering 87 percent of the population.

ANNEX TABLE 9G. - NEAR EAST: ESTIMATED CALORIE AND PROTEIN CONTENT OF NATIONAL AVERAGE FOOD SUPPLY PER CAPUT

	Calories					Total protein					Animal protein				
	Pre-war	1948-1950	1960-1962	1966	1967	Pre-war	1948-1950	1960-1962	1966	1967	Pre-war	1948-1950	1960-1962	1966	1967
	<i>Number per day</i>					<i>Grammes per day</i>									
Afghanistan	² 2 040	1 950	...	...	...	² 62.5	56.4	...	...	...	² 7.8	7.7	...
Iran	² 2 050	1 890	...	...	...	⁴ 59.6	49.8	...	...	...	⁴ 13.4	11.5	...
Iraq	2 100	...	...	...	...	60.7	...	...	...	...	16.8	...	...
Israel ¹	² 2 680	2 810	2 920	...	...	...	³ 87.6	84.5	89.2	...	...	³ 33.7	36.0	41.3
Jordan	2 220	2 190	...	...	...	61.5	54.9	...	...	...	9.9	13.6	...
Lebanon	2 400	2 800	...	...	...	68.1	80.8	...	...	...	19.7	28.3	...
Libya	1 770	...	2 660	...	...	48.3	...	63.7	...	...	9.4	...	14.7
Saudi Arabia	1 850	...	...	...	...	50.9	...	...	...	...	12.1	...
Sudan, The	² 2 030	1 940	...	...	...	⁶ 64.6	63.9	...	...	...	² 22.1	25.9	...
Syria	2 350	2 600	...	...	...	68.7	77.9	...	...	...	12.2	10.3	...
Turkey ¹	2 490	2 510	³ 3 110	...	...	81.0	80.9	⁹ 97.5	...	...	15.9	15.3	⁸ 15.9	...	...
United Arab Republic ¹	2 360	2 700	² 2 810	...	...	69.3	78.7	⁸ 80.8	...	...	12.1	12.1	⁷ 11.8	...

¹ Split years. - ² 1950/51. - ³ 1961/62. - ⁴ 1960. - ⁵ 1961-63. - ⁶ 1960/61. - ⁷ 1965/66.

THE STATE OF FOOD AND AGRICULTURE

SPECIAL CHAPTERS

In addition to the usual review of the recent world food and agriculture situation, each issue of this report from 1957 has included one or more special studies of problems of longer term interest. Special chapters in earlier issues have covered the following subjects:

- 1957** Factors influencing the trend of food consumption
Postwar changes in some institutional factors affecting agriculture
- 1958** Food and agricultural developments in Africa south of the Sahara
The growth of forest industries and their impact on the world's forests
- 1959** Agricultural incomes and levels of living in countries at different stages of economic development
Some general problems of agricultural development in less developed countries in the light of postwar experience
- 1960** Programing for agricultural development
- 1961** Land reform and institutional change
Agricultural extension, education and research in Africa, Asia and Latin America
- 1962** The role of forest industries in the attack on economic underdevelopment
The livestock industry in less developed countries
- 1963** Basic factors affecting the growth of productivity in agriculture
Fertilizer use: spearhead of agricultural development
- 1964** Protein nutrition: needs and prospects
Synthetics and their effects on international trade
- 1966** Agriculture and industrialization
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