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# THE SITUATION OF COFFEE GROWING IN THE PRODUCER AREAS OF LATIN AMERICA

CONTENTS



/I. INTRODUCTION

# I. INTRODUCTION

The world coffee industry is passing through a difficult period owing mainly to the extraordinary increase in production and the growing accumulation of surpluses in recent years. This is therefore a proper juncture at which to examine coffee-growing conditions as they are at the moment and to consider Latin America's future prospects in this connexion. Coffee is Latin America's main export commodity and provides a livelihood for a high percentage of the population in 15 of the 20 republics.

The importance of the international coffee trade's problems has in the past resulted in attention being trained traditionally on coffee consumption, trade and prices. Now, as in difficult periods in the past, vigorous efforts are being made in this respect and international co-operation is being brought to bear on the problem. There is, however, a spreading conviction that, without due consideration being given to the position of coffee farms, it will hardly be possible to solve present problems on a sufficiently long-term basis to ensure readjustment of the overall patterns of supply and demand.

The decisions of individual growers affect not only the world coffee situation; in Latin America, they also determine the degree and rate of development of an important part of the region's agriculture and as a result have a decisive effect on overall economic growth. Both ECLA and FAO have in recent years been making a systematic study of the factors affecting coffee production and the relationship between coffee and agricultural development in general. Evidence of the growing importance attached in Latin America to conditions on coffee farms and related problems is to be found in the keen interest taken by Brazil, Colombia and El Salvador in the various surveys which have been undertaken and in their effective collaboration in carrying them out. Other producer countries are now considering whether they can or should undertake surveys of a similar kind.

/The surveys

The surveys were carried out using sampling methods to collect more objective information about the position of coffee growers in El Salvador, Colombia and in the State of São Paulo in Brazil. To ensure that the findings would be truly representative of actual coffee-growing conditions in those countries and areas as a whole, visits and surveys had to cover 1,000 coffee farms in El Salvador, 12,000 in Colombia and 2,000 in São Paulo.[1/] The vast scale of the undertaking required the full co-operation of each country and of the farmers themselves. Although there were many obstacles to overcome, experience has demonstrated both the feasibility of such surveys using modern statistical methods and the possibility of gathering accurate and useful information in that way.

Although not all producer countries were covered by the ECLA/FAO surveys, the conclusions to be drawn from the work carried out are broadly representative of the situation in Latin America as a whole, for the reason that the inquiries covered some of the largest traditional producer areas. The conditions in Colombia and El Salvador are characteristic of countries producing "mild" grades; production in the State of São Paulo represents almost half Brazil's total output and nearly 20 per cent of the world's exportable production. Similar surveys could, of course, be carried out to good advantage in other important areas, particularly where coffee-growing has developed more recently as is the case in Mexico, and the Paraná area of Brazil itself. Nevertheless, it may be said that the incomplete information obtainable regarding those areas confirms the findings of the overall analysis made here as regards coffee-growing conditions in Latin America as a whole.

After more than a century of large-scale operations, coffee cultivation in Latin America continues to follow traditional patterns, with a

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1/ The coverage of the sample was determined by taking into account the total number of coffee farms, variations in conditions of production, supply of resources and the previous experience of each country in the use of sampling methods. A complete description of the methods used appears in Coffee in Latin America: Productivity problems and future prospects. I. Colombia and El Salvador, (E/CN.12/490) United Nations publication, Sales No. 58.II.G.4. (See especially for Colombia, pp. 95 et seq.; and for El Salvador, pp. 138 et seq.)

/generally low

generally low average yield and unsatisfactory level of labour productivity. The conditions forming the picture in which coffee growing has developed, have been mainly (a) the abundance of virgin land in suitable tropical areas, (b) plentiful and cheap labour, (c) the fact that coffee keeps well - making it possible to store it for a long time and transport it over great distances, and (d) the relatively high return on coffee in comparison with other agricultural commodities which could have been established in the same areas.

Coffee farms using the most advanced technical methods account for a small percentage of total production. The use of fertilizers is limited and labour is employed chiefly during harvesting or on routine maintenance. This is largely attributable to the predominance of small holdings, ignorance and the lack of funds to make improvements. As a result, income and wage levels in coffee-growing areas are low and the living standards of the population are usually precarious.

As a result of the difficult period through which coffee is at present passing on the world market, and owing to the absolute need to speed up agricultural development in the coffee-producing areas, substantial reforms in growing methods and the overall framework of coffee cultivation must be introduced. The favourable experiments carried out in the three countries studied give reason to believe that no major technical difficulties would stand in the way of achieving highly positive results in this direction. The introduction of new work methods could result in substantial increases in yields per hectare. In view, however, of present overproduction, the modernization of growing techniques should be accompanied by a reduction in the area planted, so as to avoid excessive increases in output and a still greater fall in prices on the international market. In addition, the land freed from coffee cultivation could be used to satisfy the growing need in those countries for foodstuffs and fibres resulting from population increases, urban development and overall economic growth. Simultaneously, the planting of other crops alongside coffee would give planters a more stable income and make them less vulnerable to internal and external price fluctuations.

