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THE INDUSTRIAL DEVELOPMENT OF CENTRAL AMERICA

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EXPLANATORY NOTE

Resolution 250 (XI) of 14 May 1965, adopted by the Economic Commission for Latin America (ECLA) at its eleventh session, requested the Latin American Governments "to prepare national studies on the present status of their respective industrialization processes for presentation at the regional symposium". With a view to facilitating the task of the officials responsible for the national studies, the ECLA secretariat prepared a guide, which was also intended to ensure a certain amount of uniformity in the presentation of the studies with due regard for the specific conditions obtaining in each country.

Studies of the industrial development of fourteen countries were submitted to the Latin American Symposium on Industrial Development, held in Santiago, Chile, from 14 to 25 March 1966, under the joint sponsorship of ECLA and the Centre for Industrial Development, and the Symposium requested ECLA to ask the Latin American Governments "to revise, complete and bring up to date the papers presented to the Symposium".

The work of editing, revising and expanding the national monographs was completed by the end of 1966 and furthermore, two new studies were prepared. The ECLA secretariat attempted, as far as possible, to standardize the presentation of the reports, in order to permit comparison of the experience of the different countries with regard to specific problems, particularly in the field of industrial policy.

The national studies on industrial development, to be presented to the International Symposium relate, in alphabetical order, to the following countries: Argentina, Bolivia, Brazil, Central America, Chile, Colombia, Cuba, Ecuador, Guyana, Mexico, Panama, Paraguay, Peru, Trinidad and Tobago, Uruguay and Venezuela.

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1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes the need for transparency and accountability in financial reporting.

2. The second part of the document outlines the various methods and techniques used to collect and analyze data. It includes a detailed description of the experimental procedures and the statistical analysis performed.

3. The third part of the document presents the results of the study. It includes a series of tables and graphs that illustrate the findings of the research. The data shows a clear trend of increasing activity over time.

4. The fourth part of the document discusses the implications of the findings. It suggests that the results have significant implications for the field of study and may lead to further research in this area.

5. The fifth part of the document concludes the study. It summarizes the key findings and provides a final statement on the importance of the research.

Chapter I

HISTORICAL BACKGROUND

During the period 1950 to 1962, two factors were of fundamental importance in stimulating the development of industry in the Central American area - first, the increase in the capacity to import, as a result of the favourable conditions prevailing in the post-war period, and, secondly, the measures taken by the Governments to initiate a gradual process of economic integration.

Under such conditions, the industrial product was able to maintain a growth rate that was considerably higher than that of the economy as a whole, and to expand trade in manufactured products within the Central American Common Market. During the period concerned, the industrial sector averaged a rate of increase of 6 per cent annually while that of the gross domestic product was only 4.5 per cent.

The largest increases took place in the first five years, mainly because of external conditions that were favourable to trade in raw materials. Their effect was, however, counteracted by serious social and political events in some of the countries concerned, and, later, the growth of industry was affected by the 1958-60 world trade recession, when the rate of industrial expansion in Central America fell to its lowest point during the period under consideration.

The growth of industry from 1950 to 1962 lacked the necessary depth to evolve into a process with its own dynamic force capable of changing the structure of industrial production, and, ultimately, of the whole economy of Central America. Only in the last few years has the market become large enough for this transformation to begin.

Between 1950 and 1962, the bulk of Central American industry consisted of such traditional lines as food, beverages, tobacco, textiles, wood and furniture. Only with the improvement and expansion of the Common Market in the last few years ^{1/} are some changes becoming apparent in industrial

^{1/} The present geographical coverage of the Common Market was not completed until 1963, when Costa Rica became a full member.

production, which has veered from concentration on consumer goods to manufacturing certain types of intermediate goods as well. Products which require a more advanced technology or a higher degree of processing are now being manufactured, such as cement, tyres, metal structures, copper wire and cables, fertilizers, petroleum products and glass containers, as are certain raw materials for the chemical industry, while production of caustic soda, chlorinated insecticides and sheet glass is about to begin.

Nevertheless the industrial structure of the Central American area is still much the same as that of countries where manufacturing activities are in their infancy. The Common Market is still too small for the establishment of certain industries that cannot operate economically except on a large scale, since Central America as a whole (made up of Guatemala, El Salvador, Honduras, Nicaragua and Costa Rica) is perhaps comparable, as a market, with the medium-sized countries of Latin America.

What is important, however, is that the Common Market is giving rise to the development of a new attitude in the Central American entrepreneur, based on a regional concept of industry, and has made for better use of installed capacity in the manufacturing sector, which, in 1962, had an average of 30 per cent lying idle.

In any case, economic integration has created and is continuing to create on an ever-growing scale the conditions which are most likely to make for a more rapid process of import substitution and a programme of industrial exports that will lead to greater and more effective participation by Central America in the international market.

Chapter II

THE INDUSTRIAL SECTOR: STRUCTURE AND RELATIVE IMPORTANCE

1. Product

The gross manufacturing product in 1962 made up 14.1 per cent of the total gross domestic product which, for that year, was 3,100 million Central American pesos.^{1/}

In 1952, the traditional industries' contribution to total manufacturing production was 89.6 per cent but, by 1962, this had already fallen to 85.4 per cent and is estimated to have dropped to 82 per cent two years later.

In 1962 (the last year for which detailed figures are available), the traditional industries - food, beverages, tobacco, textiles, footwear, wearing apparel, wood, furniture, printing, leather and miscellaneous products - represented, as already stated, 85.4 per cent of the gross industrial product for the area, with a value of 371.5 million Central American pesos. The principal components of this group were the food industry, with 39.4 per cent, beverages, 16.6 per cent, footwear and wearing apparel, 15.3 per cent, and textiles, 8.0 per cent. It is evident that the group's production structure is based on activities that are not highly capital-intensive and whose production techniques are easily attained.

As regards the industries producing intermediate goods, their contribution to the gross industrial product was 7 per cent in 1952, increasing to 10.2 per cent in 1962 and it is estimated that in 1964 they rose to 13 per cent. Although these figures show a positive tendency, it is clear that participation of the intermediate industries is still small. The chemical industry is pre-eminent in this group, contributing 4.6 per cent of the industrial product in 1962. Already under production were paints, detergents, plastics, and in particular, the blend of insecticides and

^{1/} In 1964, the gross domestic product was estimated at 3,514 million and the contribution of the industrial sector at 14.9 per cent. (The Central American peso is equivalent to one United States dollar.)

fertilizers whose production began in the area during the year. Lastly, the metal-transforming, basic metals, metal products, electrical and non-electrical machinery, and transport material industries, have shown no significant change within the period studied, their contribution to the sector's gross industrial product remaining fractional (about 4 per cent).

2. Industrial employment

Industrial employment during the period 1952-62 showed an annual cumulative growth rate of 1.7 per cent, while total employment rose by 2 per cent annually.

The contribution of the industrial sector to the absorption of the labour force in Central America has been of little importance, representing little more than 10 per cent of total employment. Thus when the labour force underwent an average annual increase of some 76,000 and the economy as a whole offered employment to some 61,000, the average annual increase in industrial employment was only 5,500, the manufacturing sector contributing 7.3 per cent to the absorption of the increment in the labour force and 9.0 per cent to the growth of the total number of employed.

In 1962, the sector employed 361,000, 58.5 per cent corresponding to the artisan stratum, a proportion that is eloquent of the effort that must be made in the future to increase the absorption of the labour force in the manufacturing sector.

Traditional industry absorbed 86.0 per cent of employment in the industrial sector, concentrated in the branches of food, textiles, footwear and clothing, which together gave employment to almost 70 per cent of those occupied in manufacturing. Industry producing intermediate goods absorbed 9.3 per cent of employment generated by the industrial sector, above all in the paper and paper products industries, chemical industry and the production of non-metallic minerals. The remainder corresponds to the metal-transforming industry where employment is concentrated in the repair of passenger cars.

/In 1962

In 1962 the number of manufacturing establishments ^{2/} amounted to 5,593, employing 149,946 persons. Traditional industry accounted for 75 per cent of these manufacturing establishments, the remainder being divided proportionately between the intermediate industry goods and the metal-transforming industry.

The data available for 1962 show that, in Central America, small-scale industry ^{3/} - establishments employing 5 to 14 persons - represented 60 per cent of existing units; medium-scale industry - 15 to 49 persons - 28.9 per cent, and the rest, corresponding to establishments with 50 or more persons, 11.1 per cent.

Among the traditional industries, only the textile industry (in which 65 per cent of the establishments are medium-sized or large) and the wood industry (with 61 per cent in this range) deviate from the general characteristic of plants producing traditional goods, in that the majority can be classified as small-scale industry. Of the establishments manufacturing beverages, 65 per cent can be classified as medium-scale or large.

In the production of intermediate goods, medium-scale industry predominates. For example, the rubber industry is based on 28 establishments representing 58.3 per cent of total manufacturing. Of the 223 establishments making up the chemical industry, 32.7 per cent employ between 20 and 49 persons and 25.6 per cent between 50 and 99. The same tendency appears in the petroleum products industry.

Since the metal-transforming industry is at present in an embryonic stage of development, its activity is mainly directed towards the repair and maintenance of existing equipment. For the most part, establishments engaged in this activity can be classified as small-scale industry, but production within the area includes wire, non-flat rolled products, profiles, rods, various metal products, etc., which could be classified as belonging to medium-scale industry and make up 44.4 per cent of the whole.

^{2/} The manufacturing category is considered to be the sum of all industrial establishments employing 5 or more persons.

^{3/} This classification by number of persons employed has been adopted for the sake of simplicity.

3. Industrial investment

It is estimated that in 1962 the capital value of Central American industry rose to some 961 million Central American pesos. Of this, 90 per cent belonged to manufacturing, which absorbed 775 million, while artisan activity accounted for only 86 million.

Naturally, the main concentration of capital corresponds to the traditional industries, with 80 per cent of the total capital in manufacturing. Following them in importance are intermediate industries, accounting for 15 per cent, and the metal-transforming industry with 5 per cent.

Because of the need to accumulate stocks, and the high liquidity, working capital has come to be 40 per cent of total capital in the sector. This is due, above all, to the high proportion of industries using imported raw materials and the difficulty of obtaining credit.

Foodstuffs, beverages and textile industries take up 55 per cent of the total capital in the sector, a natural result of the structure of production in Central America. The chemical industry accounts for 6 per cent of total capital, and is the most important among those producing intermediate goods, while the metal products industry, with 2.1 per cent, is of major importance in the metal-transforming industry.

4. Foreign trade

It is estimated that industrial imports rose between 1952 and 1964 at a cumulative rate of 5.1 per cent annually for the area as a whole, constituting about 85 per cent of total imports from outside the area. Imports of capital goods rose at a relatively slow rate, and, at the same time, goods were still being imported that could be produced in Central America by traditional industry.^{4/}

Imports have undergone structural modifications in the period 1952-62. In the first year of this period, traditional goods made up 32.5 per cent of industrial imports, whereas in 1962 their share had fallen to 26.6 per cent,

^{4/} It is estimated that in 1964 industrial imports rose to 612 million Central American pesos, 148 million corresponding to the products of traditional industry.

as a result of the increased capacity of Central America to fulfil this type of demand. On the other hand, imports of intermediate goods rose, between the same years, from 27 to 35 per cent. As to the goods produced by the metal-transforming industry, their relative importance has remained at about 40 per cent.

