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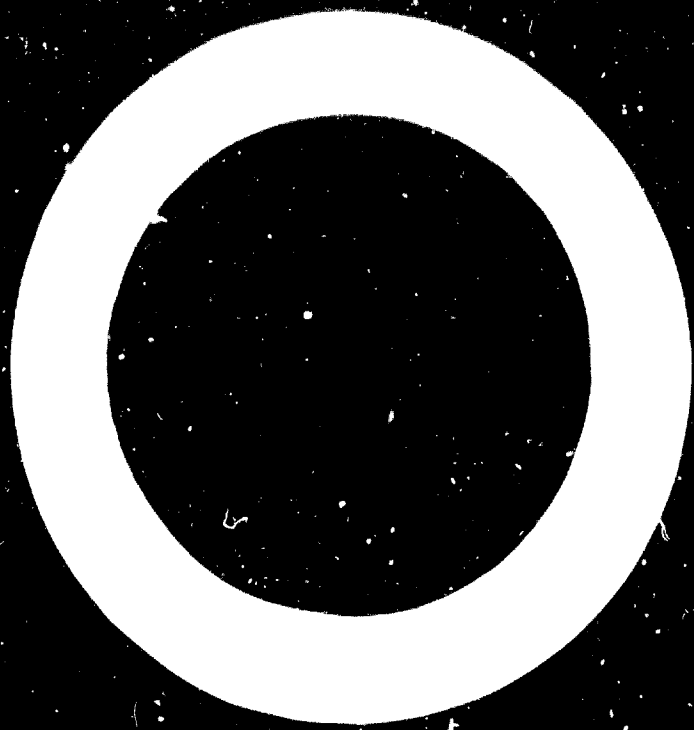
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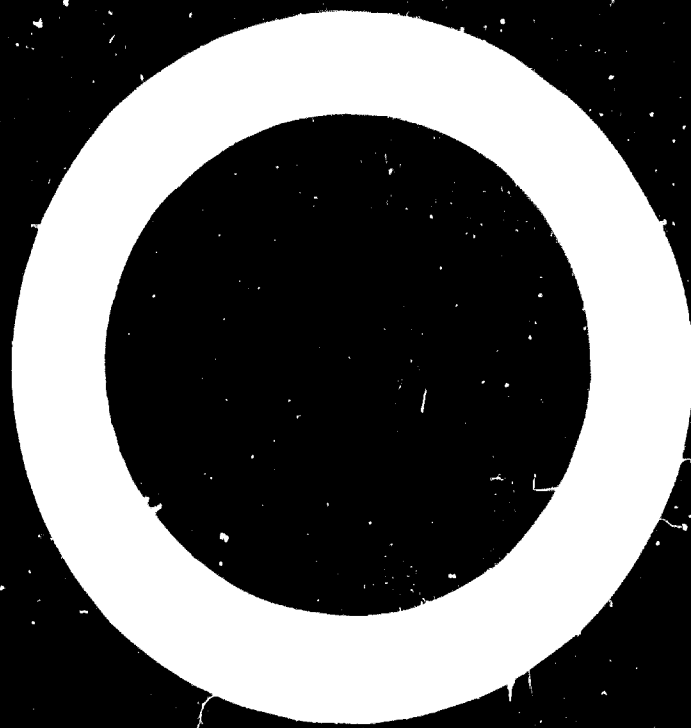
# SMALL-SCALE INDUSTRY IN LATIN AMERICA

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UNITED NATIONS







SMALL-SCALE INDUSTRY IN LATIN AMERICA



UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION  
VIENNA

*Small-Scale Industry*  
*in*  
*Latin America*



UNITED NATIONS  
New York 1969

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## PREFACE

THE PRESENT PUBLICATION is concerned with small-scale industry in Latin America and its contribution to the industrialization of the region. It contains data on small-scale industries and development programmes in the countries of the region, as well as findings and conclusions of the Seminar on Small-Scale Industry in Latin America held in Quito, Ecuador, from 28 November to 3 December 1966.

The seminar was sponsored jointly by the Economic Commission for Latin America (ECLA), the United Nations Centre for Industrial Development (CID)—now the United Nations Industrial Development Organization (UNIDO)—and the United Nations Bureau of Technical Assistance Operations (BTAO)—now the United Nations Office of Technical Co-operation—in co-operation with the Government of Ecuador.

The publication contains the report of the seminar, four papers especially prepared for it and an annex summarizing four country reports presented to the seminar.

The "Report of the seminar on small-scale industry in Latin America" (Part I) is a review of the work of the seminar and its findings and recommendations. These relate to the four main areas of discussion: (1) the contribution of small-scale industry to the development of Latin America, (2) technical services and assistance for small-scale industry, (3) financing of small-scale industry and (4) regional and international co-operation in this field. The appendices contain the opening addresses, the list of participants, the agenda, and the list of the documents submitted to the seminar.

Part II contains a "Survey of small-scale industry in Latin America", prepared by the secretariat of ECLA. The study is an analytical review of the position of small-scale industries in the region. It discusses definitions of small-scale industry, its structure in various Latin American countries, and some of its major problems. The development of small-scale industry in the region is described in the light of the experience gained from various assistance programmes.

In his paper on "Development possibilities for small-scale industry in specific fields of industrial activity" (Part III), Mr. Alexander Neilson describes some of the characteristics of small-scale industry and its role in different industrial fields. The paper includes a descriptive listing of about 50 industrial fields in which small-scale industry is prevalent.

The paper on "Industrial estate plans and projects in Latin American countries", prepared by the secretariat of CID (Part IV), is based on the findings of a 1964 survey of industrial estates and industrial areas in a number of developing countries. It describes the status of and plans for industrial estates and industrial areas in Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador, Jamaica, Mexico, the Netherlands Antilles, Nicaragua, Panama, Peru, Puerto Rico, Trinidad and Tobago, and Venezuela.