/Private enterprise

Private enterprise would not be sufficient to achieve this aim and any coffee policy directed towards such an end should be supported by vigorous action by the authorities. This should include the provision of proper technical services reaching into the most remote areas; the construction of roads, schools and other public works; and the granting of the necessary credit in sufficient quantities and on advantageous terms. All these measures are a few among the many which are the direct responsibility of the public authorities. The better the co-ordination of such activities in the coffee-producing sector with those being put into effect in other sectors, the easier will it be to achieve positive results nationally and even internationally. In addition, the private sector usually reacts more favourable when encouraged by integrated public action. Partial and sometimes contradictory measures may sow confusion and prevent the free play of economic incentives.

As to future prospects, it would seem that coffee will maintain its predominant position for a long time as revenue and foreign currency for Latin America. Although it may contribute a relatively smaller share to the overall agricultural product as a result of the greater diversification which is expected, the measures for technical improvement which are being advocated would put not only producers but also, in the final analysis, the coffee-producing countries themselves in a more competitive position.

/II. GENERAL

## II. GENERAL COFFEE-GROWING CONDITIONS IN LATIN AMERICA[2/]

Coffee experts consider that this or that factor exercises the greatest influence over production; their views depend on their particular field of specialization. An attempt must, however, be made to find a generally acceptable point of view, for the factors that have to be taken into account are legion. On the basis of experience, the Joint ECLA/FAO Agriculture Division considers that the three main features of coffee growing in Latin America could be summarized in the following way: (1) distribution of coffee farms by size and type of management and tenancy; (2) the low technical standards prevailing on the majority of coffee farms, and this accounts for low yields and productivity; and (3) the lack of crop diversification on most Latin American coffee farms.

### 1. Distribution of coffee farms by size and type of management

The distribution of coffee farms by size is characterized in Latin America, on the one hand, by the existence of a large number of small family farms, and on the other, by a small number of very large farms. Although the latter account for almost half the total of coffee production in a number of countries, they usually represent only a small percentage of the total number of farms. The following figures illustrate this point:

| | El Salvador[a/] | | Colombia | | | São Paulo | | |
|---|---|---|---|---|---|---|---|---|
| Size in Hectares | % of farms | % of area | % of farms | % of area | % of production | % of farms | % of area | % of production |
| Up to 10 | 88.2 | 22.2 | 94.4 | 62.5 | 63.2 | 56.7 | 12.9 | 10.0 |
| 10 - 50 | 9.7 | 34.9 | 5.4 | 29.0 | 30.3 | 35.0 | 42.0 | 40.0 |
| Over 50 | 2.1 | 42.9 | 0.2 | 8.5 | 6.5 | 8.3 | 45.1 | 50.0 |

a/ Percentage of production by size of farm is not known.

2/ This section of the report is largely based on the document submitted under the same title to the First Inter-American Technical Coffee Meeting (Bogotá, Colombia, July 1960) (see IRTIC/Doc. 9).

/The foregoing

The foregoing table illustrates the difference between the three countries. Farms with less than 10 hectares of coffee predominate numerically in Colombia and El Salvador, but while in Colombia they represent more than 60 per cent of all plantations, in El Salvador they account for only some 20 per cent of the area planted with coffee. In El Salvador the bulk of the harvest is produced by a small number of large farms. The situation in the State of São Paulo is an exception to the rule prevailing in El Salvador, Colombia and perhaps even throughout the rest of Latin America. Medium-sized farms with 10 to 50 hectares of coffee account for an appreciable proportion both of the number of farms and of the area under coffee in that State. In Colombia, on the contrary, large farms are few in number and account for a small proportion of output.

Although the breakdown of coffee farms by size may be different in the other countries of Latin America, the general feature of the area as a whole is the predominance of extremes in one direction or the other. This has various important economic and social consequences and is of particular significance as regards the implementation of any programme for the reorganization and modernization of the industry.

In general, the introduction of modern growing practices into small family farms will prove to be a difficult task, as families owning small farms do not usually have sufficient financial resources to undertake a proper investment plan. The task is further complicated by illiteracy and the poor educational levels of low-income rural groups. In addition, it should be pointed out that the problem is no easier in the case of the larger farms, for although they are usually in a stabler financial condition, absenteeism is frequent and most of them are operated by poorly-paid hired labour. With a very few exceptions, the large farms are not much more efficient than the small ones.3/

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3/ An important exception is the western part of El Salvador where high standards of cultivation prevail in both medium and large farms. There are also many progressive holdings of medium and large size in the State of São Paulo.