As regards industrial exports from the Central American area during the period 1952-64, they showed an average annual rate of increase of 18.7 per cent, which amounted to 82 million pesos in 1964. The principal products corresponded to the food industry, mainly sugar and meat, followed by wood, fish processed shellfish, and vegetable extracts for the perfume industry.

The cumulative annual growth rate of intra-regional trade in industrial products was 25 per cent in 1952-64, rising from 6 million pesos to 66 million as part of the accelerated growth rate of trade among the Common Market countries.^{5/}

^{5/} Total trade between the Central American countries, which had amounted to 8 million Central American pesos in 1952, reached 106.5 million in 1964.

Chapter III

THE MAIN CHARACTERISTICS AND PROBLEMS OF MANUFACTURING INDUSTRY

In the preceding chapter some information was given about the industrial sector in Central America. In the following pages, the factors which have influenced industrialization in the area are considered.

1. Characteristics

In the past, the planning of industrial development at the national level was generally restricted to the size of the enterprises, since these were established with a view to the limited local market. This was one of the determining factors in the concentration on light industry, and also partly accounts for the lesser development of more complex industries. Under such conditions, industrialization policy often resulted in excessive protection for certain branches of industry, thus allowing inefficient enterprises to become settled, that in a wider and more competitive market would be marginal.

To this must be added limitations of industrial financing, which is still largely based on the reinvestment of profits. Credit for industrial operations is still short, while the formation of corporations and the use of the stock market are only incipient.

Short-comings in the economic infrastructure have also largely conditioned the development of manufacturing activity. The inadequate supply and prices of electric power and fuels have, in many cases, made it impossible to carry out industrial projects whose viability is dependent on assured supplies of these basic inputs at suitable costs. The poor means of transportation and communication have, in the same way, restricted access to natural resources, which are not being used industrially, or have hindered the transfer of industrial products to markets far from the centres of production.

It is clear that the process of industrialization is making it necessary to adopt measures to enable large sections of the Central American population to join in the trade economy by means of a better distribution of income and the consequent improvement of living conditions, which are today at subsistence level. This would pave the way for the break-up of the continued predominance of precapitalistic and autarkical forms of production.

Supplies of some basic raw materials needed for the development of heavy industry have been, until now, rather limited. The known iron beds are relatively poor, no coking coal for metallurgy has been found, and up till now no economically exploitable deposits of petroleum and natural gas have been located, or, if finds of such a kind have been made, they have not been publicized. Potentially exploitable sulphur deposits exist, but their economic feasibility is unknown. Workable deposits of phosphate rock have not been recorded.

Systematic prospecting of the natural resources of the region would reveal other resources of industrial value. However, from the information now available, Central America does appear to have abundant resources for developing a relatively wide range of new lines in manufacturing. Notable among these resources are oil-seeds, rubber, textile fibres such as cotton, manila hemp, kenaf, etc., and fisheries products.

There is also a possibility of beginning production of some raw materials that are important to the development of the chemical industry (calcium carbide, polyvinyl chloride, ammonia, acids) and metallurgy.

Lastly, another aspect which has hindered the development of industrial activity is the human element. The shortage of skilled manpower and the absence of training programmes has resulted in low productivity, and has also been a serious obstacle to the establishment of certain industries which require more skilled manpower. A solution to the problem is urgently needed, and the first steps have already been taken in this respect, top priority being given to the training of instructors and foremen for the textile industry, and to the teaching of technical skills in all fields. The lack of entrepreneurial cadres has also been felt, although in recent

/years more

years more attention has been paid to organizing and training executive and administrative personnel. A Central American Institute for Business Administration (INCAE) is already in operation, and will undoubtedly help in the formation of senior executives and leaders for the promotion and guidance of industrial enterprises.

Although the situation has begun to change in the last few years with the establishment of the Common Market, the present stage of development can only be considered as a transitional phase leading up to the growing specialization and complementarity of the Central American economies within a more competitive market.

The expansion of the market, and the resulting internal competition, has made it possible for industries that were formerly established on a national level to begin to modernize themselves and to use their installed capacity more economically. These factors have also encouraged the setting up of certain types of industry whose technical and economic unity require a market of larger than national size.

Nevertheless, the Common Market also has its limiting elements. These are not innate but rather stem from the lack of complementary norms.

Account must be taken of the fact that the system of relative prices will not, of itself, be sufficient to bring about the establishment of plants of efficient size or the expansion of existing plants and the modernization of obsolete equipment. Much less will it be able to contribute to the establishment of industries which demand higher levels of investment and the application of more complex technologies, which are often relatively less profitable.

In addition, the lack of a regional policy for credit and promotion has not yet made it possible to encourage and guide private investment towards those fields which would gradually lead to a structural change in manufacturing production.

Slowness in the application of certain agreements, and failure to use them, on the part of private enterprises, have restricted the action of certain regional institutions closely connected with industrial development, such as the Central American Research Institute for Industry (ICAITI) and the Central American Bank for Economic Integration (BCIE).

/Nevertheless, ICAITI

Nevertheless, ICAITI has begun, and in some cases completed, studies in various branches of industry which will throw light on new investment opportunities. ICAITI is also making feasibility studies for specific projects to be undertaken by private enterprises or the State. Its radius of action should be increased through co-ordinated regional action, both as regards the investigation of resources, and the preparation of specific industrial projects of regional scope. In such projects, the main criteria applied should be those of location and balanced development in the light of the possibility of exploiting resources from the most economical sources, creating industrial development areas, and exporting outside the area, etc.

Similarly, stress should be laid on co-ordinating the functions of BCIE with national economic development institutions and private financial concerns, so that the main aim pursued would be the viability and success of fairly large-scale projects through agreements which include the entrepreneurs concerned and ensure the availability of capital from sources in the area itself.

It is important that adequate measures be taken to prevent the conclusion of monopoly agreements for dividing up the market - such as some that have already been made. Agreements of this kind reduce the benefits of the competitive system which must, by definition, be the operative system in the Common Market.

Another limiting element is the failure to apply the Central American Agreement on Fiscal Incentives to Industrial Development (whereby manufacturing companies should receive uniform fiscal benefits), with the result that national development legislation is still being applied in all its heterogeneity.

By giving incentives indiscriminately, such laws not only conduce to artificial differences in production costs, but encourage investment in branches of industry that have already reached saturation point, and make for the granting of benefits to foreign competitors operating on an international scale, thereby drawing off resources that would otherwise be available for new and more advantageous activities. Hence, measures have recently been taken to make the Agreement on Fiscal Incentives operative in the near future, and thereby help to rationalize the process of industrialization in the area.

/The lack

The lack of a regional industrial development policy up to now brings with it the danger that the opportunities for complementarity and specialization among the countries will not be turned to account, particularly in the case of the dynamic industries, which sometimes need a minimum scale of production to operate economically. Fortunately the economic integration organizations have now agreed to initiate the regional co-ordination of four large industrial groups - the paper pulp, chemical, basic metals, and assembly industries. This will avoid the duplication of investment, and enable solutions to be worked out for the region's industrial integration requirements.

Finally, the countries show a tendency to continue the process of import substitution on a national rather than a regional basis. This carries with it the danger of cramping intra-regional trade in industrial products and invalidating the aims of the Common Market.

2. Main problems

The development of the Central American countries has always been heavily conditioned by the structure of their export trade. Traditionally, this has largely been based on a few agricultural products, and still is to some extent, i.e., coffee, bananas, and more recently, cotton, for which international market demand and prices are very unstable. It is only a few years ago that Central America began to diversify its exports to some extent, by incorporating some industrial products such as sugar, processed meat and shellfish. However, the impact of this has not been strong enough to bring about a significant change in the composition of exports.

This suggests that Central America, while still continuing its present process of import substitution, must launch a programme to encourage production for export, principally of industrial goods. In this way the vulnerability of the external sector would be reduced and the region would obtain the foreign exchange it needs so badly to import the products that are essential for its development.

Several of the problems to be resolved have already been outlined and possible solutions are being explored at the regional level. They include the need for co-ordination and concerted action in present national policies relating to traditional export articles, such as coffee and cotton, and also in regard to sugar and meat.

With other kinds of goods - industrial products with an export potential - competition on the international market involves agreements on industrial specialization and complementarity that will allow for operation on an economic scale and with high productivity. Industries which could be the object of such agreements have been mentioned already, for example, pulp and paper, iron and steel and textiles.

Similarly, it is necessary to make a systematic exploration of external markets and their potential for absorbing Central American production. More experience is also needed in the marketing of exportable products. In certain circumstances it is estimated that Central America could compete on external markets in some processed foods, textiles, pulp and paper, certain chemical products, medicines and pharmaceutical products, fine crafts products, certain basic agricultural inputs, and other products made from raw materials whose production in the area happens to be relatively more economical.

The creation of the Common Market has added a new perspective to the solution of some of the problems presented in these paragraphs. At the same time, economic integration has created a series of situations that have been or must be faced from a regional standpoint. Among these are the adoption of a common policy of fiscal and other incentives to industrial development, in order to avoid artificial disparities in costs and to encourage competition with a view to greater efficiency in industrial operations; the application of a co-ordinated policy regarding the terms offered to foreign investment and the ways in which it can be channeled towards enterprises of greater priority and desirability; the need for industrial programming to set up large industries, preferably of the dynamic type, with an eye to rational location and balanced development; and industrial specialization and complementarity through the use of special incentives and the co-ordination of entrepreneurs at the regional level. The promotion and diversification of industrial exports is another question of equal importance.

/To achieve

To achieve these aims, studies will have to be made in specific branches of industry, projects worked out and machinery set up for their effective promotion from the standpoint of both business organization and financing, so as to strengthen both national and regional credit activities.

Some of these problems are already being considered and the organizations responsible for economic integration are attempting to solve the most urgent of them. However, it cannot be denied that the task is difficult, and that a great effort will be needed to achieve better regulated and more efficient development in the industrial sector over the short and medium-term. The solutions put forward at the regional level included the following policy measures:

(a) Foreign investment policy

The First Meeting of Ministers of Economic Affairs and Housing for Central America, which took place in Antigua, Guatemala, in April 1965, recognized that it was necessary to adopt a common policy in the matter of foreign investment, in view of the area's need to supplement its local resources with external funds, either from credit or from direct investment.

It was also recognized that the lack of a Central American policy on foreign investment might lead to competition in incentives between the countries, which would militate against the aims of the Common Market and possible transfer the benefits of economic integration to investing countries outside the area.

Later, in June 1965, the Ministers approved the following general lines for a regional policy to stimulate foreign investment: foreign investment must be channelled towards new fields; companies with mixed capital should be set up foreign capital should also bring in technology, administration, and adequate market experience; it must share the management of the enterprises with the Central American and undertake to give progressive training to Central American manpower; foreign investors must give local investors the opportunity to acquire capital stock; and foreign capital should help to sell Central American products on the external market. Specific measures are to be adopted to perfect the mechanisms, procedures and standards that facilitate national and foreign investment on fair and advantageous terms.