The paper on "Evaluation of a programme of assistance to small-scale industry: the case of Chile" (Part V), prepared by the Technical Co-operation Service (SCT) of the Development Corporation of Chile, analyses the assistance provided by SCT to small-scale industry and artisans in Chile from the beginning of 1963 to the end of April 1966. It includes a cost-benefit analysis of the results achieved.

The four "Summaries of country monographs" contained in the annexes have been selected from among the country papers submitted to the seminar. Each summary monograph focuses on a major aspect of small industry development: industrial programming (Ecuador), industrial financing (Mexico), technical assistance (Panama), and industrial zoning (Venezuela). The original papers were prepared by various ministries of the respective countries, and the summaries were made by the secretariat of ECLA.

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## EXPLANATORY NOTES

Many figures have been rounded in text and tables.

Reference to dollars (\$) is to United States dollars unless otherwise indicated.

A one-year period that is not a calendar year is indicated as follows: 1965-1966.

A period of two years or more is indicated as follows: 1965-1966.

One hectare = 2.471 acres; one square metre = 10.76 square feet.

ISIC refers to International Standard Industrial Classification.

\*  
\* \*

The organizations and programmes listed below have been mentioned throughout the publication, sometimes in abbreviated form:

### UNITED NATIONS AGENCIES AND PROGRAMMES

United Nations Centre for Industrial Development (CID), now the United Nations Industrial Development Organization (UNIDO)

United Nations Bureau of Technical Assistance Operations (BTAO), now the United Nations Office of Technical Co-operation (OTC)

International Labour Organisation (ILO)

United Nations Educational, Scientific and Cultural Organization (UNESCO)

United Nations Economic Commission for Latin America (ECLA)

United Nations Development Programme Special Fund (UNDP)

Programme for the Provision of Operational, Executive and Administrative Personnel (OPEX)

Special Industrial Services Programme of UNIDO (SIS)

## BILATERAL, REGIONAL AND INTERNATIONAL ORGANIZATIONS

- Inter-American Development Bank (IDB)
- International Centre for Higher Studies in Journalism for Latin America (CIESPAL)
- Latin American Free Trade Association (ALALC)
- Organisation for Economic Co-operation and Development (OECD)
- Organization of American States (OAS)
- Permanent Secretariat of the General Treaty on Central American Economic Integration (SIECA)
- United States Agency for International Development (AID)

## ORGANIZATIONS REFERRED TO IN THE COUNTRY REPORTS

### *Brazil*

- BNDE — National Economic Development Bank
- EPEA — Special Ministry of Planning and Economic Co-ordination
- CREAI — Fund for Agricultural Industrial Credit (Bank of Brazil)
- FIPEME — Programme for the Financing of Small- and Medium-Scale Enterprises
- SUDENE — Board for the Development of the North-East

### *Chile*

- CORFO — Development Corporation of Chile
- SCT — Technical Co-operation Service

### *Colombia*

- ACOPI — Colombian Popular Association of Industries
- FEPICOL — Federation of Colombian Small-Scale Industries
- IIT — Institute for Technological Research

### *Costa Rica*

- INVU — National Institute for Housing and Urbanization

### *Ecuador*

- CENDES — Development Centre
- CREA — Centre for Economic Rehabilitation of Azuay, Cañar and Morona Santiago
- OCEPA — Ecuadorian Trade Organization for Handicraft Products

### *Jamaica*

- JIDC — Jamaica Industrial Development Corporation

### *Nicaragua*

- INFOMAC — National Development Institute

### *Panama*

- INPADE — Panamanian Development Institute
- MACI — Ministry of Agriculture, Commerce and Industry
- SENAPI — National Service for Handicrafts and Small-Scale Industry

*Puerto Rico*

EDA — Economic Development Administration  
PRIDCO — Puerto Rico Industrial Development Company

*Trinidad and Tobago*

IDC — Industrial Development Corporation

*Uruguay*

CIDE — Investment and Economic Development Commission

*Venezuela*

CADAFE — Public Electrical Administration and Development Company  
COMDIBAR — Company for the Development of the Industrial Area  
of Barquisimeto  
CONDIMA — Maracaibo Industrial Development Company  
COMDIOR — Oriente Industrial Development Company  
CONZUPLAN — Zulia Planning Council  
CORDIPLAN — Central Bureau for Planning and Co-ordination  
CORPOANDES — Andes Development Corporation  
CVF — Venezuelan Development Corporation  
CVG — Venezuelan Corporation of Guayana  
FUDECO — Central Western Development Foundation  
FUNVAL — Valencia Industrial and Sanitary Development Foundation  
ZIBA — Barquisimeto Industrial Area



**PART I**

*Report of the Seminar on Small-Scale  
Industry in Latin America*

Quito, Ecuador, 28 November—3 December 1966





## INTRODUCTION

THIS REPORT CONTAINS an account of the work of the Seminar on Small-Scale Industry in Latin America held at Quito, Ecuador, from 28 November to 3 December 1966. The seminar was sponsored jointly by the Economic Commission for Latin America (ECLA), the United Nations Centre for Industrial Development—now the United Nations Industrial Development Organization (UNIDO), and the United Nations Bureau of Technical Assistance Operations (BTAO)—now the United Nations Office of Technical Co-operation, in co-operation with the Government of Ecuador, which was represented by the National Economic Planning and Co-ordination Board, the Ministry of Industry and Trade and the International Centre for Higher Studies in Journalism for Latin America (CIESPAL).