## 2. Symptoms of deficient growing techniques

Only a small proportion of plantations use modern techniques, namely, fertilizers, pest control, proper replanting of trees, improved varieties, periodic pruning, etc. A concrete example of this is the large proportion of labour employed everywhere for picking and routine maintenance tasks (weeding) in comparison with the small and even insignificant percentage of farms using any type of chemical fertilizer or organic manure. The figures appearing below, taken from the ECLA/FAO coffee surveys, are a clear illustration of this fact.

| | El Salvador | Colombia | São Paulo |
|---|---|---|---|
| | (Percentage of the total) | | |
| Labour employed on specific jobs | | | |
| Harvesting | 41 | 47 | 38 |
| Routine maintenance | 24 | 32 | 43 |
| Both | 65 | 79 | 81 |
| Area treated with fertilizers | | | |
| Chemical fertilizers | 34 | 13 | 13 |
| Organic manures | 8 | | 29 |

It may be concluded that in Latin America as a whole from 65 to 90 per cent of all labour is employed on harvesting and the minimum of jobs essential for the maintenance of the plantation. This leaves only 10 to 35 per cent of the total for the important secondary jobs already mentioned. It should be pointed out that El Salvador is the country where the use of chemical fertilizers is the most intensive in the whole Latin American area. The partial data available clearly show that chemical fertilizers are used only in about 10 per cent of the plantations in Latin America, and the regional average may be still lower. The figure for organic manures is more variable but also relatively low. Furthermore, none of the foregoing figures provides a measurement of the degree of efficiency of fertilizer application in plantations. If this factor were taken into account, the proportion of stands effectively treated with fertilizer would be even smaller.

/These and

These and other related data show that coffee growing in Latin America is actually much more extensive than is commonly believed. Coffee still requires a vast amount of labour, but as a large part of it is employed during the harvest, coffee is an extensive crop in so far as land, fertilizers and other inputs are concerned and an intensive one as regards labour.

This combination of extensive and intensive characteristics not only result in low yields per hectare but also causes a low rate of productivity per man/hour worked. The following figures for yields and labour productivity were calculated for each of the three main producer areas studied:

| | Yield per hectare (Kg of clean coffee equivalent) | Productivity of labour (Kg of clean coffee per man/hour worked) |
|---|---|---|
| El Salvador | 660 | 0.42 |
| Colombia | 520 | 0.65 |
| São Paulo (State of) | 450 | 0.78 |

These figures also illustrate an interesting phenomenon. Low yields seem, at least in the years considered, to be associated with higher gross productivity of labour and vice versa. Clearly, such a relationship does not imply any need to raise either yields or productivity to a maximum. It is net anticipated profits that must be increased to a maximum, after taking account of all the resources which enter into the production process. The complicated relationships involved in coffee productivity are analysed in detail in the reports on the various ECLA/FAO surveys carried out.

Prices paid on coffee farms vary from one country to another according to internal price policies and fluctuations in international quotations, but it can be estimated that in recent years coffee growers have been receiving the equivalent of 0.30 to 0.50 dollars[4/] per kilogramme

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4/ The use of multiple exchange rates in some producer countries complicates the conversion of values from local currencies into dollars. If calculated on the basis of free-exchange rates, the minimum price received by coffee growers and the minimum wage earned by workers would even be below the lower figure quoted above.

of clean coffee equivalent. Thus, gross labour productivity in coffee growing is in many cases below 0.30 dollars per man/hour or approximately 2.50 dollars per man/day. If the various labour costs are considered, net remuneration will be seen to be fairly low in present circumstances. This is apparent from the wages paid on plantations which throughout Latin America are of the order of 1 to 2 dollars per man/day.

In undertaking any redistribution of resources at present employed in the production of coffee, an increase in the level of productivity would have to be considered as a primary objective. In view of the fact that it would for the moment be largely impossible to introduce mechanization on any sizable scale, special attention should be given to other types of technical progress. Among these, mention should be made of the use of new varieties, fertilizers, soil protection, pest and disease control, better methods of milling, etc. Such practices would lead to a considerable improvement in the efficiency of labour over present levels, as has been shown by various experiments carried out and experience gained on farms where production is on a commercial scale and modern techniques are used.5/

It should be stressed that in any economic activity based on private enterprise - and coffee growing is representative of this - the adoption of improved growing techniques to ensure good economic returns is of outstanding importance. No technical improvement is likely to take root as a commercial proposition if it does not hold out prospects of raising the growers' income. If this interpretation is correct, the greater interest of growers in technical advances may act as a strong incentive to Latin American coffee experts. A considerable effort will be needed to help growers prepare their plans for reorganization in the most suitable way, and additional resources will be required to enable established technical services to undertake this work.

### 3. Specialization versus diversification

The efficiency of coffee growing and the efficient use of the resources available on coffee farms may be very greatly influenced by

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5/ See section III below.

other agricultural activities on the same farm or in the same area. Notable examples worthy of singling out in this connexion include the success of mixed poultry-coffee farms and coffee-dairy farms in the State of São Paulo where available manure is used to fertilize coffee plantations. There are also many combinations with other crops which raise the net income of coffee growers.