/(b) Export

(b) Export development policy

The studies that will provide the bases for a regional foreign trade policy are being prepared with the aid of the organizations for regional economic integration - such as the Permanent Secretariat of the General Treaty for Central American Economic Integration (SIECA), the Central American Research Institute for Industry (ICAITI) and the Central American Bank for Economic Integration, and the help of other international institutions. The studies range from the finding of new export products to the markets to which they should be sent, with a view to framing a policy for the region. They also deal with the co-ordination of national policies for marketing traditional export articles.

At the Joint Meeting of Ministers of Economic Affairs and Housing, mechanisms were set up for the formulation of a common foreign trade policy. In accordance with the resolution passed, each government must create or strengthen its administrative units specializing in foreign trade. Each country must also establish a National Foreign Trade Commission and, for the Common Market area, a Co-ordinating Committee consisting of senior members of the National Commission. The Central American Bank for Economic Integration will be given the job of promoting new exports at the regional level, while the national organizations concerned will do the same in their respective countries. SIECA will carry out market studies and ICAITI will conduct technological research on possible export products.

(c) Policy of balanced development

The main treaties and agreements on economic integration established the principle of balanced development whereby the existing differences between nuclei or zones that are traditionally more advanced and those of relatively less growth, will be reduced. In this case there is no question of creating an identical production structure in each country. What is aimed at is that, within the joint activity to be expected with economic integration, the less developed countries should be given greater opportunities to go ahead with the necessary basic infrastructure, and to locate in their respective areas new productive activities with an adequate economic impact in order to narrow the gap separating them from the other Common Market members.

/The Central

The Central American Bank, ICAITI, and the Régime for Integration Industries are three valuable instruments already making for balanced development in the area: the first, by its policy of encouraging investment and loans; the second, through the investigation of resources and their potential use for industry; the third, by its acceptance of projects for the dynamic industries which can, on a sound basis, be set up in the relatively less developed countries.

At its last meeting, in February 1966, the Economic Council recognized that it had not been possible to take full advantage of the opportunities offered by economic integration, but that all the countries had nevertheless benefited from the Common Market. In addition, a more positive kind of regional action was agreed upon that would permit the establishment of new productive activities in Honduras, together with a modification of the Fiscal Incentives Agreement to make investment in Honduras more attractive.

Chapter IV

INDUSTRIAL DEVELOPMENT PLANS

1. General industrial development strategy

There exist in Central America today two approaches to industrial development, one traditional and the other oriented towards economic integration. This phenomenon is not exclusive to the manufacturing sector, since the economy as a whole shows similar traits. The traditional approach stems from the different lines of economic growth that were followed by the five countries before the beginning of the movement towards a common market.

In order to have the necessary background information for planning concerted government action in all sectors of the regional economy, the Joint Central American Programming Mission was created. This organization was put in charge of the requisite work and studies, and also of the co-ordination and appraisal of the national planning organizations existing in the five countries. For the manufacturing sector, the Joint Mission worked out the bases for a Central American Programme of Industrial Development.

As a result of the work carried out by the National Planning Offices and the Joint Mission, the industrial programmes for each country have been completed and bases for regional co-ordination have been agreed upon.

The adoption of a regional industrialization programme depends upon adjustments in the machinery of co-ordination, and, possibly, on the creation of new mechanisms. This means that existing policy instruments must be utilized to the utmost and, if necessary transformed to increase their efficiency. In any case, their application must be more closely linked with the regional organizations for co-ordination.

/In the

In the agreements that have been concluded among the countries of the area, Central America already has a basis for pushing ahead with integrated industrial development. However, this is not enough in itself to guarantee that industrialization will take place at a sufficiently rapid pace. What is needed, then, is fuller use of these agreements on the part of the Governments - mainly the Régime for Integration Industries and the special system for the promotion of productive activities - as part of a common policy whereby the combined use of both instruments can be linked up with the modifications they require to give them a stronger regional impact. There is also an urgent need to put the Central American Agreement on Fiscal Incentives to Industrial Development into operation.

One of the problems that should be given more attention is the regional co-ordination of national programmes for industry. A comparison of national plans had made it clear that some basic activities have been duplicated. Consequently, agreements will have to be concluded to obtain some degree of complementarity and specialization in industrial development. Cases in point are projects for the pulp and paper, chemical, metal-transforming (including assembly work), and textile industries. Approval has already been given to co-ordinating mechanisms designed to avoid the dangers of duplicating investment, providing supplies in excess of demand or of the postponing projects because of misgivings with respect to the possibility that one of the countries might take unilateral action in future.

Moreover, goals of the national programmes for exporting outside the area are very modest in comparison with the goals of the regional programme. If this trend is kept up, the countries will only succeed in meeting 50 per cent of the estimate in the regional programme, particularly for meat and wood products. It has to be borne in mind that the implementation of an industrial programme requires large amounts of foreign exchange, especially for importing machinery and equipment to modernize industries and set up new plants.

/At this

At this stage certain policy measures are needed to regulate the industrial development planned by the five countries and to make for the execution of the basic projects. The measures in question include:

- (a) The conclusion of agreements regarding a regional basis for locating industrial activities whose development is only possible on a scale allowed by the size of the Common Market. As previously mentioned, a preliminary list of industries has been agreed upon corresponding to four groups of basic industrial activities whose production should be planned on a regional scale;
- (b) The improvement of the machinery of co-ordination for conducting inter-country negotiations within the framework of the existing instruments of integration;
- (c) The establishment of better co-ordination between the organizations for national development and the Central American Bank for Economic Integration, with the object of channelling financial resource towards the basic industries;
- (d) To increase the support already being given to basic projects by means of technical assistance and also by direct investment of public funds in the share capital of industries to be developed;
- (e) To continue and complete studies of the export potential of certain industrial products, and to draw up projects those that have good prospects to offer; and
- (f) To promote the training of skilled manpower and of technical and administrative personnel to ensure that the newly installed industries will operate properly.

While the mechanics for co-ordinating the national industrial programmes are being perfected, the countries could continue with the preparation of feasibility studies for those lines of production they wish to promote. At the same time, the organizations for economic integration, such as ICAITI and the Central American Bank, could complete and broaden studies on specific branches of industry in order to discover the main problems affecting the development of established industries in the area and to explore new possibilities of development.

2. Industrial programming: targets and objectives

The main aims of the industrial programme for Central America can be summed up as follows:

- (a) To meet domestic demand for manufactured goods, with due regard for growth;
- (b) To create and free foreign exchange by speeding up the regional import substitution programme;
- (c) To open up possibilities of selling manufactured goods on foreign markets;
- (d) To use, whenever possible, domestic raw materials and process them within the area; and
- (e) To create new sources of employment, increase productivity and raise real wages.

The industrial programme is intended to modify the pattern of development it has maintained up to now. Special emphasis is therefore placed on import substitution in intermediate products and capital goods, as far as technical and market possibilities permit. For traditional industry, on the other hand, the accent is laid on the proper use of installed capacity and the expansion and modernization of production.

In accordance with the over-all targets, an annual growth rate of 6.4 per cent is planned for the total gross product in Central America. The rate of growth of the gross industrial product is 10.2 per cent annually, which would raise the contribution of the manufacturing sector to the economy as a whole, from 14.9 per cent in 1964 to 18.6 per cent in 1974.

Essentially the programme favours industrialization through the accelerated growth of production for the home market by the basic industries. In countries at an early stage of development, where a large section of the population has no access to the market economy, the expansion of the traditional industries, once the initial impulse of import substitution of external sources has been exhausted, is partly conditioned by the advances made in raising the income levels of the majority of the population.

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With this factor taken into account, the expansion of the traditional industries is projected at the rate of 8.2 per cent which, though less than the development planned for the rest of the industrial sector, is greater than the growth of total consumption. This would make it possible both to meet rising internal demand for these products and to create an exportable surplus. Within the traditional manufacturing activities, the food industry will continue to be the most important over the next decade, while the canning and processing of fish and shellfish, fruit and vegetable canning, and milling will step up their rate of growth. Because of its connexion with the other traditional industries, it is hoped that the textile industry will be more dynamic in its development, as also the wood industry. The growth of the rest will be more moderate.

For the intermediate industries, a cumulative annual growth rate of 17 per cent has been projected for the decade 1965-74. First and foremost is the chemical industry, which it is hoped will represent some 60 per cent of total production in this group. Within this industry, emphasis has been put on the development of fertilizers, ammonia, sodium chloride, and oils and fats. The rest of the chemical industry, currently representing half the industry's output and devoted to soaps, pharmaceutical products, matches, essential oils, etc., will grow more slowly.

Again within the intermediate industries there will also be a rapid increase in the petroleum, rubber and construction materials industries, for which considerable import substitution has been programmed. Lastly, although import substitution will not be possible for every kind of paper, the pulp and paper industry will expand substantially.

The possibilities open to the metal-transforming industry should enable it to grow at the rate of 17.5 per cent ¹/over the next decade. Development in this group of industries depends on the expansion of such activities as steelmaking, metallurgy, tool-making, and the assembly

¹/ This is the highest rate for the three groups into which industry has been divided - traditional, intermediate and metal-transforming - owing to the low point of departure, i.e. 4 per cent (22.8 million Central American pesos of the gross product in 1964).

of some durable consumer goods. There seems to be little opportunity for much import substitution in machinery and equipment, mainly because the minimum economic scale of production for these items is generally larger than is feasible in the regional market at present, and also, because, in some cases, they require advanced technologies.

It should be noted that the high rates of expansion assumed for both the intermediate and the metal-transforming industries over the next few years are due to the present low levels of production.

It can be seen from the foregoing that it is hoped to change the structure of the sector little by little over the next ten years. Thus the intermediate industries will increase their contribution to the gross industrial product from 13 per cent in 1964 to 18.9 per cent in 1969 and 22.9 per cent in 1974, while that of the metal-transforming industry will rise from 4.6 to 7.8 and 8.7 per cent, respectively. On the other hand, the relative importance of the traditional industries in the manufacturing sector will diminish from 82 per cent in 1964 to 73 per cent in 1969, and it is hoped that, by 1974, it will be as low as 68 per cent.

The growth of domestic demand for industrial products has been projected at a rate of 7.5 per cent annually during the decade, while domestic consumption in the economy as a whole will increase 5.5 per cent during the first five years, and 5.8 per cent during the next five. Demand for industrial goods will take on a greater importance relative to total domestic demand, rising from 47.2 per cent in 1964 to 52.0 and 56.3 per cent in 1969 and 1974, respectively.

With regard to export goals, the industrial programme for the period 1965-74 plans to widen or diversify the sale and production of some traditional items, mainly meat, fish and shellfish, sugar and wood. It has been assumed, conservatively, that it would take more time to organize the production and marketing of other kinds of goods to comply with a dynamic export programme. However, this does not necessarily imply that the bases for the future export of new products should not be set forthwith, by modernizing equipment and providing an efficient labour force.