The seminar was the first to be held on this subject in Latin America and was a result of the growing interest that the countries of the region have been taking in the problems of small-scale industry, as is evident from resolutions 116, 127 and 137 (VII) of ECLA and 2 (I) of the Trade Committee.

The seminar was attended by 57 experts from the following member States of ECLA: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, France, Guatemala, Guyana, Haiti, Honduras, Mexico, the Netherlands, Nicaragua, Panama, Paraguay, Peru, Trinidad and Tobago, the United States of America, Uruguay and Venezuela. A list of participants appears in appendix 2.

There were also 24 observers from Ecuador and 8 observers representing the following international organizations: the International Labour Organisation (ILO), the Inter-American Development Bank (IDB), the Organization of American States (OAS), the Organisation for Economic Co-operation and Development (OECD) and the Permanent Secretariat of the General Treaty on Central American Economic Integration (SIECA).

At the opening meeting, held on 28 November in the Salon Máximo of the Department of Philosophy and Letters of the Central

University of Ecuador, statements were made by Mr. José Antonio Mayobre, Executive Secretary, Economic Commission for Latin America, and Mr. Galo Pico Mantilla, Minister of Industry and Trade of Ecuador. The texts of these statements are to be found in appendix 1.

At the closing meeting, statements were made by Mr. José Harrison Costa, Managing Director, Industrial Bank of Peru, representing the participants from other countries; Mr. Igor Krestovsky, Chief, Small-Scale Industry Section, United Nations Centre for Industrial Development; Mr. Nuño Fidelino de Figueiredo, Director, Joint ECLA INST/IDB Programme on the Integration of Industrial Development; and Mr. Raúl Páez, Technical Director, National Economic Planning and Co-ordination Board of Ecuador.

#### ORGANIZATION OF THE SEMINAR

At its first plenary meeting, on 28 November 1966, the seminar elected the following officers:

<i>Chairman:</i>	Mr. Raúl Páez (Ecuador)
<i>First Vice-Chairman:</i>	Mr. Sabás Francia (Mexico)
<i>Second Vice-Chairman:</i>	Mr. Vicente Kovacević (Chile)
<i>Third Vice-Chairman:</i>	Mr. Juan Ahués (El Salvador)
<i>Rapporteur:</i>	Mr. Ramón Hernández Paz (Venezuela)

Mr. Nuño Fidelino de Figueiredo served as Director of the seminar. Mr. Jacob Levitsky, Mr. Bernhard Stein and Mr. Alexander Neilson introduced some of the items.

It was agreed to set up two working groups, Group A for agenda item 2, "Technical services and assistance for the development of small-scale industry", and Group B for agenda item 3, "Financing the development of small-scale industry".

Each of the working groups included one of the vice-chairmen; a discussion leader and a rapporteur elected by the officers of the seminar; and a technical secretary appointed by the secretariat. The officers of the groups were as follows:

#### *Group A*

##### *Technical services and assistance for the development of small-scale industry*

<i>Discussion leader:</i>	Mr. Vicente Kovacević
<i>Rapporteur:</i>	Mr. Ramón Hernández Paz
<i>Technical secretary:</i>	Mr. Igor Krestovsky

#### *Group B*

##### *Financing the development of small-scale industry*

<i>Discussion leader:</i>	Mr. Sabás Francia
<i>Rapporteur:</i>	Mr. René Benalcázar
<i>Technical secretary:</i>	Mr. Max Nolff

## THE CONTRIBUTION OF SMALL-SCALE INDUSTRY TO THE DEVELOPMENT OF LATIN AMERICA

### CHARACTERISTICS OF SMALL-SCALE INDUSTRY IN LATIN AMERICA

THE ECONOMIC AND SOCIAL conditions in which small-scale industry has developed in Latin America are different from those in the developed countries. The history of this branch of industry has been characterized by a shortage of capital, slow economic growth, political and social instability, marginal participation by the broad masses of the people in the money economy, and a crafts sector using rudimentary techniques to produce simple goods.

Nevertheless, small-scale industry has acquired a certain economic importance in the region. In 1960, according to the various industrial censuses, over 1.5 million people were working in small-scale industry. In that same year, the value added by small-scale industry was about \$ 3,300 million, or 16 per cent of the total industrial employment and of the total manufacturing output in the region.

The fact that small-scale industry co-exists with larger-scale industry would seem to indicate that its smaller size has certain advantages, although the negative factors restricting industrial activity in general are felt more strongly in this area. These factors include: a shortage of capital for purchasing modern machinery and equipment, difficulties in obtaining raw materials, inadequate marketing arrangements, lack of managerial training, inefficient techniques and underutilization of equipment. Small enterprises, moreover, do not usually have figures on production costs and lack the flexibility to adapt their productive processes to changes in the type of product. This lack of flexibility is often due to an attachment to traditional methods of production or to lack of proper guidance. Furthermore, although development planning has made progress in most Latin American countries in recent years, as a rule small-scale industry has not been given any special treatment.

Government policy has not responded to the needs of small-scale industry, which, because of its nature and the environment in which it

is conducted, requires a form of taxation that will ensure its economic soundness and preserve its social function. This does not mean that industrial policy should be subordinated to the needs of small-scale industry, but that special provision should be made to offset the disadvantages resulting from its size.<sup>1</sup>

The different countries have no uniform definition of small-scale industry, either in their censuses or in their assistance programmes. In some cases these programmes stress crafts and small-scale industry, while in others crafts are excluded and the definition has been extended to include medium-scale industry. Some Governments, moreover, have sought to develop artistic crafts as part of their plans for the tourist industry. The criteria used by most Latin American countries to define small-scale industry have been the number of persons employed by an enterprise, its capital, and sometimes its sales turnover.