But coffee farms in Latin America usually still tend to depend heavily on coffee itself as a source of income. Although coffee does not always cover a high proportion of the farm area, in the majority of cases it contributes by far the largest share to the value of production. In El Salvador, to quote but one example, the high degree of specialization of coffee farms may be judged from the fact that the other farm products account for less than 10 per cent of the total value of productions. In Colombia, a third of the coffee farms cultivate virtually no other product, and in the rest coffee represents 70 per cent of the value of production. Even in the State of São Paulo, where agricultural production has in recent years been tending towards greater diversification, coffee still contributed more than 50 per cent of the value produced on coffee farms.

The high unit value of coffee and the ease with which it can be marketed and prepared for storage were traditionally the main factors stimulating coffee production in Latin America, even with more complicated and costly means of transport. It is precisely these factors which brought about the establishment of highly specialized coffee farms in Latin America, where the production of staple foodstuffs for the workers is almost the only other productive activity.

In the past, this procedure was economically fully justified and only in that way could coffee production be increased in the conditions existing at the time and new land opened up for agriculture. But in this respect too there are important changes to be noted. The high economic returns on coffee in Latin American agriculture are generally on the wane. Although this is partly a result of the present situation of surplus supply which has brought about falls in coffee prices, there is also a long-term trend related to a strong increase in demand for

/other foodstuffs

other foodstuffs and agricultural items; this is the result of economic development. The following chief factors contribute to this process:

(a) The high rates of population increase and the swift growth of towns, combined with higher levels of real income, promote a continuous and rapid rise in internal demand for agricultural commodities. This leads to greater competition for the use of resources between the export sector (coffee) and agricultural products for internal consumption.

(b) Coffee prices paid to farmers have fallen from the peak they reached towards 1955 and in many countries they have slumped even below the 1948 levels. This has had an important effect on the relative economic yield of the industry. At the same time the prices of the other agricultural commodities have been far more stable and have improved their position relatively to coffee thanks to the factors mentioned in the preceding paragraph (a). As it is unlikely that coffee prices will climb in the foreseeable future, the price factor may continue to favour the other products to a greater extent than before.

Although these basic changes seem to be decisive as regards the possibilities of diversification in coffee growing areas, it has to be recognized that government policy now plays an important part in determining internal prices for coffee and many other products. Its influence will accordingly have to be carefully weighed in each case.

## III. POSSIBILITIES OF TECHNOLOGICAL IMPROVEMENT

Even though the Latin American coffee industry uses mainly traditional production methods, a great deal of research work has been devoted to introducing basic changes in growing techniques. The new methods resulting from research are still confined to experimental stations, but there are already some examples of their commercial application in certain areas of the State of São Paulo and to a lesser extent in Colombia, El Salvador and other countries producing mild grades.

The application of new methods offers a simultaneous solution to a number of important problems which are at present a burden on the industry; mention was made of these in the preceding section. The competitive position of coffee could be markedly improved by the intensified use of modern techniques so long as this is coupled with a reduction in the total area planted with coffee. In other words, the use of improved methods does not necessarily involve an increase in the volume of output. Land freed from coffee cultivation could be used for the production of other commodities, thereby contributing to a solution of the internal problems of food supply.

If new experimental methods could be broadly and inexpensively applied and if the way could be found for the average farmer to enjoy the benefits deriving therefrom, Latin America would really be close to a genuine technological revolution with a far-reaching impact on its entire agricultural and general economic development.

### 1. The case of Brazil

The Agricultural Institute of Campinas in the State of São Paulo has led the way with coffee experiments for many years, particularly since the nineteen thirties when the coffee industry in the area suffered particularly severely from the effects of the world depression. The Institute has achieved notable technical results in a number of fields and has been able to incorporate them - even though sometimes only partially - into a body of working formulae which can be applied

/by farmers

by farmers commercially. The most important fields of research are the following:

(a) Use of improved varieties;

(b) Better spacing;

(c) Erosion control through better planting layout;

(d) Fertilization;

(e) Partial mechanization;

(f) Integration of coffee with other activities - for example, dairy and poultry farming; apart from providing useful organic manures, this helps to increase the farmers' incomes.

Any of these improvements - and preferably a combination of them - would lead to a considerable increase in yields. The most complete formulae now being proposed could raise yields as much as four times above present average levels. Output per man/day would also be significantly greater thanks to the more rational use of labour.

Evidence of this is to be found in the excellent coffee farms in the Campinas area established on land which had earlier been abandoned and is now in full production again. Such coffee farms, however, account for only a very small proportion of the total area planted. The survey carried out by the Joint ECLA/FAO Agriculture Division states that "it is doubtful that there is integral modernization on much more than about 2 per cent of the State's total plantings".6/

There are various economic and structural factors still limiting the large-scale introduction of modern growing tehhniques. Among the economic factors, mention should be made of the larger amounts of capital and the higher maintenance costs involved in the intervening years until the new coffee trees reach maturity. No adequate analysis has yet been made of the economic implications of the technically advisable methods, but - as provisionally estimated in the ECLA/FAO report - the cost, per hectare, of establishing new plantations would

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6/ See chapter VIII of the study entitled Coffee in Latin America II. Brazil, State of São Paulo (E/CN.12/545), United Nations Publication, Sales No. 60.II.G.6, vol. I (The state and prospects of production).