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On the grounds of such consumptions it is estimated that industrial exports could climb from their 1964 level of 82 million Central American pesos to 254 million in 1969, and to 440 million in 1974. The attainment of these targets will mean that industrial exports reach 30 per cent of the total exports by 1969, and 37 per cent by 1974, starting from a base of 13 per cent in 1964.

It is hoped to make a gross saving of about 300 million Central American pesos in 1969 and some 650 million in 1974, by import substitution. Intermediate industry will be the largest contributor with 50 and 52 per cent of the total value of gross foreign exchange savings in 1969 and 1974, respectively.

Measured in other terms, import substitution would signify, for the traditional industries, a relative rise in the proportion of supplies for the domestic market from 86.3 per cent of the total in 1964 to 96.8 per cent in 1974; these changes will be mainly produced by import substitution in food, textiles and leather. In intermediate industry, supplies will rise from 40.3 per cent of the total in 1964 to 75.7 per cent in 1974, as a result of substitution in fuels, rubber products, paper pulp, and chemical products. Finally, supplies from the metal-transforming industry for the domestic market will increase share of total supplies from 13.8 per cent in 1964 to 31 per cent in 1974. Here, import substitution is mainly in steelmaking and simple metal products.

The execution of this programme involves a net investment of about 400 million Central American pesos over the first five years and about 600 million over the second five. Total gross investment in the industrial sector will amount to more than 670 million in the first period and to some 1,065 million in the second. The bulk of the investment is in the traditional industries, due to the greater relative importance of this group in the industrial product.

The number of persons that would be employed under the industrial development programme will be around 487,110 in 1969 as against 361,000 in 1962. This represents an annual cumulative growth rate of 4.4 per cent, compared with 3.2 per cent for the demographic rate of increase. The manufacturing sector will thus absorb part of the increase in the labour force.

Chapter V

INSTRUMENTS OF REGIONAL DEVELOPMENT

The promotion of regional development is based on various treaties and agreements on economic integration of which the following are relevant to industrial development:

- (a) The General Treaty on Central American Economic Integration;
- (b) The Central American Agreement on the Equalization of Import Duties and Charges, and its Protocols;
- (c) The Agreement on the Régime for Central American Integration Industries;
- (d) The special system for the promotion of productive activities (included in the Protocol to the Agreement on the Régime for Integration Industries);
- (e) The Agreement establishing the Central American Bank for Economic Integration;
- (f) The Central American Agreement on Fiscal Incentives to Industrial Development.

The main Central American agencies and institutions which, within their own specialized fields, hold responsibility in the industrial sector, are as follows:

- (a) The Central American Economic Council;
- (b) The Executive Council of the General Treaty;
- (c) The Permanent Secretariat of the General Treaty on Central American Economic Integration (SIECA);
- (d) The Central American Bank for Economic Integration (BCIE); and
- (e) The Central American Research Institute for Industry (ICAII).

The establishment of the Common Market has made and will continue to make for the following: better use of installed capacity in existing industrial plants; expansion and modernization of such plants for the needs of a wider market, in terms of both increased domestic demand and greater competition within the region; and the establishment of new industries which could not have been operated economically on the basis of demand in the separate national markets.

/Some of

Some of the functions of the regional organs and institutions relating to industrial development are the application of the economic integration agreements; policy-making; programming; promotion by means of fiscal incentives; the use of credit and tariff protection; and technological research in industry.

The main instruments of industrial promotion are described below together with the way in which they are applied by the various organs and institutions of industrial development.

1. The General Treaty on Central American
Economic Integration

By this treaty, which came into effect on 4 June 1961, the Contracting States agreed to establish among themselves a common market. To this end, they pledged themselves to have a free-trade zone in full operation over a period of five years and, in the same period, to adopt a uniform Central American tariff vis-à-vis the rest of the world.

Free trade for products originating in the Contracting States relates to items (either raw materials or manufactured products) already being produced in these countries as well as those that might be produced in the future, with a few exceptions subject to special interim régimes. In other words, free trade is assured for both present and future production.

When the General Treaty first came into operation, the Central American free-trade area included a total of 1,028 sub-items of the Central American Standards Customs Nomenclature (NAUCA); or 80.6 per cent of the total of 1,276. The remaining 248 items consist of goods included in special interim régimes and subject to individual arrangements between pairs of countries, such as preferences, export and import quotas and controls, special agreements, etc.

The restrictions on over-all free trade contained in the previous special régimes have been eliminated during the four years of operation of the General Treaty. At the end of the fifth year of operation and the beginning of the sixth, there will be complete free trade among the five countries for 1,168 items, or 91.5 per cent of the NAUCA total. The remaining 108 items, for a number of which there will be free trade

/between some

between some but not all countries, are made up as follows: (a) 73 sub-items for which free trade is dependent on the conclusion of special agreements or previous tariff equalization for such items or for the raw materials used in their manufacture (mainly wheat flour, petroleum and petroleum products); and (b) 35 sub-items subject for an indefinite period to import-export controls and quotas and payment of duties (mainly sugar, coffee, distilled alcoholic beverages, raw cotton and ethyl alcohol).

2. The Central American Agreement on the Equalization of Import Duties and Charges

This agreement, which, together with its protocols, constitutes the tariff policy instrument, came into force in September 1960, thereby enabling a start to be made on the preparation of a uniform import tariff for Central America. The task involved the unification of five tariff systems that differed in many respects, i.e., in their general characteristics in the levels of duty, and in their nature as regards their importance as a source of fiscal revenue, their effect on the balance of payments, their ability to protect industry and, finally, their effect on prices and the consumer.

In unifying these factors it was necessary to adopt tariff protection to the incipient state of Central American industry. Regional policy was therefore directed towards - apart from other factors of common interest - the protection of those products already manufactured in the region, generally by traditional industries. Further, with a view to promoting industrial development, low duties were imposed on the imports of capital goods, and moderate duties fixed for the raw materials and intermediate goods needed by industry.

The following criteria were generally followed in the customs negotiations: up to 15 per cent of the total ad valorem equivalent for capital goods; up to 25 per cent for raw materials and intermediate goods not produced in Central America, and over 25 per cent for the remainder, varying according to circumstances and the importance of the product.

These criteria were applied in a general way and took other factors into account mainly those relating to the importance of fiscal revenue and the protection of the balance of payments. In other words, some degree of
/customs protection

customs protection was established in the light of specific situation presented by the Governments during the multilateral negotiations over tariff equalization. Consequently, in the first stage of making a common market, it was not possible, in preparing the tariff, to follow the stated intention of making fundamental changes in the structure of industry. Instead, allowance was made for actual situations, such as the need to defend certain industries against foreign competition, or to keep the prices of goods imported from outside the area within the reach of the consumer.

As regards the other element of the Common Market - the uniform tariff - standard duties have now been established for 1,497 of the 1,535 headings making up the total, i.e. tariff equalization covers 97.5 per cent of the items listed. The remaining 2.5 per cent consists of 38 items for which equalization is pending (wheat and wheat flour, petroleum and petroleum products, passenger cars, some kinds of electrical apparatus, etc.).

The duties agreed upon have been put into effect in the ways: firstly, by immediate equalization, in which the duties apply from the moment the agreement or protocol containing them comes into force, and secondly, by progressive equalization, a régime established for those cases in which countries have been unable for some reason, to adopt the uniform duties forthwith, and have agreed instead to reach them in a maximum period of five years. Of the total number of sub-items for which uniform tariffs have been adopted, 1,241, equivalent to 82.9 per cent, were adopted immediately, and 256, or 17.1 per cent, were equalized progressively.

Any one of the Central American Governments may propose the modification of tariff levels that have been already equalized. The relevant negotiations take place in the Executive Council. Once the modifications have been approved, they are placed before the Central American Economic Council with the recommendation that a protocol be drafted to the Agreement on the Equalization of Import Duties and Charges. Once the protocol is signed, it is transmitted for ratification to the legislature of each country, and takes effect when three countries have

/deposited the

deposited the instruments of ratification with the Organization of Central American States. The protocol then takes effect for the three depositing countries. For each of the others it begins on the date when they deposit their instrument of ratification.

In the last protocol on tariff equalization that altered certain uniform duties, a clause was included by which the Governments are authorized to apply unilaterally, by national law, the new taxes agreed upon. This measure makes for greater flexibility in tariff changes, since the country or countries affected can modify import duties without waiting for the others to comply with the requirements of ratification and deposition.

Aware of the need for flexibility in a uniform import tariff, the Governments are discussing, in the Executive Council, a draft protocol authorizing the Council to vary the uniform tariff within minimum and maximum limits, which would be set by the protocol. This measure will give the uniform tariff the flexibility it needs to meet the exigencies of Central America's industrial growth.

3. The Régime for Central American Integration Industries

In Chapter VI, "Industrial Integration" of the General Treaty, all the provisions of the Agreement on the Régime for Integration Industries are set forth. This is the first direct multilateral agreement on industrial development and is a valuable tool for programming industry at the regional level.

The salient features of the agreement relating to the regulation, promotion and establishment of industries and industrial incentives are the following:

- (a) The commitment of the Contracting States to encourage and aid the establishment of new industries and the specialization and broadening of existing industries, within the framework of economic integration;
- (b) The commitment to develop these industries in accordance with a programme, on a basis of reciprocity and equity, so that each and every country in the zone shall obtain progressive economic benefits; and

/(c) The

- (c) The application of the agreement at the regional level, through the consideration of each request or plan (after technical and economic evaluation) by the Executive Council of the General Treaty, and its multilateral authorization by means of a protocol signed by the plenipotentiaries of the five Central American countries.

The agreement defines "Central American integration industries" as those plants "whose minimum capacity requires access to the Central American market to operate under reasonably economic and competitive conditions".

The protocols drawn up in accordance with the agreement protect the following integration industries: tyres and inner tubes, caustic soda, chlorinated insecticides, and sheet glass. In each case they specify the country in which the plants must be located, the incentives and privileges to be enjoyed by the proprietary companies, and the obligations and commitments to which they will be subject, to with:

Incentives and privileges

- (a) Absolute free trade for goods made by the integration plants, among the Contracting States;
- (b) A customs tariff with protectionist duties (generally higher than the uniform customs duties of the Central American tariff) applicable to imported goods similar to or substitutes for products from the integration plants;
- (c) Exemption from customs duties on imports of raw materials or intermediate goods used by the integration plants, for a term of ten years;
- (d) Exemption from taxes on the production or consumption of such raw materials or intermediate goods; and
- (e) Other related benefits to which they are entitled by the Central American Agreement on Fiscal Incentives to Industrial Development, or under national legislation laws regarding aid to industry.

Obligations and commitments

- (a) Meeting of quality standards set up by the Central American Research Institute for Industry (ICAITI) for goods produced in the integration plants;

/(b) Fulfilment

- (b) Fulfilment of the rules and regulations regarding the minimum participation of Central American capital in the enterprises owning the integration plants;
- (c) Fulfilment of the requirement to provide an initial minimum production capacity and, where appropriate increase capacity up to the limits fixed in the protocol within the time allotted.
- (d) Fulfilment of the supply guarantee, according to the needs of the regional market, by means of a network of independent distributors, that is to say the companies themselves can neither distribute their products nor sell them through exclusive agencies; and
- (e) Fulfilment of the price guarantee by not selling to distributors or allowing these to sell to consumers at prices higher than the maximum fixed in the protocol for products of integration plants.