The variety of the criteria used in defining small-scale industry depends in part on the general conditions in a particular country and the type of programme adopted. Thus, industries considered small in highly developed countries with big markets might seem medium-sized or even large in developing countries. In the United States, for example, an enterprise is considered small if it employs fewer than 250 persons. In Japan, where this sector has received special attention, a small-scale industry is defined as one employing fewer than 300 persons and having a capital of less than \$ 28,000. By contrast, in Trinidad and Tobago, a country with a much smaller population, an enterprise employing 25 or more persons is considered large. Also in India, where great importance is attached to small-scale industry, the small enterprise was defined until 1961 as one having up to 50 employees if equipped with facilities for power-driven machinery or up to 100 employees if not so equipped and having fixed assets of not more than \$ 100,000. Since 1961, the definition has been based solely on the enterprise's capital, the maximum being 500,000 rupees (equivalent to \$ 66,700 at the July 1966 rate of exchange). In February 1967, the maximum was raised to 750,000 rupees (equivalent to \$ 100,000).

The participants concluded that it is not possible to draw up a rigid definition of small-scale industry that would apply equally to all countries in the region, since their economic and social characteristics are so varied. The definition should be based on two different sets of criteria. For planning purposes, the value added and the number of employees should be the deciding factors. For programmes of technical and financial assistance, other criteria might be required, particularly capital, defined one way or another.

<sup>1</sup> The development of small-scale industry is described in Part II, "Small-scale industry in Latin America" and in the "Summaries of country monographs" annexed to the publication.

The seminar was of the opinion that certain qualitative and quantitative criteria could provide the basis for a suitable definition of small-scale industry. It recommended that in the first instance crafts and cottage industries be distinguished from small-scale manufacturing. The former employ rudimentary production techniques, and their problems are different from those of small-scale industry; furthermore, their management and production are organized differently.

There was agreement that small-scale industry includes both manufacturing units that are in the early stages of growth and will eventually become medium-sized or large units and those that will remain small, whether because of their structure or because they are very specialized. It was also pointed out that different criteria for small-scale industry may be applied to different branches of industry and areas at different levels of development within a single country.

The view was expressed that the aims and nature of the programmes it is desired to promote and the functions small-scale industry hopes to fulfil in the economy of the country as a whole must be taken into account. Attention was also drawn to the need for research to determine what kind of small-scale industry may be compatible with the country's development needs and with the objectives of regional development and of different industries, and may offer prospects of growth.

With regard to quantitative criteria, the participants decided that an enterprise's capital, whether in the form of net worth, fixed capital or only equipment and machinery, seems to be the best criterion for defining small-scale industry, particularly in the case of programmes specially designed to promote it. The capital of the enterprise should, of course, be checked against other criteria, such as sales turnover and the number of persons employed.

There was general agreement that too low a limit should not be set on the capital of an enterprise, since that might hinder modernization of industrial units, or on the number of persons employed, since that might discourage the use of labour-intensive techniques, particularly in countries with high unemployment.

#### SMALL-SCALE INDUSTRY IN THE OVER-ALL STRATEGY OF ECONOMIC DEVELOPMENT

The seminar recognized that, in spite of the dynamic role that small-scale industry can play in industrialization and in general economic development, no special strategy has so far been drawn up for this sector in Latin America, the Governments usually limiting themselves to the adoption of piecemeal measures reflecting, on their part, a traditional and haphazard approach to the problem. Measures have tended

more to protect small-scale industry than to encourage it to modernize in order to sustain more effectively the competition of large units.

In general, industrialization plans and programmes in Latin America do not take into account the special problems of small-scale industry. In some cases, fiscal, customs and financial incentive laws set minimum levels of investment exceeding by far the level appropriate for small industrialists—precisely the ones who most need the benefits provided by the laws. In other cases, small-scale industries are confused with traditional crafts, and incentives are given only to enterprises with very small investment and employment; such a policy inhibits any effort on the part of small establishments to modernize their equipment and expand their employment and production. The seminar felt that a major objective in defining small-scale industry was to identify those groups which need special measures of promotion and assistance; the values given to the criteria of the definition—employment or investment—should be such as to permit the emergence of a modern and growing sector of small-scale industry.

The seminar emphasized that small-scale industries play an important role in all economies, but that, because of the weaknesses, handicaps and risks resulting from small-scale operations, inadequate knowledge of modern techniques, lack of managerial skills and shortage of financing, special policies and programmes are called for within the framework of over-all development plans. The seminar agreed that the scope and amount of resources to be allocated to small industry development in over-all industrialization programmes and the emphasis to be put on the various components of promotion programmes are matters for each Government to decide, taking into account the country's resources and potentialities, and its economic, social and political objectives. Whatever the place of small-scale industry in the economy of a country, it is necessary for the Government to define the basic criteria for formulating its development strategy.

It was stressed that development of small-scale industry as part of an over-all industrialization plan should take into account the long-term objectives for investment and employment; the relative importance which the manufacturing sector or as a whole is expected to achieve in comparison with other economic sectors such as agriculture, transportation and services; the requirements of regional development in order to achieve a balanced national economic structure; and the prospects for import substitution and for export promotion.

During the discussion there was general agreement that small-scale industry should not be developed as an alternative to large-scale or medium-sized industrial projects. The place of different types of

industry in over-all development should be decided by their respective potentialities for economic growth and their role assessed in terms of mutual complementarity rather than competition with each other. A sound industrial development strategy is one that promotes complementarity between large and small industries, that stimulates growth and diversification of industry and accelerates modernization by easing the transition towards advanced technologies and effective methods of management.