/seem to

seem to be practically twice the normal costs since maintenance costs might be 50 to 80 per cent higher than the usual average. In addition, consideration must be given to the higher amortization costs of the plantings.7/ Consequently, part of the additional yields will have to be used for paying the higher depreciation and maintenance costs of the stands.

The main structural problem in the State of São Paulo is the very large proportion of old plantations which would have to be eliminated if new improved plantings are to be established. This would involve additional expenditure and the loss of three harvests in the area where the changeover was made. To this must be added the coffee farmers' lack of training to deal suddenly with a series of radical changes, particularly at a time when there seem to be no very cogent reasons for giving up traditional growing methods.

Even if it were possible to overcome these obstacles, interest might fail to be aroused in the adoption of more intensive methods in other areas - in the State of Paraná for example - since the traditional practices continue to give excellent results. The most important innovation which has occurred in Paraná is the use of improved varieties, particularly the Mundo Novo, which involved but slight additional expenditure and effort. In other Brazilian coffee producing areas where production is smaller, there are local situations which do not seem to be propitious, at least for the moment, to the introduction of new methods. As a result, the main area where the technological changes recommended here are likely to occur is the State of São Paulo where, furthermore, the possibilities of diversifying production are favourable. Nevertheless, a readjustment of this kind would require vigorous action by the authorities, as in present conditions it seems unlikely that market conditions will by themselves provide the necessary incentive.

2. Experiments in the use of shade in producer areas

With the exception of Brazil, all the producer countries of Latin

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7/ The new varieties usually have a shorter productive life than the typical Arabica variety.

America use shade systems - though in different ways. They seem in general to be somewhat more backward as regards the modernization of growing systems. With the exception of Colombia and El Salvador - and to a certain extent Costa Rica - insufficient experiments have been carried out with a view to finding commercial solutions adapted to local conditions. In Colombia, somewhat greater progress has been made in this direction and some valuable results have been achieved, but technical circles have still not reached agreement to a sufficient extent, on the best systems for small producers to adopt in present circumstances.

Undoubtedly, however, these countries could achieve much higher yields both in existing and in new plantations. Certain technical circles have recently been advocating the reduction or elimination of shade trees, combined with massive applications of fertilizer as a method to produce immediate positive results. It is not, however, certain that this method would be effective in each and every country that grows mild coffee. In the report of the First Inter-American Technical Coffee Meeting, it is stated that the problem of shade embraces a combination of physiological phenomena closely related to environment and that it varies so much from one place to another that no general conclusions can be drawn.[8/]

Not only in Brazil but also in the other producer countries there are serious economic obstacles in the way of the swift modernization of cultivation systems. To those already mentioned in connexion with Brazil[9/] should be added the limited financial resources of the large numbers of small producers who form the basic nucleus of the producers of mild coffee and the greater labour input required in shaded plantations. Furthermore, levels of technical training among coffee farmers are usually higher in the State of São Paulo than elsewhere.

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8/ Fifth Technical Meeting, item 5, Manejo de la sombra (Shade Management).

9/ See part 1 of this section.

### 3. General conclusions regarding the introduction of improved techniques

The foregoing conclusions should not be interpreted as meaning that it is impossible to achieve real progress in improving coffee cultivation in the producer areas of Latin America. Efforts in that direction came late and it is the present period that may usher in the first stages of a process through which Latin America must go, if it wishes to maintain its predominant position in the world coffee market, improve its competitive position and benefit from the advantages deriving from coffee cultivation in order to ensure speedier and balanced overall economic development.

It must be stressed that the available knowledge and means for improving coffee cultivation must be used carefully and systematically; if this is not done, increased yields could quickly lead to a worsening in the present situation of overproduction. To avoid disequilibria of this kind, the aims of modernization should be meticulously co-ordinated. In principle, the following general lines could be followed: (a) the area planted with coffee should decline as yields increase, so as to adjust the volume of production to the needs of the market; (b) the land thus freed should be used in agricultural and stock farming activities which combine well with coffee and satisfy foreseeable needs both for foodstuffs and for other agricultural commodities within the framework imposed by the economic development of the country concerned; (c) the modernization of the coffee industry and other related activities should be designed to ensure the best possible use of available labour, for at present under-employment is common. To this end, it will be necessary to raise levels of education and skills in order to ensure the resulting increases in productivity and bring about an improvement in living conditions. Part of the greater production of foodstuffs could be absorbed by those actually engaged in the coffee industry, for their levels of nutrition are notoriously low.

Experience shows that solutions of the type advocated here may be of great significance to the rural areas of Latin America, for they

/would represent

would represent a decisive break with traditional growing methods based almost exclusively on the use of cheap labour and the production of exportable items of high unit value. Exportable production could be maintained at the highest levels world demand would allow, while coffee farms could still embark on diversification to a greater extent. By this means it would be possible to satisfy more and more the needs of the internal market.