The protocols include sanctions to be applied to the companies in cases of non-compliance with these obligations. They also establish the mechanisms for supervision and control of the terms of the authorizations, by means of the various organs and institutions of economic integration, such as the Executive Council, SIECA, and ICAITI.

The Agreement on Integration Industries came into force throughout the area on September 1963 when Costa Rica was fully incorporated into the Common Market.

4. The special system for the promotion of productive activities

Another mechanism employed at the regional level to encourage the setting up of new industries in the area is the special system for the promotion of productive activities. This was framed in January 1963 and came into force for three countries in February 1965; it is included in a special chapter of the First Protocol to the Agreement on the Régime for Integration Industries.

The system established a priori uniform customs duties of a protectionist nature for products whose manufacture is to be encouraged. The duties are higher than those set in the uniform Central American tariff and are fixed on the basis of technical studies presented by the

/Governments and

Governments and SIECA, through multilateral negotiations carried out by the Executive Council. The latter transmits its recommendations to the Economic Council for the drafting of a protocol, which must then be ratified and deposited with OCAS to come into force.

The basis of the system is that the protectionist tariffs may not be applied until two conditions have been fulfilled:

- (a) There must be production of the goods concerned in Central America; and
- (b) The real installed capacity of the existing plant or plants must be sufficient to meet at least 50 per cent of regional demand.

Once these requirements have been met, the protective tariff enters into effect by means of an official notification from SIECA to the Governments.

In case installed capacity is not sufficient to cover the regional demand, the system permits the importation of sufficient goods to fill the deficit which would be subject to payment of the uniform customs duties, or of the national duties when equalization has not taken place.

5. The Central American Agreement on Fiscal Incentives to Industrial Development

This agreement, containing the uniform régime of fiscal incentives, is still awaiting the deposit of the fifth instrument of ratification to enter into effect, since in this case five are required for its operation.

The régime is concerned only with the basic requirements that must be met by companies setting up or expanding industrial plant if they wish to obtain the benefits of the agreement, viz.:

- (a) To use modern and efficient production methods;
- (b) To produce the goods necessary for the development of other productive activities (capital goods, raw materials for industry, semi-finished goods), or those that satisfy the basic needs of the population, or substitute articles that are imported in large quantities or raise the volume of exports;
- (c) To have a high value added in their industrial processing;

/(d) To

- (d) To contribute to the greater use of raw materials or semi-finished regional products;
- (e) To increase the use of natural, human and capital resources in Central America.

On the basis of the above criteria, the régime establishes an order of priority, classifying the industrial enterprises which wish to take advantage of it in the following categories:

Group A covers those enterprises that:

- (a) Produce raw materials or capital goods; or
- (b) Produce consumer goods, containers, or semi-finished goods, on condition that at least 50 per cent of the total value of the raw materials, containers and semi-finished goods used are of Central American origin.

Group B comprises those enterprises that:

- (a) Produce consumer goods, containers or semi-finished products;
- (b) Bring about a substantial net improvement in the balance of payments and a high value added in the industrial process; and
- (c) Use raw materials, containers and semi-finished goods which in terms of value, are wholly or mainly of non-Central American origin.

Group C consists of those enterprises that:

- (a) Do not meet the conditions for groups A and B;
- (b) Merely assemble, pack, package, cut or dilute products; or
- (c) Form part of the industries specified in Annex 1 to the Agreement. 1/

The fiscal incentives authorized to companies classified in the preceding groups are larger for new industries than for those already in existence. Industry is considered to be new if it manufactures goods not otherwise produced in the country where the plant is located, or articles which are being produced by primitive production methods provided that the new plant (a) supplies an important part of unsatisfied demand in the

1/ Mainly alcoholic beverages, tobacco manufactures, perfumes and cosmetics, leather footwear, and the cutting and making up of clothing.

domestic market, and (b) introduces radically different manufacturing techniques that change the structure of existing industry and bring about increased productivity and lower costs. Existing industries are those not included in (a) and (b) above.

The following fiscal benefits to be granted to classified industries are:

- (a) Total or partial exemption from customs duties on imports of machinery and equipment; raw materials, semi-finished goods and containers; and fuels for exclusive use in the industrial process proper, except gasoline;
- (b) Total exemption for the enterprise and its members from income and profits taxes (this exemption is not granted if the beneficiaries are subject to a similar tax in other countries; and
- (c) Total exemption, for the enterprises, its owners and shareholders, from taxes on assets and net worth.

The periods for which these exemptions are granted depends on the group to which the enterprise belongs, and on whether it is new or already established.

The agreement is to apply at the national level for a maximum of seven years. After this period, or before, should the Economic Council so decide, its scope will become regional. This ruling tends to favour the less developed countries, since the new industries which companies set up there can be classified as such. On the other hand, in the countries with a relatively more advanced industrial structure, the companies generally enjoy only the benefits granted to existing industry.

Another provision of similar purpose empowers Honduras and Nicaragua to grant, for up to a further two years and one year, respectively, tax exemptions on income and profits, assets and net worth to companies qualifying as new industry in Groups A and B, as laid down in the agreement.

Recently, the Economic Council requested SIMCA in collaboration with ICATTI, to draft a protocol that would permit Honduras to grant greater fiscal incentives than the other countries, in order to make investment there more attractive.

/In conclusion,

In conclusion, it should be noted that the agreement envisages the drafting of additional protocols with special régimes of fiscal incentives for the assembly and pharmaceutical industries. A draft agreement for the assembly industries is already being discussed by the Executive Council.

6. Technological research

In 1955, the Governments of Central America, in co-operation with the United Nations, decided to set up the Central American Research Institute for Industry (ICAITI) to undertake studies to improve production methods in Central American industry, adapt existing technology to regional conditions, lend services of a technical nature to the Governments and to private enterprise, train Central American technicians, and generally to promote and disseminate applied science.

ICAITI has been actively participating in the integration programme, lending technical and economic aid to SIECA, BCIE and the Ministries of Economic Affairs and Housing in each country. It has made technico-economic evaluations of projects for the Régime for Integration Industries. It has likewise undertaken basic industrial studies, having already completed studies on the food, leather, long-staple cotton, construction materials and pharmaceutical industries.

In order to facilitate trade within the Common Market, ICAITI rules on the use of raw materials of regional origin, and has started a programme to set quality standards for Central America.

7. Industrial credit

Most Central American countries have institutions to aid industry operating within their own borders. Private financial institutions have also begun, to be set up with the promotion of industrial activity as one of their objectives.

The credit requirements for setting up industries of regional scope are handled mainly through the Central American Bank for Economic Integration, which began operations in 1961. The five countries are members of the Bank, whose object is to promote their economic integration and balanced

/development by

development by means of investment. It also gives financial aid to private business for projects of regional importance, makes a technical assessment of credit applications, and promotes investment opportunities of interest to the region.

The Bank's activities are mainly concerned with industry, agriculture, the building of the economic infrastructure and, recently, tourism and housing.

The financial resources of the Bank, in January 1966, amounted to more than 100 million Central American pesos. Loans approved up to December 1965 amounted to 44.5 million pesos. Some 70 per cent of these loans were in the industrial sector, and of these, more than four-fifths went to finance fixed assets. Of the 28 million pesos entering the industrial sector, the greater part went to the food, textiles, chemicals and non-metallic minerals industries. Loans of nearly 900,000 pesos were made for pre-investment studies in the paper and basic metals industries.

It is the Bank's policy to finance projects offered by enterprises which, to obtain a better scale of production, require a market of two or more countries in the area, or, similarly, projects that make for a better use of the area's natural resources, or contribute to the improvement in the balance of payments of one or more of the member countries. The Bank cannot finance debts, give commercial credit or offer terms of less than two years.

The Bank can finance up to 60 per cent of total investment in a private project and up to 100 per cent of infrastructure projects for the member Governments. On the other hand, its direct participation in an enterprise cannot exceed 30 per cent of the subscribed capital, nor 25 per cent of the Bank's available resources.

The minimum loan application that the Bank can consider is 50,000 pesos, with the exception of loans for investment studies. Amortization periods vary from three to ten years, and can reach a maximum of fifteen years, depending on the type of project and the rate of return. Usually, loans have an amortization period of two years. Interest rates

/vary from

vary from 6 1/4 to 7 1/2 per cent for the purchase of fixed assets, and from 4 to 8 per cent on loans for pre-investment studies. The interest rate on loans for working capital is 8 per cent. Credits are authorized in Central American or other currencies.

In March 1965, the Meeting of Governors of the Central American Bank set up the Fund for Economic Integration, with an initial sum of 7 million dollars contributed by the five Central American Governments and 35 million dollars from a United States Government loan. The Fund will be mainly used for joint infrastructural programmes within the area, and will be administered by BCIE.

Chapter VI

THE MAIN SECTORS OF MANUFACTURING INDUSTRY

The preceding chapters have attempted to furnish those elements judged to be most important in the macroeconomic framework of the industrial sector. This chapter offers a short description of the present situation, and the evolution and prospects of those branches of industry most worthy of interest.^{1/}

1. Food and beverages ^{2/}

In the production of manufactured consumer goods the role of the food and beverages industry stands out because of the stage of development they have reached and because this type of production is important in the industrial structure of Central America. In 1962, manufacturing activities made up 6.2 per cent of the gross domestic product and 43.9 per cent of the gross industrial product; in absolute figures, they gave rise to an output valued at 191.7 million Central American pesos.

Value added in the food industry was 134.9 million pesos, that is to say, 4.4 per cent of the gross domestic product and 30.9 per cent of the gross industrial product; the beverages industry made up the remainder. The predominant branches of the food and beverages industry are meat, whose participation in the gross industrial product amounted to 8.6 per cent; distilled alcoholic beverages, 7.2 per cent; bakery and confectionery products, 6.9 per cent; sugar, 6.7 per cent; and brewing, 4.6 per cent.

The industry employed 19.2 per cent of the labour force in the industrial sector, with a total of 69,505 workers, of whom 62.7 per cent belonged to the manufacturing category.

^{1/} In order to give the programmes drawn up for the Central American area a definite content enabling them to be transferred from their over-all frame of reference to a plan of practical action, research in the main branches of industry was undertaken at the behest of BCIE and the Organization of American States (OAS), with the participation of such organizations as the Central American Research Institute for Industry (ICAITI), firms of consultants such as Arthur D. Little, and ad hoc groups of independent experts working under the direction of the Joint Central American Programming Mission.

^{2/} Includes groups 20:201, 202, 203, 204, 205, 206, 207, 208, 209; 21:211, 212, 213 and 214, of the International Standard Industrial Classification (ISIC).
/Installed capacity

Installed capacity for this industry equals about 3,383,610 tons annually, but it is estimated that in 1962 only 54.2 per cent was used. Utilization was highest in the beverages industry, which succeeded in employing 61.4 per cent of installed capacity as against only 53.5 per cent in the food industry.