It was felt that industrial development, and in particular the promotion of small-scale industry, could not be based on the purely economic criterion of maximizing investment, which, as a rule, involves a large use of capital and a smaller use of labour. In all countries of the region, overriding social considerations indicate the need for measures to reduce unemployment and under-employment, and some balance should be achieved in each country between its social and economic requirements. Some small-scale industries would be economic only if they used capital-intensive methods, while many others lead themselves, at any rate at early stages of establishment, to the use of labour-intensive techniques. It is necessary to promote both types of industry and to bear in mind the need, inherent in any development policy, to improve and modernize continuously plant, equipment and processes in all industrial enterprises, irrespective of their size, and to open new employment opportunities to absorb the growing manpower resources.

Besides providing new employment opportunities, mobilizing private savings, and developing new technical skills, small-scale industries can not only contribute to expanding and diversifying the production of consumer goods, many of which may substitute for imports, and some of which may be exportable, but can also manufacture certain types of machinery and equipment. In spite of the efforts to liberalize trade between the South American and the Central American countries, outlets for industrial products in most countries of the region continue to be restricted to the domestic markets, which remain narrow and expand only slowly. This is a major reason for encouraging in all countries of the region the establishment of small industrial enterprises catering for local markets, including those in rural areas. In general, the seminar was of the opinion that in any economy there is scope for certain types of small industries that derive competitive advantages from the very smallness of their scale of operation and that can not only coexist but also compete effectively with large industries. Especially when these small industries achieve proficiency in certain highly specialized productions, they can be linked with large industries by complementary relations, mainly through subcontracting. There is also a large group of industries with potential for growth which, with the



necessary guidance and assistance at the early stages, might expand and diversify their production.

In order to assess the role that small-scale industry might play in over-all industrialization programmes, it is useful to carry out studies of the technical and economic prospects of this type of industry in various localities, mainly at the sectoral level but sometimes also at the plant level. Such studies are essential for undertaking new industrial activities and for expanding and diversifying the production of existing enterprises. The seminar recommended that Governments carry out such studies as a prerequisite for formulating any strategy for developing small-scale industry. Assistance in this field could be one of the main functions of a regional organization for the promotion of small-scale industry.

In Latin America, as in other developing regions, there is a widespread shortage of industrial entrepreneurs. Because of inadequate knowledge of technology and management and of prospects offered by industry, limited financial resources and shortage of skilled manpower, entrepreneurs are reluctant to enter industry and prefer presumably safer occupations in commerce, building or traditional crafts. In some countries artisan and handicraft undertakings and cottage industries predominate; elsewhere, small industries exist but, in the absence of promotion agencies and comprehensive assistance programmes, they are weak and ineffective, with low productivity and a high percentage of failures. In these countries, the rate of growth of the small industry sector as a whole is very low, a factor which contributes to expanding the gap between the rise in population and the development of industrial employment and production.

The seminar was of the opinion that an unbalanced industrial structure is a factor of stagnation for the economy as a whole. The establishment of large-scale and medium-sized industries will not suffice to give to the economies of the less-developed countries the necessary dynamic impulse and to promote a cumulative inter-sectoral development. It is essential to attract Latin American investors towards small but modern industries and to give existing small industrialists opportunities to expand, modernize and diversify their production.

Thus the seminar felt that the promotion of entrepreneurship is one of the objectives of economic policy and a major element in a programme of development of small-scale industry. If guidance and assistance are made available, people with limited technical knowledge and modest financial means can be induced to set up their own small-scale enterprises. Potential industrialists should be sought out among educated young men, merchants, artisans and handicraft workers, public

servants, and successful agriculturists, and given assistance in setting up industrial enterprises. The seminar felt that traditional training programmes are not sufficient for promoting entrepreneurship. It is necessary to provide orientation on the type of industry to be set up, based on the above-mentioned techno-economic studies, to give assistance in obtaining credit, building licences, import licences, exchange authorizations and other prerequisites to establishing or expanding an industrial enterprise.

In view of the importance of the artisan sector in the industrial structure of many countries of the region, the seminar felt that special efforts should be made not only to modernize it but also to facilitate its transition towards more modern activities.

Modern technology and new industrial processes have made many traditional crafts obsolete. Factories have been steadily replacing artisan workshops in the production of certain articles. The seminar felt that declining trades should not be maintained artificially but that some artisans could be assisted to become small industrialists in similar lines of business and others could be steered towards new industrial activities. In some fields artisans can coexist with more advanced forms of manufacturing, above all in artistic handicrafts and certain types of artisan construction trades or industrial services. The seminar recommended that viable or declining artisan undertakings and the prospects for their transformation into small-scale industries, whether in similar or in different lines, be thoroughly studied.

The participants stressed that the strategy of development of small-scale industry should be to promote modern, self-supporting and economically viable manufacturing enterprises rather than a group of weak and inefficient industries which would need to be artificially sustained in their production, management and financing. Even though many of the newly established industrial units would need to be supported over a certain period of time, the purpose of promotion and assistance measures should be to guide and help small industrialists until they are able to stand on their own.

In most countries of the region, industry is concentrated in a few major cities where it has found the necessary external economies. In almost all countries, Governments have adopted certain policies and measures of industrial decentralization aimed at decongesting the urban areas and stimulating the growth of less-developed regions. These programmes are often linked with measures to distribute the population. Because of the lack of basic infrastructure, of markets, skilled manpower, entrepreneurship, and so on, and also because of the reluctance of urban entrepreneurs to move to other regions, policies of industrial

decentralization and balanced regional development have generally not achieved the desired goals.