/IV. PRICE

## IV. PRICE AND INCOME LEVELS

The result of present overproduction is that anxiety about coffee problems is concentrated on the world market outlook. An analysis may usefully be made of the situation of coffee growers faced with such large falls in price as those that have occurred and consideration given to what possibilities they have of defending themselves against these price falls, but no attempt will be made to go into the problem of surpluses or its possible solutions. In the last resort it is the reactions of the coffee growers that will determine the course of events in the industry, although the fact remains that there does not appear to have been any adequate analysis or evaluation of their future prospects.

According to available information, the decline in price that began in 1954 has not yet had any considerable effect on production. The vast extension of plantings in the State of Paraná seems to have fallen off somewhat in recent years, although this has coincided with other physical and economic limiting factors independent of the price factor. In general, with a few exceptions, there have been no major changes in growing systems, nor have there been any basic changes in the rate of replanting or abandonment of existing plantations.

Although the effects of the fall in world prices have been comparatively moderate, the situation could change basically if there were additional price falls. The events of the thirties make it possible to foresee, at least to some extent, the possible reaction of growers. There might be a difference in this reaction between the areas where the work is on a wage basis and areas where the basis is family labour. The greatest changes would be likely to occur in the former, first and foremost in those areas where conditions are least favourable to production. This might be the case in the State of São Paulo, which includes many marginal farms, and some areas of Central America, where wages are generally the lowest in Latin America. The State of Paraná is better situated to withstand a further fall in prices, since yields there are far higher than in other producer areas.

/São Paulo

São Paulo producers would probably react by cutting monetary costs and eliminating low-yield plantings, which would be replaced by other crops. Reduction of monetary costs could be achieved in part by replacing cash salaries by share-cropping contracts and, in general, by limiting production operations to the bare essentials required to ensure a minimum of continuity in the working of the farm. This last course would certainly be that preferred by coffee growers who operate on a more commercial basis.

Any such steps that might be taken would not be likely to have an unduly serious effect on production levels, since the least efficient half of the plantings produce less than a fourth of the total harvest of the State, and such plantings would probably be abandoned. Obviously the small coffee growers, with a high percentage of low-yield plantings, would find themselves in a very difficult situation unless they were provided with the means of introducing a rapid diversification of their crops. The tendency to reduce monetary costs might also give rise to social problems through the reduction of the already low wage level, the increase in unemployment, or both.

In El Salvador, which is a typical example of a country that produces mild coffee and where production is largely dependent on paid labour, the situation of the coffee industry might be seriously affected by a continued price decline. As there is not much land available for expanding the production of other agricultural items, any large-scale diversification, on the same lines as in Brazil, would be difficult, and growers would probably prefer to cut their monetary costs. In view of the nature of growing operations in El Salvador, which are based on a much wider use of labour than in other areas, such a course might lead to a decline in production. On the other hand, it is difficult to see how the plantings could be entirely abandoned, in view of the large investments they represent and the high level of overpopulation. In short, a further fall in world prices might have a direct effect on the growers' profit margins, in addition to affecting, although perhaps to a smaller extent, the already meagre wages received by the workers.

/There would

There would be more room for manoeuvre on the small holdings of the family type, which are less dependent on paid labour. Experience has shown that the reaction of the small coffee grower to a price decline is to step up output. Colombia, where the family type of farming predominates, provides a typical example: in the thirties, when there was a disastrous slump in the prices of coffee and other primary commodities, there was a gradual but steady rise in production and exports in Colombia, whereas in the other producer countries there were abrupt reductions in both.

Consequently, with respect to continuity of production, it does not appear that Latin America's coffee industry would suffer a very abrupt setback if prices continued to fall, except in some densely populated areas where cultivation depends largely on paid labour. But that does not mean that there would not be disastrous consequences for the economies of these countries. The indirect effects of such a situation would also be serious. As repeatedly stated above, the reduction of the export income of these countries would mean a considerable loss of capacity to import and of tax revenue, with obvious adverse effects on general economic development.

So far as the modernization of the coffee industry and agricultural diversification are concerned, these adverse effects might not make themselves felt immediately. However, since at present Governments, in view of production surpluses, are using increasing amounts of revenue to buying coffee in order to avoid too sharp a decline in the coffee growers' income, it is easy to see how a reduction of government revenue resulting from a further fall in world prices would eventually affect the Government's purchasing power and the level of domestic prices. In addition it should be remembered that the coffee industry has made an important financial contribution to the development of other economic sectors in these countries.

The domestic price policy pursued thus far reflects the twofold aim referred to in the foregoing paragraphs. As long as external prices remain relatively high, Governments are able, by means of export taxes and other measures, to recoup part of the profits of

coffee growing for other purposes, especially for encouraging new productive activities. On the other hand, domestic prices have recently been pegged at relatively high levels, which do not accurately reflect fluctuations in world prices, in order to prevent any plummetting of the coffee growers' income.[10/]

As domestic price levels have not reflected the full effect of the existing serious overproduction, they have mitigated the effects of market forces, which would otherwise have encouraged a more rapid process of diversification of production.