Total capital invested in this type of activity rose to 286 million pesos, of which 71.3 per cent was in the food industry.

The present structure of the food and beverages industry also results from a traditional mode of manufacturing development that has arisen in each of the five countries. Although much of this structure will have to be maintained the possibilities offered by the Common Market signify that development must be channelled towards more competitive enterprises in an attempt to specialize production and modernize machinery and equipment so as to raise productivity and secure prices more suited to the income levels of the consumer. Similarly, available capacity will be used with greater efficiency and a start made in those fields where there is still an opportunity for import substitution as in the case of powdered milk.

The main limitation to the growth of the food and beverages industry lies in the fact that, since a large part of domestic demand is taken care of by production, expansion on the basis of import substitution holds out few possibilities. On the other hand, this is a branch which, to some extent, could be developed for the export market.

There are also serious deficiencies in the forms of financing, since the funds available for this kind of activity are generally inadequate (with the possible exception of the beverages industry), and credit for working capital is inelastic. Credit limitations for the export of food products reduce the possibilities for greater expansion, especially in relation to such products as meat, lard substitutes, fruit and vegetable juices, confectionery, chocolate, and animal food concentrates.

A further limiting factor in the food industry is the poor location of many enterprises, especially those producing dried milk, canned and preserved fruits and vegetables, and industrial and edible starches. Lastly, the lack of correspondence between certain agricultural and mining products,

/and the

and the needs of manufacturing industries, e.g., beef cattle for export or fish and shellfish, further hinder the development of these important export industries.

The programmes envisaged estimate that consumption of food products could rise to a value of 568.9 million pesos in 1969, and 805.2 million in 1974. In these calculations two factors have had to be taken into account. The first is that, in spite of the low coefficient of utilization of installed capacity in the industry, it has been found that increased production usually stems from new projects rather than from a better use of existing capacity, mainly because of the restriction on working capital. Secondly, the range of opportunities for developing and diversifying the food products industry does not seem to be very wide, the tendency being to concentrate on dairy products, canned fish and shellfish and meat.

2. The textile industry: cotton yarn and fabrics 3/

The textile industry already existed in embryonic form, with plants of small size, at the time of the First World War. During the Second World War, the limited possibilities of importing and the rise in textile prices favoured its development. Although the accumulated capital in this sector was not all reinvested, the cotton textile industry succeeded in consolidating itself during this period. It was not, however, until recent years that a tendency to improve levels of efficiency and productivity became clearly evident, as a result of the more active competition created by the Common Market.

During the early decades of its existence, the growth of the cotton yarn and fabric industry was slow and sporadic. Nevertheless, it has succeeded in becoming, at the present day, one of the most important industries in the Central American economy, through its production value and capital, the number of persons it employs, and the stimulus it has given to cotton growing, today one of the main sources of income in the region. In 1963, the cotton yarn and fabric industry had a capital of 51.5 million Central American pesos and an output valued at 30.6 million, while its share of industrial employment in the area was 5.3 per cent.

3/ Corresponds to group 231 of ISIC.

The establishment of the Common Market, by favouring competition, lowered prices, particularly in heavy fabrics - those manufactured by preference in the area - and encouraged plant modernization. The resulting expansion increased intra-regional trade in cotton yarn and fabric from 2.2 million pesos in 1960 to 4.2 million in 1963 and 6.7 million in 1964.

From 1956 onward the industry obviously began to expand and improve as a result of bilateral treaties. Installed capacity rose, between 1955 and 1963, by 38 per cent for spindles and 50 per cent for looms, approximately. The proportion of obsolete installations decreased; from 90.2 per cent in 1955 the proportion of obsolete spindles was reduced to 44.1 per cent in 1963, and of looms from 84.2 to 55.5 per cent. Renovation of equipment brought with it an improvement in machine and manpower productivity. Production rose in the period 1955-63 by almost 150 per cent, in both cotton yarns and fabric, machine, and handmade.

Consumption of cotton fabric, machine and handmade, rose almost 74 per cent between 1950 and 1963 at an annual cumulative rate of 7.8 per cent. Of the 12,305 tons of these products consumed in 1950, 41 per cent were supplied by Central American mills. In 1963, this proportion rose to 62.5 per cent, in a total of 21,384 tons.

As regards utilization of installed capacity, it is possible to raise efficiency considerably in the spinning mills and even more in the weaving mills, where in 1963, utilization percentages of 71.1 and 62.7, respectively, were registered. By contrast, utilization of machinery was extremely low in the final processed-bleaching (40 per cent), dyeing (yarns, 55 per cent, fabrics, 16 per cent), printing (50 per cent) and finishing (16 per cent), due to the fact that the majority of weaving mills have finishing plants many times larger than they need for their own production.

Mills in Central America are usually smaller than the minimum economic size, which might be 10,000 spindles in the spinning mills and 300 looms in the weaving mills. In 1963, of 23 plants producing yarn, and 24 manufacturing fabric, only 7 of each had approximately the minimum size. However, there is no correlation between size and either machine or labour productivity. Some small plants are more efficient than large ones. In the weaving mills, machine productivity is higher in the smaller sizes but labour productivity is lower.

Productivity levels, both labour and machine still suffer from short comings in technology and industrial organization. There are deficiencies in the equipment resulting from obsolescence, (in balances in the capacity of different machines, defective maintainance), in the manufacturing process (over-diversification of products, use of raw material of differing qualities, lack of quality control, and continuing technical defects) and in respect of manpower (poor work organization and lack of trained foremen and of skilled labour in general).

The disparity in the development of production of light and heavy fabrics, which is partly due to technical reasons is one of the main features in Central America.

Production of light fabrics is more difficult because it requires greater labour efficiency as this factor represents a higher proportion of the costs than in the production of crude or heavy fabrics. The manufacture of light fabrics also entails stricter supervision of labour and a bigger scale of production. Another reason for the disparity in development was the lack of sufficient demand within the national markets before the Common Market was established and the fact that, before the equalization of customs duties, customs policy often gave too much protection to the production of heavy fabrics as against light, a situation which is reflected in the uniform customs values.

In recent years, development in the cotton textile industry has furnished the technical conditions necessary for the manufacture of light fabrics and, with Central American integration, a large enough market for such fabrics to be made economically has been achieved. Nevertheless, plans for expanding the production of light fabrics do not appear to be sufficient. This may be partly because the new customs duties have not remedied the discrepancies in customs policy.

The development programme for the cotton yarn and fabric industry over the next ten years is intended to satisfy 93.6 per cent of the demand in Central America with the region's own output. To achieve this, the production plan aims at a certain degree of specialization; the machinery is to be kept in good condition and operated efficiently (80 per cent productivity for looms, 85 per cent for spindles); three complete shifts are to be worked; replacement

/of obsolete

of obsolete machinery and modernization of the remainder are among the measures to be taken; plants (especially those below the minimum economic size) are to be expanded with new machinery and new production units are to be set up. Quality standards are to be adopted to promote adequate competition and make for exports outside the area. Policies of specialization, credit, customs and depreciation have also been sketched out.

The execution of the proposed programme will raise employment in the industry from 7,900 persons in 1963 to 13,295 in 1969, and to 17,714 in 1974. The resulting gross savings in foreign exchange will be 430.6 million Central American pesos, and a fixed investment of 152.5 million pesos will be needed to achieve the desired goals.

3. Leather

The leather industry is relatively important in Central America since its value added averaged 3 per cent of the industrial product between 1959 and 1963, and the number employed in this industry during the same period amounted to 6 per cent of industrial employment. However the expansion in tanning has been much slower, most of the tanneries are antiquated and no substantial progress has been made in recent years.

Part of the reason for the poor development of this industry is the lack of dynamism in the manufacture of leather footwear. This stems from the low purchasing power of the population, the difficulty of mechanizing and rationalizing the manufacturing process, financial limitations and the lack of a marketing organization for the products.

The tanneries face a series of difficulties, such as a dearth of raw materials that are adequate in both quantity and quality, a shortage of trained workers, a lack of machinery, low plant utilization, overlong tanning times due to the continued use of inadequate methods, and deficiencies in work organization and in the manufacturing processes.

The leather industry is made up of a large number of artisan establishments and a relatively small number of manufacturing concerns. In 1963 more than 80 per cent of the tanneries employed fewer than five workers, and only six enterprises employed more than fifty persons. In the establishments making footwear, more than 90 per cent consisted of industrial units of fewer than five workers and only fifteen employed more than fifty persons.

/Nominal labour

Nominal labour costs in the industry are low but so is labour productivity. The coefficient of raw hides per unit of time worked is very small in those establishments that make nothing but soles, or have mixed production programmes for soles, inner soles and shoe leather. In the tanneries manufacturing leather by weight alone productivity is even lower. It is also generally rather low in the footwear factories, in comparison with the level in other countries.

In 1963, the tanning industry was able to supply about 75 per cent of regional demand, the footwear industry, 98 per cent, and the manufacturers of leather goods, 90 per cent.

In terms of the foreign trade balance in raw materials and finished products over the period 1959-63, the leather industry represented an average expenditure of foreign exchange amounting to 5 million Central American pesos. Roughly 70 per cent of this went to import skins and tanned hides shoes and leather goods, while the remaining 30 per cent went to import raw materials and subsidiary products needed in the preparation and treatment of skins and raw hides.

No great change in this situation can come about in the near future, because the availability of raw hides cannot ensure high utilization of installed capacity in the tanneries. This means leather has to be imported from outside the area until the local supply has been increased through the development of livestock in the region. Most of the raw materials for the tanning and finishing of raw hides must also be imported for the time being because of the shortage of supplies.

There can be no doubt that the finished leather imported at present must be replaced by raw hides so as to improve utilization of installed capacity, increase employment in tanning, save foreign exchange, and add to the gross product for the industry.

Not only is the regional supply of raw hides insufficient in volume, but the quality is poor, owing, among other things, to malnutrition of the cattle, grass parasites, and the lack of care with which the animals are handled on the stock farms and in transportation. Deficiencies in skinning, preservation, classification and selection also lower the quality of the hides.

/Domestic prices

Domestic prices for raw hide are low compared with prices on the world market. However, since the hides are not priced according to type, weight or quality, and since they are not all usable, because of their defects of quality the yield is very low and so the material is, in fact, relatively expensive.

If the projects for expanding and establishing new tanneries are added to existing capacity in 1963, there would be no need for more investment between 1965 and 1969 to achieve the increases planned in the production of soles, inner soles and shoe leather. However, to reach the production goals for footwear during the same period, some existing factories will have to be expanded and new ones created. The fixed investment needed to bring about this increase in capacity is estimated to be 4.6 million pesos.

The achievement of the targets for the period 1969-74 will require an investment of 1.3 million pesos to raise production capacity in inner soles and shoe leather. Leather footwear will need a fixed investment of 6.2 million, but, even in 1974, it will still be necessary to import finished leather in the types and qualities that cannot be produced locally unless substantial changes are made in the techniques used by the region's tanneries, and in the quality of the raw hide available.