The seminar felt that it is not enough to rely on tax and other inducements to attract industry to given locations; measures to promote small-scale industry can also play a role in industrial decentralization. Small-scale industries have a greater locational flexibility than large enterprises, since they can make use of local raw materials and cater to small markets. In many countries good results have been achieved by small industries established in small towns and even in certain rural areas. However, the prospects offered by each location in which small-scale industries might be established should be studied carefully with respect to raw materials, labour, power, transportation and market. A great advantage of small industries is that they can often be successful even where such facilities are limited. Thus, plans for the development of small-scale industry should be integrated with plans for industrial decentralization and construction of power plants, roads and other infrastructure.

The seminar was convinced that, especially at the early stages, the development of small-scale industry should be promoted by the Government, since small-scale industries are unable to formulate and carry out self-help programmes. Promotion programmes should be comprehensive and continuing. Only the Government is in a position to take the necessary action, especially since many of the measures to be provided are educational in nature, and education is a fundamental responsibility of the public authority.

In general, it is the Government's responsibility to facilitate the establishment of small-scale industries, especially in industrial estates; to encourage their grouping in associations and co-operatives and to foster complementary relationships with large-scale industries, mainly through subcontracting arrangements; also to set up institutions to meet the needs of small-scale industry for financing, technical and managerial counselling, training, technical research, and so on; and to offer tax and other inducements as well as certain measures of protection.

At the same time, the Government should stimulate any support that might be given by private agencies, such as chambers of commerce and industry and industrial associations. When small-scale industries become self-supporting, self-help measures in this sector should be encouraged. In many cases government-sponsored facilities, such as industrial estates or common service workshops, may eventually be turned over to private management. However, since new small industries in need of government assistance will always be forthcoming, promotion should be a permanent element in any strategy of industrial development.

## DEVELOPMENT POSSIBILITIES FOR SMALL-SCALE INDUSTRY IN SPECIFIC SECTORS

In order to analyse the prospects for the development of small-scale industry, it is necessary to determine which sectors offer the greatest opportunities for growth under the particular conditions prevailing in each country. In some branches of industry conditions favour small-scale production, as has been found even in the most industrialized countries.<sup>2</sup>

Although there are areas that are the exclusive domain of the large enterprise and areas in which small-scale industry predominates, between the two extremes lies a middle ground where large and small enterprises coexist and compete. The role played by small-scale industry in both developed and developing countries has some common characteristics, but the emphasis placed on this or that aspect is often different.

Most countries, particularly developing countries, have concentrations of population at considerable distances from each other, and these densely populated centres are the main markets for industrial products. The savings achieved through large-scale production in any such centre are reduced or wholly offset by the high cost of transporting output to other centres, particularly in the case of perishable and cheap goods. A large enterprise might, therefore, establish a small-scale production unit in an area far from the population centre in order to supply a local market.

Small-scale enterprises do not exist merely because of their ability to supply large enterprises and produce complementary goods. The needs of each community and of the different social strata within each community are different, and many of these needs cannot be met by mass producers. Where it is a question of direct services to the consumer, and where there is a demand for a wide variety of goods and long production runs are impossible, the small-scale enterprise has proved to be the most adaptable.

The seminar felt that the above-mentioned criteria could serve as a basis for selecting the branches of industry in which small-scale industry can appropriately be developed without too high a social cost. The availability and cost of natural resources and the characteristics of the market, together with the social objectives being sought in developing specific areas, seem to be the decisive factors in this selection. A careful study would have to be made in each country, however, to determine in which fields the establishment of small units should be encouraged.

<sup>2</sup> See A. Neilson, "Development possibilities for small-scale industry in specific fields of industrial activity", Part III of this publication.

OVER-ALL PROMOTION PROGRAMMES FOR SMALL-SCALE INDUSTRY:  
INSTITUTIONS, PRIORITIES IN RESPECT OF SECTORS AND MEANS OF ACTION

In the medium-range and long-term plans for general industrial development that most Latin American countries have drawn up as part of their over-all programmes in recent years, small-scale industry has not as a rule been given any special treatment. There is thus a need for comprehensive plans for the promotion of small-scale industry in which priorities in respect of sectors and means of action would be laid down. No generalization, however, is possible, as the circumstances and needs vary from country to country. The situation in the Central American countries or the Caribbean is, for example, different from that in Brazil, Argentina, Mexico or Chile. Each country needs an individual promotion programme that uses different kinds of instruments to solve its problems, create incentives, fix priorities and develop small-scale industry in the appropriate regions and sectors.

Over-all promotion programmes for small-scale industry must be based on accurate preliminary studies of the obstacles that hinder its development and the various means by which it might best be fostered. Such means include technical and financial assistance, improved supply and marketing arrangements, promotion of industrial co-operation and complementarity of industrial activities, training of personnel, facilities to enable craftsmen and small industrialists to add to their knowledge, and provision and encouragement of opportunities for self-help. Another topic for study would be the designing of legal and administrative machinery to encourage efficiency. Such machinery would, of course, be suited to present development requirements and to the role that small-scale industry can play in this respect.

The promotion programme in each country should preferably be drawn up by a single national body that would establish a definite policy for the promotion of small-scale industry within the framework of general industrialization plans. This body, which would be responsible for reviewing the various elements of programmes and giving them final shape, could be a government department or agency, such as a government commission on which all the responsible authorities and agencies would be represented.

Such centralized national co-ordination would not prevent the various operations from being decentralized and distributed among the agencies technically best qualified for implementing them.

It is also important from the institutional standpoint to set up co-operatives, chambers of commerce and similar self-help organizations in which small entrepreneurs can actively participate in the organs of management and administration and share in the responsibility of contributing funds. Certain promotion functions can be gradually delegated to these organizations as the entrepreneurs gain in experience and

understanding and they learn to work together and solve their own problems.