Consequently, if Governments pursue a policy aimed at cushioning coffee growers' incomes against the persistent downward trend of external prices, they should undertake direct action to introduce technical improvements in the coffee industry and diversify production. A more detailed analysis of these aspects is given below.[11/]

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10/ In absolute terms, however, there has been a marked fall in coffee prices in comparison with those of other agricultural commodities.

11/ See below, chapter VI, section 1.

## V. THE ROLE OF COFFEE IN LATIN AMERICA'S FUTURE AGRICULTURAL AND ECONOMIC DEVELOPMENT

### 1. Coffee as a source of income and foreign currency

Although coffee's contribution to the income generated by the agricultural sector may decrease in future as a result of the higher relative growth rate of other productive activities, it will continue to play a vital part in the economic development of several Latin American countries for some time to come.

Coffee growing absorbs a high percentage of the active agricultural population; there is usually a high return on some factors of production, and it is easy to trade in coffee on a cash basis. All these features provide strong incentives for including coffee growing in agricultural production plans in tropical zones. Even at current prices, coffee provides a higher gross and net income, in many areas, than other products. Its position as a source of income may become even stronger if the technical improvement measures recommended in previous sections of this report are undertaken.

By concentrating production in the better-yield plantings and using available resources, both land and labour, for additional activities, coffee growers could build up their income on a more stable foundation. The combined use of productive resources in undertakings which reach economic maturity at different times - such as coffee growing and animal husbandry, for instance - will place farmers on a sounder footing and put them in a better position to draw up their production plans independently of temporary market fluctuations.

Coffee, as a source of foreign currency, will undoubtedly continue to provide the greater part of Latin America's requirements under this head for development purposes. Although the possibilities of increasing the flow of foreign currency must depend partly on a future growth in demand in the main importing countries, it is nevertheless true that coffee is in a specially strong position because those countries cannot produce it within their own borders, and because demand is highly

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elastic in relation to income. Moreover, consumers clearly prefer the better-quality coffees produced in Latin America, especially when the market is saturated. It should also be added that the coffee industry is one of the few export activities which is almost exclusively Latin American in ownership and management.

Thus, revenue from coffee remains almost entirely in the producer countries and is all absorbed in their internal economies. Moreover, neither increases nor decreases in production nor technical improvements depend to any great extent on imports or on decisions made abroad. Revenue from coffee exports accordingly makes a net contribution to the balance of payments of the exporting countries.

The current difficult problems connected with marketing and the accumulation of surpluses do not in substance affect the strength of the coffee industry's position. The favourable factors mentioned above have played an important part in recent years, when the economy of Latin America as a whole has been going through a difficult transition period. Exports have reached unprecedented levels; world demand is steady and will continue to expand with population increases and the general rising level of prosperity in the main consumer centres. Lastly, there seems to be no serious threat from synthetic substitutes or competitive products. There would therefore seem to be no reason to believe that there will be any considerable decline in the position of coffee as the chief export commodity of Latin America in the immediate future. In addition, efforts are being made to achieve stabilization of the market in circumstances acceptable both to producers and consumers. It should therefore be thought possible to avoid any major decline in coffee export revenue. Indeed, long-term prospects show that revenue may well increase.

### 2. Coffee as a land settlement crop

As has already been noted, the characteristics of coffee have made it the main land settlement crop in Latin America over the last century. Among the factors accounting for this phenomenon, mention should first be made of the fact that coffee can - where ecological conditions are suitable - be one of the first crops to be planted after the clearing

/of land.

of land. The fact that coffee will grow even on partially cleared land and that unskilled labour can be used to grow it makes it a pioneer crop. Coffee has high unit value, can be easily processed on the spot, does not spoil easily and can thus bear relatively higher transport costs and reach marketing and consumption centres where it is exchanged for cash. Clearly, then, these characteristics of coffee have fostered the past - and even the more recent - development of the tropical areas of Latin America.

The most recent large-scale land settlement process occurred with the incorporation of the virgin lands in the northern part of the State of Paraná after the Second World War. In little more than a decade, some 1,000 million coffee trees were planted. Coffee has continued to develop, though on a less spectacular scale, in new areas of Mexico, Central America, Colombia, Ecuador and Peru, and this despite the marked increases which have occurred outside Latin America.

It seems, however, that in the future there will be significant changes in this trend. In Brazil, the ecological limits of coffee growing have practically been reached, and the remaining coffee land is in less accessible areas. In the other countries, the most suitable areas have already been planted with coffee and many of the newly settled areas present disadvantages of one kind or another.

Though coffee may still continue to be used for some time, therefore, as a land settlement crop, the process is likely to go forward at a slower rate than before. At all events, it is considered that coffee will no longer be in a position to provide the same stimulus as in the past to general agricultural development. Indeed, it is thought that there will have to be greater consolidation of the agricultural-stock farming-coffee economy on the basis of more advanced production methods.