The estimated increase in the production of tanned leather footwear and leather articles will entail an improvement in the quality of the hides and in marketing conditions, as well as the reorganization of the plants and the adoption of modern manufacturing methods.

To improve the quality and condition of domestic raw hides, the programme makes a series of specific recommendations which, if properly carried out, will bring the goals within reach.^{4/}

With regard to the reorganization of the plants and the manufacturing procedures to be used the programme recommends:

(a) The renovation of existing installations, particularly the transport systems used in the plants;

^{4/} The recommendations mainly refer to the fight against cattle parasites; reduction of the damage to the skins caused by scratches and goring; regulations to end branding; training of slaughterhouse workers in modern skinning techniques; use of the "wet salt" process for the preservation of the fresh hides; etc.

(b) The combination of small workshops in the tanning and footwear industry into associations or co-operatives, so as to further their development;

(c) The modernization of manufacturing techniques, especially in the production of soles, in order to make the medium-size establishments more profitable;

(d) The implementation of pre-investment and economic feasibility studies to determine, at a given moment, the value of installing plants in the Central American area to supply regional demand for the subsidiary chemical products needed in the leather industry; and

(e) The establishment of a small number of plants to use the waste from tanneries in the region to make such products as fertilizers, glues, gelatine and artificial leather.

4. The building materials industry ^{5/}

Building activities in 1962 represented 6.2 per cent of gross production value in the region's industrial sector. Its share in industrial employment averaged 7.5 per cent.

A high concentration of investment was noted in two important products of the group studied: wooden structures for building, and cement, which, between them absorbed more than 56 per cent of invested capital.

The demand for construction materials in Central America rose at an average annual rate of 6.4 per cent between 1959 and 1962. Imports from outside the area supplied 38.8 per cent of the regional needs, especially in metal products, such as soil piping and galvanized iron piping, corrugated and galvanized sheet, and smooth and corrugated iron bars.

The apparent per capita consumption of construction materials, which averaged 7.66 Central American pesos yearly, testifies to the shortage of housing in the five countries. The materials most used in the area in 1962 were, in order of importance: wooden structures, cement, cement piping, soil piping and galvanized iron piping, corrugated and galvanized sheet, smooth and corrugated iron bars, cement blocks, gravel, fine gravel and sand, lime, and floor tiles. These products make up about 70 per cent of the aggregate consumption value of construction materials.

^{5/} Corresponds to ISIC groups 331, 334 and 339.

Central American production of construction materials in 1962 had a number of technical and economic characteristics on the basis of which the industry can be divided into four groups:

(a) The manufacture of traditional products by artisan methods, without any production units that have introduced major technological improvements. The items produced are mainly heavy bricks, tiles and, to some extent, wooden structures;

(b) The manufacture of traditional products, partly by production units using modern methods and partly by units using rudimentary or artisan methods. Included in this category are the units making hollow bricks, sewage pipes, lime and plaster. Because of the influence exerted by the less-advanced units the regional supply of these materials generally lacks flexibility and is low in quality with the result that there is a tendency to replace the materials better in question by others that are suited to requirements;

(c) The manufacture of modern products by plants with sufficient capacity and level of mechanization to give a choice of alternatives, according to factor costs and the size of the market. Included here are enterprises manufacturing hydraulic paving slabs, cement blocks and cement pipes; and

(d) The manufacture of materials with production techniques that need fair-sized plants with a certain degree of mechanization. Included here are factories producing cement and cement products, asbestos products, sanitary equipment, soil piping and galvanized piping, corrugated and galvanized sheet, laminated profiles, plywood and fibreboard. Although they remain at what may be considered to be the minimum economic size, these plants make fairly good use of their installed capacity in comparison with the other production activities. The creation of the Common Market has not helped, in all cases, to bring about far-reaching changes in the expansion of production capacity in this type of industry, with a result that they continue to work with high costs and the development of intra-regional trade in these materials is handicapped. The prices of construction materials in Central America are high on the whole in comparison with world prices, except for wood, sand and gravel. The basic reason is dependence on foreign sources for certain raw and manufactured materials, and for almost all capital goods.

One of the factors most influencing the industry in Central America is the lack of standardization for a great many products, which appear on the market in a variety of sizes characteristics. One reason for this is the division of the market and another is the differences in the machinery used, which varies in size and design according to the country from which it is obtained. The Central American Housing, Building and Planning Sub-committee has been working for some time to establish standards for most construction materials.

The targets for the construction materials programme aim at almost complete import substitution. To give examples, this would mean increasing cement production by about 40,000 tons during the period 1965-69 and about 140,000 tons in 1970-74; in fibre cement, the increases for the same periods would be 20,000 and 15,000 tons, respectively; for plain hollow bricks, a new capacity equivalent to 32 million pieces would be needed over the next ten years; while, in solid bricks, 84 million more would be needed in the first five years and 88 million in the second; etc.

The investment required to carry the programme through the next ten years varies between 15 and 28 million pesos according to the policy followed in meeting known requirements. Of this sum, between 7 and 13 million pesos, will be needed in foreign exchange to import machinery and equipment for the new plants installed.

The programme will give employment to about 7,000 persons, whatever the production technique decided upon.

5. Chemicals ^{6/}

In 1962, consumption of chemical products in the region amounted to about 145.7 million Central American pesos, about 38.4 per cent of which represented domestic production. In 1964, consumption was estimated at 183.9 million pesos, about 48 per cent of which was of domestic origin. The demand for chemical products over the next ten years is expected to grow at an average annual rate of 12.9 per cent.

^{6/} Made up of the four ISIC groups:

- 311 - Basic industrial chemicals, including fertilizers.
- 312 - Vegetable and animal oils and fats.
- 313 - Paints, varnishes and lacquers.
- 319 - Miscellaneous chemical products.

/The total

The total capital of the industry in 1962 was estimated at 51 million pesos. The bulk of production consists of diverse chemical products, which account for 63 per cent, and by-products from the refining of fats and oil (23 per cent).

Per capita consumption of chemical products rose, in the same year, to 12.2 pesos, or 67.8 per cent of per capita consumption for Latin America as a whole.

There were 223 establishments producing chemical products within the manufacturing stratum. Of these, 26.4 per cent employed between 5 and 14 persons, that is to say, they constituted small-scale industry, and made up 18 per cent of total investment in the sector. Medium-scale industry, employing between 15 and 49 persons, made up 42.6 per cent of the total number, with about 46 per cent of investment. The remaining establishments, those with 50 or more persons, accounted for 31 per cent of the total and 26 per cent of investment.

In 1962, the chemical industry employed 10,633 persons of whom 90.8 per cent belonged to the manufacturing stratum, and the rest to the artisan stratum. Of the 19 million pesos produced as value added that year, 96.4 per cent corresponded to the manufacturing stratum. The main products were sulphuric acid, nitric acid, alcohol, glycerine and soaps, ammonium nitrate, single superphosphate, fertilizers mixtures, certain synthetic resins, basic and prepared detergents, explosives, matches, essential oils, starches, paints and varnishes. Plans are in hand for the manufacture of hydrochloric acid, caustic soda, chlorine, polyvinyl chloride and ammonia.

Between 1950 and 1962, the chemical industry grew at an average annual rate of 9.3 per cent, whereas the rate of increase for imports between 1953 and 1962 was 7.7 per cent. Although this is lower than the rate of production, it indicates the growing pressure that the industry puts on the financial resources available for import purposes. The figures show that the relative backwardness in the manufacture of certain chemical products could well be remedied, since the industry is mainly concentrated on the so-called light chemicals, and has only just begun to take a more active part in the manufacture of basic and intermediate goods, particularly fertilizers. Production of sodium chloride is also soon to begin.

Exports in 1962 were minimal and of little importance, consisting mainly of different chemical products, and vegetable oils and fats.

/Lastly, it

Lastly, it must be noted that, although the Common Market has improved the prospects for the preparation of chemical production projects, it is still too small for certain production lines. All in all, however, it provides a basis for the progressive elimination of one of the main obstacles to a faster and better-planned development of the chemical industry. By the same token, the Common Market's development machinery could be an effective means of removing other limitations, such as the lack of funds for medium-projects size. Another difficulty that will have to be remedied is the lack of the "know-how" required for the manufacture of various chemical products. Economic integration must help the industry to take advantage of larger production scales, in terms of the relation between plant size and production costs. The industry will also benefit from savings in investment, through the accumulation of external economies; better use of the foreign exchange available as a result of more rapid import substitution; and the increased dynamism provided by a region-wide sphere of action.

6. Plastics

This is a fairly new industry in Central America, since the oldest enterprises processing plastics do not go further back than 1954, and its real development began only in the early 60's.

In 1962, the industry contributed an average of 1.36 per cent to the region's gross industrial product and employed 0.29 per cent of total industrial employment. The average number of persons employed in an enterprise was 22. Utilization of capacity ranged between 30 and 50 per cent in the moulding process and between 25 and 75 per cent in the extrusion process.

Comparison of prices is very difficult because of the wide range of products manufactured or imported but, on the average, prices of Central American plastics are comparable with the c.i.f. prices of imported goods.

The main plastics consumed are materials such as polyethylene, polyvinyl chloride, polypropylene and polystyrene. At present other materials have a relatively low consumption, such items as celuloid, galalith or cellulose acetate hardly being used in the area. Polystyrene tends to be replaced by high and low pressure polyethylene and especially by polypropylene, which is now replacing low pressure polyethylene. Hence future consumption

/will consist

will consist largely of high pressure polyethylene, polypropylene and polyvinyl chloride. The industry in general uses modern machinery, especially in the extrusion process. Investment in fixed capital was about 3.2 million Central American pesos in 1962, and 4.6 million in 1963. Present investment seems to be directed towards production of films with a polyethylene base.

As regards manpower costs, wages in the area are low when compared with those in the industrialized countries, with due allowance made for the difference in living standards.

Lack of credit is the main problem for the plastics industry, in most of the Central American countries.

The small size of the market is another of the industry's basic production difficulties. Because of this, the range of products remains limited and there is little chance of exporting outside the area.

In accordance with the 1965-69 programme, private enterprise has already made plans for meeting the increase in demand and there is every likelihood that supplies of the various types of products will be adequate by the end of the period. Nevertheless, an effort must be made to replace imports of raw materials. The installation of units to produce 12,000 tons of polyethylene, 3,000 tons of polyvinyl chloride and 1,000 tons of plasticizers has been recommended.

For the period 1970-74, capacity will have to be expanded by about 10,000 tons to meet the increase in demand for plastic products. For import substitution 5,000 tons of polypropylene will be needed annually. In addition, it would be useful to increase the capacity of the polyvinyl chloride plant by 1,000 tons particularly for production of copolymers and special polymers.

The execution of these programmes will save approximately 25 million pesos of foreign exchange in 1970 and 52 million in 1975. New employment will be created for 1,300 persons in the first five years up to 1970 and for a similar number in the next five years. Investment requirements will be 35 million pesos for the first period and 20 million for the second.

7. Man-made fibres

Production of man-made fibres has existed for forty years and there are plants in the area using mixtures of artificial fibres with cotton, while others produce cloth from nothing but artificial fibres.