The numerous measures that should be included in a comprehensive promotion programme probably vary from one country to another according to the circumstances of the different sectors, branches and individual enterprises of small-scale industry. The most important concern research; training of personnel for institutions of promotion; technical assistance, both administrative and technological; basic and advanced training of specialists; financial aid and special incentives for the establishment of new industrial activities and crafts and of small industry and craft estates.

Priorities for goals, means, sectors, branches, and regions should be established. Priorities vary within the promotion programmes of the different countries. Often the national plan does not even contain a definite development strategy, since priorities are determined by various institutions with different criteria.

While the general criteria of each country's industrial plans must naturally be respected, it is sometimes necessary to establish special criteria for the small-scale industry sector in such matters as the following: complementarity with the output of enterprises in other sectors; special orders and production in small series; production of goods of high quality or style; specialized services, maintenance and repair; additional employment for the rural and indigenous population; use of creative and artistic talent; utilization of otherwise unused raw materials, products and rural manpower, decentralization of large-scale industry and promotion of production in outlying regions.

When priorities are being considered, preference should be given to activities in which small-scale industry has the best chance of operating efficiently. It is very difficult to lay down any uniform standard, since social factors, too, must sometimes be taken into account. Also, in addition to the technological and manufacturing process, other economic factors, such as industrial complementarity and the use of domestic raw materials, must be considered before a choice is made.

The seminar noted that in the countries belonging to the Organisation for Economic Co-operation and Development (OECD), various bodies provide different kinds of technical and financial assistance. Among the arrangements in force, three deserve special mention: the preparation by a group of experts of programmes for the reorganization of small enterprises; the provision of financial aid to small enterprises that meet certain requirements for increased productivity; and collective action by which groups of small entrepreneurs, without losing their independence, undertake joint programmes for their collective benefit. Some of these programmes concern such important matters as marketing and sales, while others are designed to obtain tax advantages.

## TECHNICAL SERVICES AND ASSISTANCE FOR THE DEVELOPMENT OF SMALL-SCALE INDUSTRY

### TECHNICAL SERVICES AT THE PLANT LEVEL: ORGANIZATION, ADMINISTRATION AND METHODS

THE SEMINAR discussed the technical services extended to small-scale industries at the plant level. These services, which include promotion of entrepreneurship, technical counselling, improvement of design, quality and standards, management assistance, marketing, industrial research and facilitation of subcontracting, are aimed at informing and educating established or potential small entrepreneurs, and at helping them to raise their productivity, improve the quality of their products, reduce their costs and promote the optimum utilization of their machinery.

In some countries, usually large ones or those with an important small industry sector, these services may be provided by a variety of specialized institutions—industrial extension centres, productivity centres, production and training centres, design centres, testing and quality control laboratories, management development institutes, and so on. In other countries, they may be provided by one or two organizations in charge of small industry development, either specially established for this purpose, such as a small industry service institute or an industrial extension centre, or by a small industry department of an organization of broader scope, such as an industrial development corporation or bank, or an industry division of a ministry.

The seminar urged all countries of the region where only limited or no institutional facilities exist, to strengthen, expand or set them up in order to provide most of the services required by small-scale industry. Should several specialized agencies be set up, great care should be taken to avoid overlapping of functions and to ensure co-ordination and co-operation between them.

The stimulation of entrepreneurship, to which the seminar attached the highest importance, should be a major function of any promotion agency. The action of such an agency should be based on thorough feasibility studies, area surveys and market studies for given types of industries. At the plant level, "model schemes" or "industry fact sheets" describing typical requirements in capital, employment, raw materials, processes, and estimated costs and profitability, provide valuable guidance to entrepreneurs wishing to enter an industry or to expand their lines of production. To obtain credit, however, it is necessary to make a thorough study of the individual plant that should include not only general techno-economic data on the industry but also a detailed description of the engineering specifications of the project. The seminar felt that there should be a closer link between feasibility studies and



financial assistance. Promotion agencies should not limit themselves to making studies in advance of demand—useful as these may be—but should follow up help at the pre-investment stage by assisting entrepreneurs to obtain credit and to use this in the most effective way.

This is particularly important in the case of supply of equipment. The seminar noted in this connexion that, at least in one country of the region, surveys of existing enterprises in certain industrial fields had been undertaken by technical assistance and financial institutions with a view to recommending measures for the modernization of these enterprises. In most cases, recommendations were made for replacement of machinery—the need for which was not even suspected by the entrepreneurs—and credit facilities were made available. There is evidently much scope for undertaking such surveys in most countries of the region. The close relationship between the development of entrepreneurship and financial assistance was also stressed by some participants who stated that in their countries, funds for loans to small industries are available but remain largely unused for lack of demand or because of inadequately justified applications or even of economically unsound projects.

In a more general way, the seminar noted that much of the assistance work for small-scale industries leads to requests for credit and expressed the view that, especially in the early stages, technical assistance programmes could be usefully linked to financing. This could be done either by setting up an extension service within a financial institution or by working out complementary arrangements between an extension centre and the credit agency.

Technical counselling covers advice and guidance on the choice of materials, machinery and tools and their most efficient utilization in production. It includes advice on the installation of machinery and equipment, plant layout, techniques of production, maintenance and repair, testing, and classroom and on-the-job training of workers and supervisors.

This activity is one of the most important and one of the most difficult to carry out in the developing countries. An expert staff of engineers, technicians and other extension officers should be made available to the assistance agency—a problem that should not be underestimated in view of the scarcity of trained technicians and of the competing alternatives offered them in private enterprise, not always in the field of industry. A number of recommendations on the training of extension workers will be found elsewhere in this report.