## VI. POSSIBLE COURSES OF ACTION

It is apparent from what has been stated in the foregoing sections that there is but little reason to expect any sizable or definite improvement in the position of the coffee industry in Latin America, unless direct measures are taken towards that end.

By and large, such measures may be divided into two main categories: (a) those to be carried out directly by the public authorities; and (b) those that are the immediate responsibility of producers. Although in practice, the measures to be taken by both groups are closely interrelated, and the effects of measures by one group are bound to have an impact on the results that may be expected from the others, for the purposes of analysis it is convenient to separate the two.

### 1. Action by the public sector

Action taken by the public authorities for the improvement of the coffee industry may occur at two levels - the direct and the indirect. At the direct level, it is the responsibility of Governments to ensure the strengthening of agricultural research and extension services in general and those connected with coffee in particular, so as to provide technical solutions to the problems peculiar to each area and facilitate their dissemination among producers. The use of fertilizers and higher-yield varieties, the larger scale and improved application of certain operations essential to the success of the crops, etc., are all measures which must be disseminated among the greatest possible number of growers. Producers must also be given a clearer notion of the advantages of diversification with a clear explanation of its possible economic effects in each area. For this work of dissemination to bear fruit, agricultural instruction services should at the same time be intensified and improved at all levels. Similarly, credit facilities should be improved, particularly for medium-term and long-term credit, so as to assist growers in carrying out modernization projects.

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All the foregoing proposals are predicated on the existence of simple but efficient administrative machinery operating on a co-ordinated basis with sufficient technically trained staff. It will doubtless prove necessary to reorganize the structure of many existing services based on out-dated patterns and accustomed to operating independently of each other. Both in the coffee areas of Latin America and elsewhere, these services are not only insufficiently developed but also frequently duplicate each other's work, lack co-ordination and sometimes even act counter to the objectives of a concrete or rational policy. It may be seen that coffee research frequently has no connexion with other agricultural research, that there is no specific relationship between the different aims of research, extension work and education, that credit services usually have no link with extension services, and that few of the existing services seek to achieve the same aims either nationally or regionally.

The public sector has by its very nature an immediate responsibility for the improvement of the infrastructure. The construction of new roads giving production easy access to markets and ports, together with the maintenance and improvement of existing roads; the modernization and equipping of railways, harbours and means of communication in general; the construction of schools, hospitals and other facilities to improve the standard of living of the rural population, and the establishment of marketing facilities either directly or through the provision of funds for private projects, are all essential to the success of any coffee and agricultural development scheme for which the public authorities are mainly responsible. Apart from the direct benefits to agriculture in Latin America, a programme of public works on the above-mentioned lines would provide greater employment opportunities for manpower which at present suffers from underemployment or temporary unemployment as a result of technical advances and increases in productivity.

Indirect participation by the State is, however, even more important. This includes economic policy in general and agricultural and coffee policy in particular, since any decisions made, may determine the future course of agricultural and coffee development in Latin America.

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Clearly, no improvement programme for the coffee industry can be undertaken in vacuo, i.e. independently of other agricultural sectors or other economic activities. The process of agricultural diversification should cover broad objectives of national and even international significance. The most effective use of available resources of land, labour and capital can only be achieved through the careful elaboration of programmes adapted to the circumstances of each country, but also taking account of opportunities for regional integration and co-ordination. It has already been shown that the large-scale introduction of new techniques is predicated upon the adoption of decisions regarding the policy to be followed in connexion with land and labour productivity. Clearly, such decisions, to produce their maximum benefit, should be adopted in the context of a national employment and production policy. In addition, the investment required, which would undoubtedly be considerable, would have to be consistent with the list of priorities laid down in the general economic development programme. Only in this way, would it be possible to avoid new disequilibria or bottlenecks in other sectors of the national economy.

Similarly, tax and exchange policy - so far as it has a direct effect on income levels of farmers and other economically-active persons - would have to follow the broad lines of the development programme and be in keeping with its aims. The important point is that objectives should be commensurate with the means employed, both within each sector and in the economy as a whole.

## 2. Action in the private sector

The success of any improvement programme for the coffee industry will, in the final analysis, depend on the extent to which and how efficiently producers apply the technical means advocated. Little will be achieved if new technical knowledge does not succeed in overcoming the hurdles of tradition and vested interests. If it is, however, admitted that the course of public action just outlined is capable of creating a suitable climate for incentives to play their part to the full, it can easily be predicted that the private sector will react

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favourably to the incentives provided, and will attempt to put into practice new work methods compatible with modern agriculture.

The gradual transformation of the coffee industry in the manner indicated above might well meet the reasonable requirements of profitability which it is usual to expect of activities of this kind, even though it may not achieve the levels of profitability resulting from the exploitation of virgin land which occurred, for instance, in the northern part of the State of Paraná.

If farmers finally understand that expansion has reached its natural limits, a useful step forward will have been made towards ensuring that increasing amounts of capital are devoted to improving existing plantations. It is worth repeating that to achieve this, guidance and supervision work, which is the responsibility of the public sector, must be put on a permanent footing.