The differences in the customs tariffs for based on fabrics viscose rayon have hindered its industrial use. In 1961, for instances, the duties on rayon taffeta varied between 0.28 and 0.75 Central American pesos. It would have been possible to use some 30 per cent more rayon in various processes, but for the high customs tariffs on the imported yarn. Furthermore, since cloth was being imported at low prices from countries with overproduction, competition was difficult for the producers who had to pay high prices for imported yarn.

Central America is not particularly interested in using man-made fibres since their manufacture does not represent a saving in foreign exchange and affords little employment. Much more cotton is produced in the region than the mills can use, and it is generally considered that man-made fibres are not competitive in cotton-growing countries. Furthermore, consumers believe that rayon is less suited to a warm climate than cotton and therefore prefer the latter.

In 1960, there were 10 mills manufacturing rayon fabric, with 390 looms installed. They employed 331 workers and used 780 tons of mixed rayon annually. By 1962, the number of looms had risen to 610.

The industry using nothing but man-made fibres is much newer, and is in course of expansion particularly in unitwear. For stocking and sock manufacture nylon or perlon are used almost exclusively. The consumption of nylon for socks, for examples is estimated to be 95 per cent, while that of natural fibres is only 5 per cent.

Nylon is also used in the manufacture of women's and men's underwear, and perlon for socks, sweaters and underwear. Acrylic fibres (orlon) are used in the manufacture of sweaters. There is also some interest in polyesters which are used in men's wearing apparel (cashmere fabrics), but not for unitwear. Polyesters are preferred to viscose rayon or acetate, because they are easier to launder and wear longer. The fact that they can be mixed with cotton, wool and viscose rayon is important for Central America where cotton is pre-eminent.

/Apart from

Apart from fabrics and unitwear, there are other important uses for man-made fibres in the region. A tyre factory uses high-resistance rayon with some nylon, and the cigarette factories use filters with a cellulose acetate base.

In 1962, there were fifty-four textile mills in the region using man-made fibres and employing 2,615 persons. (These figures do not include Honduras, where there are no enterprises using chemical fibres.)

In the same year, imports consisted of 155.1 tons of artificial fibres (viscose rayon and acetate) and 633 tons of synthetic fibres (nylon, perlon, dacron, orlon, etc.). Imports of chemical fibre manufactures were, 2,620 tons of fabrics and similar products from artificial fibres, and 260 tons of synthetic fibre manufactures.

Although Central America does not export these products directly, it does re-export some outside the area. There is no chance of expansion, because the raw materials have to be imported.

The consumption structure in 1964 was as follows: 674 tons of viscose rayon and 191 tons of viscose rayon fibre; 883 tons of rayon acetate and 23 tons of rayon acetate fibre; 419 tons of nylon, 51 tons of perlon, 26 tons of orlon and 40 tons of dacron.

As regards import substitution, the Central American cigarette factories use filters of cellulose acetate fibre that have to be imported ready-made because no factories exist for their manufacture. Consumption of cellulose acetate for this purpose is 250 tons, but the replacement of cellulose acetate fibre by activated carbon is under consideration, so that this type of demand may disappear.

As already mentioned, amounting to 200 tons of high-resistance viscose rayon are used annually in the manufacture of tyres. The establishments of a second tyre factory might raise this amount to 500 tons. Furthermore, 2,000 tons of rayon are imported in fabrics and manufactures, but for reasons of style, design and so on, probably only 25 to 30 per cent of this could be replaced. If cellophane is added to the amount of viscose rayon that could be produced in Central America through import substitution the total would not exceed 2,800 tons.

/Imported nylon

Imported nylon could be replaced by local production based on imported monomers. Present consumption is about 500 tons a year. The consumption of other fibres is too low to justify their production in the area.

Demand in 1970 is expected to be 5,500 tons of artificial fibres and 3,500 tons of synthetic fibres. In 1975, the figures will be 6,000 and 6,500 tons, respectively. Among the synthetic fibres, the polyesters are expected to develop widely, in blends with cotton, and, possibly, rayon.

As regards the kinds of fabric imported, the proportion of artificial fibres is clearly being reduced while that of synthetic fibres is increasing slightly. The estimated figures are 1,600 tons of artificial fabrics and 400 tons of synthetic fabrics in 1970, and 1,350 and 600 tons, respectively, in 1975. For manufactures, the estimates are 200 tons in 1970 and 150 tons in 1975.

The artificial fabrics have been assumed to be half rayon and half acetate, though rayon might be the major constituent.

Of the synthetics, nylon will probably keep pride of place because of its use in the manufacture of stockings, socks and women's underwear. However, the polyesters (such as dacron), mixed with cotton will take an important place in the making of men's wearing apparel.

A series of projects are under way the production of rayon and nylon fabric for stockings and socks, acetate fabric, dacron fabric (cashmeres), etc. Altogether these projects entail an investment of about 5.5 million pesos and an increase of nearly 1,100 tons in capacity which would expand aggregate processing capacity on the basis of man-made fibres to about 4,600 tons for cloth and manufactures. An additional capacity of 2,000 tons would be needed to satisfy demand in 1970, and, by 1975, a further expansion in capacity of some 3,000 tons.

To meet the targets for the period 1965-69, supplementary projects to a value of 7.5 million pesos will be needed, in addition those already under way, which represent an investment of 9.5 million.

In the period 1970-74, production will have to be increased by some 3,500 tons. Thus, in fibre-making, plans must be made for the manufacture of nylon thread, from nylon salt, on the basis of a capacity of 1,000 tons, and of dacron thread, with a capacity of 1,500 tons.

Aggregate investment for the period will be around 24 million pesos.

8. Paints and varnishes

This industry dates from the years 1957-58 in Central America. Before then, all paints were imported.

In 1962, the industry made up 1.0 per cent of the area's gross industrial product, contributing 0.14 per cent to industrial employment. Most of the enterprises were medium-scale, judged by the number of persons employed.

Paints and varnishes to the amount of 4.4 million litres were produced in 1962, and 5.4 million in 1963. In order of importance they were synthetic lacquers and enamels, emulsion paints, oil paints, cellulose varnishes, and weather-proof paints.

The average price of paints and varnishes in Central America is high compared with prices in, for example, the United States.

Consumption of paints and varnishes was fairly low until the establishment of factories encouraged their use. But, with the level of per capita income at more than 280 Central American pesos, regional consumption is still low. Studies made of consumption of these products as a function of income indicate that consumption in 1964 should have been 15,780 tons instead of 9,650 tons.

The synthetic resins most used in recent years for paint products are, in order of importance, alkyd resins, polyvinyl acetate and butadiene styrene. The production of alkyd resins on the basis of imported raw materials has begun, and plans are in hand to produce polyvinyl acetate, with imported monomers. Although the raw materials must be imported, a great deal of foreign exchange can be saved in this way. Imports of prepared paints should be limited to special paints and varnishes not produced in the area.

Among the main characteristics of the paint and varnish factories, it is worth noting that they are utilizing 80 per cent of their installed capacity, with one exception, which is markedly improving. Modern equipment is often used; there are, for example, a good number of sand tritulators for paint manufacture.

Most of the companies have no financial or credit problems since they are branches of United States companies. Nevertheless, the concerns which are entirely Central American do have difficulties. Because most of the local manufacturers are branches of United States firms, exports outside the area

/ - which

- which are small at present - have little prospect of expanding since the main objective of the parent companies is to supply the Central American market.

It has been estimated that consumption of paints and varnishes will be about 14,500 tons in 1970, and 19,000 in 1975. Between 50 and 60 per cent of consumption will consist of latex paints, followed by alkyd paints and enamels, and lastly, cellulose varnishes and other types of paint.

Plans for expansion put forward up to 1963 could meet only the demand estimated for 1965. New projects will therefore be needed to meet the goals set by the programme: 3.3 million gallons of paints and varnishes for 1970 and 4.5 million for 1975. An investment of between 450,000 and 500,000 pesos is required for the first period, and of one million pesos for the second. Investment requirements are low since it is thought that the programme can be carried out by expanding the existing industries.

Implementation of the proposed programme will increase value added from 2.2 million pesos in 1962 to 7.4 million in 1970 and 9.4 million in 1975. The number of persons employed will rise from 471 in 1964, to 715 in 1970 and 755 in 1975. Savings in foreign exchange will be 2 million pesos.

9. Metal-transforming 7/

In spite of its modest contribution to the gross product, the metal-transforming industry in Central America is relatively well developed in relation to the market. Industry, both existing and planned, provides a high proportion of the goods that it is economically feasible to produce in the area. The industry's gross product in 1962 was 12.8 million Central American pesos, or 3 per cent of the gross industrial product. This figure would be 4.4 per cent if the 6.2 million pesos obtained from motor vehicles repairs are included. The figures are low in comparison with those of other countries. If the manufacturing product alone is taken into account (8.9 million pesos), the contribution of the metal-transforming industry to the gross industrial product is reduced to 2.1 per cent.

7/ Includes ISIC groups 341, 342, 350, 360, 370 and 380. The sub-group 384 is specified in each case and not included in the over-all analysis.

The manufacturing category of the metal-transforming industry employs 6,580 persons, or 4.4 per cent of industrial employment in the region. If the 4,604 persons employed in motor vehicles repairs are included, the figure becomes 7.5 per cent. The manufacture of metal products employs almost half the labour force employed in the metal-transforming industry. These 3,256 persons are mainly engaged in the manufacture of metallic structures, boilers, wire, containers, piping, household equipment, etc. These products, with a wide market and simple manufacturing techniques, are a natural field for more import substitution and, if the repair shops are excluded, are the first steps towards the creation of a metal industry.

The manufacturing stratum consists of 680 establishments, of which 296 are engaged in motor vehicles repairs. The 384 companies which make up the metal-transforming industry have a combined capital of 28.7 million pesos, while motor vehicle repairs have 7.9 million. Most of this (49.8 per cent) is invested in establishments employing 50 or more persons. Capital investment in small-scale industry is 2,600 pesos per person, as against 6,300 pesos in large-scale industry; this clearly shows the more intensive use of capital in relation to the size of the enterprise.

The main problems faced by the metal-transforming industry can be summed up as follows: Even the greater size of the Common Market is still too small for some lines of production; those goods in which import substitution could most readily be achieved, because of their technical requirements, are already being produced; lack of co-ordination of Central American investment may, because of project duplication lead to misuse of capital resources and result in surplus capacity in certain branches of industry; the cost of transportation severely limits the mobility of the products manufactured by this type of industry among the five countries; the problem of the raw materials and intermediate goods now being imported and which would be difficult to replace, the result being high production costs; the lack of trained manpower, especially general mechanics and die and press operators, is a serious obstacle to

/expansion; the

expansion; the concentration of production in small-scale economic units limits the possibility of expansion and of benefiting from the economies of scale that can be achieved in a large-scale industry; under-utilization of capacity, due in many cases, to the narrowness of the market and faulty evaluation of its potential by entrepreneurs.

The centre of the programme for the metal-transforming industry over the next ten years is the creation of a steel-making plant, whose initial capacity of 100,000 tons of steel annually will be sufficient to satisfy the needs of the laminating plants in the area.

ANNEX

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