Because of inadequate financial resources for technical assistance and servicing, the difficulty of finding competent staff and other factors, assistance facilities are usually established in only one or two of the main urban centres, and extension work in provincial areas is undertaken only occasionally, on a small scale and with disappointing

results. The seminar felt that, to be effective, technical assistance facilities should be set up in locations where small-scale industries are concentrated, should be provided over a long period of time, and should embrace all problems, whether economic, technical, managerial, legal and so on. It felt that the dilemma of providing either superficial advice to a large number of small industrialists or assistance in depth to a small number could be solved only in this way. It recommended that industrial extension centres be established as an integral part of industrial estate projects; this would permit, when estates are set up in decentralized locations, assistance to be provided not only to the occupants but also to the small industrialists of the surrounding area. The estate and its extension centre would thus serve as a nucleus for regional industrial development.

The seminar noted the arrangements made in certain European countries for enlisting the co-operation of private engineering and management consultant firms, the costs of the services extended by these firms to industrialists being borne, in part or as a whole, by the public technical assistance agency. It felt that this system deserved further study with a view to its possible application in countries of the region.

It was also observed that technical counselling necessarily involves some training of the managers and personnel of small-scale industries by extension officers. The integration or close co-operation of industrial extension agencies with training centres is therefore very desirable. This can be achieved effectively by setting up such facilities in areas of industrial concentration and in particular in industrial estates, where training programmes can be devised to meet the specific needs of the occupants.

Management development is another important component of an assistance and servicing programme at the plant level. It covers advice, guidance and training in all aspects of the management of an industrial enterprise, such as organization planning and control, and marketing of products. It includes advice on financing, taxes, bookkeeping and cost accounting, and selling. Such services can be provided by industrial extension centres or specialized institutions.

Other facilities include common services, which might be provided in areas of concentration of certain types of industries and which would be particularly effective when set up within an industrial estate. In this connexion, the seminar noted the work carried out by OECD members and recommended that studies be undertaken of programmes of common action similar to those recently organized in certain European countries whereby small industrialists join in procurement, production and sale, including export of certain products. Studies should also cover related programmes, such as government financial

and technical assistance to societies created by small industrialists to carry out common programmes, and the undertaking of joint industrial and marketing research projects by groups of small enterprises.

In the field of industrial research, studies should be undertaken on the means of obtaining information of interest to small scale industries from institutions in various parts of the world, and, if possible, of co-ordinating research so as to reduce duplication of effort. The close mutual relationship between industrial research and industrial extension was also noted; the former is necessary to solve some of the technological problems of the small industries and the latter to provide orientation to the research centres on the types of research needed.

Another important need is quality control, which can be provided by testing laboratories and may usefully be complemented by quality certification schemes. Improvements in industrial design can also enhance performance, quality and appearance.

The seminar observed that, in the industrial countries, subcontracting between large and small industries plays a very important role, especially in the mechanical industry sector, and contributes significantly to the strength and cohesion of the industrial sector. It also enhances the performance, productivity and product quality of the small subcontractor industries. Quite frequently, technical and financial assistance is provided to the subcontractors by the large industry, which is interested in receiving on time parts and components of acceptable quality at an economic price.

Except in a few countries, subcontracting is little or not developed in the region. Large industries in sectors where subcontracting is technically possible are few in number and exist in only a few countries. But even where such industries do exist, subcontracting is rare, because the quality of products of small-scale industries is usually low, their management methods unreliable, and their cost accounting and book-keeping defective. The large industries do not consider themselves responsible for helping small industries to improve their operations, and prefer either to produce all parts and components themselves or to import some of them. Also, in certain countries the tax system is based on levies on sales of final products, which, if subcontracting were in effect, would involve cumulative tax payments, which would be a disincentive to adopting this system. Taxation on value added would, on the other hand, favour subcontracting. The smallness of the market is another obstacle. Finally, information on the possibilities of complementary relationship between large and small industries is lacking.

The seminar was of the opinion that subcontracting largely depends on the large industries, since these have the power of decision.

However, to be considered as subcontractors, small-scale industries have to improve the quality of their products and of their management methods, and, for this purpose, have to receive technical assistance. The seminar felt that industrial extension agencies might facilitate subcontracting by assisting small-scale industries, in particular specialized ones, to improve their performance. To that end, they should provide information on the types of operations that the small firms might carry out for the large firms and facilitate negotiations and contractual agreements. An atmosphere of confidence for subcontracting would thereby be created.

It was noted that in one country a technical co-operation agency was able to offer a guarantee of quality to the large industry to induce it to subcontract. In a few other countries certain large industries, particularly the automotive industries, have been set up in the past few years on the basis that certain operations would be subcontracted to small-scale industries.

A new technical facility recently developed in Europe, in particular in France, is the subcontractors' exchange, whereby demand and supply are made known and information provided on availability of machinery, production capacity, and specialization of small-scale industries; and on the demand for parts, components and processing or finishing operations on the part of large concerns. The technicians of the exchange are sometimes able to provide technical assistance and orientation on lines of production, equipment requirements, and other advice to the managers of the small firms. The seminar recommended that serious consideration be given to setting up such facilities in the region.

The seminar briefly considered the problem of the organization of technical services and facilities for small-scale industries. It felt that as a rule such facilities should be sponsored and financed by the Government, but administered by autonomous agencies. Autonomy ensures flexibility in operation, which is essential to meet the great variety of needs of the small entrepreneurs. As far as possible, however, the co-operation of private agencies, such as chambers of commerce, should be sought.

As already mentioned, technical assistance agencies should consider their role to be essentially one of education and promotion. They should be prepared to help all those requesting assistance, provided the request is economically and socially justified and the recipients of assistance are prepared to help themselves. Industrial extension agencies should provide their services free of charge. Other types of services, such as those provided by common facility workshops or laboratories, should be provided at cost.

### SPECIAL TRAINING PROGRAMMES FOR PERSONNEL AT ALL LEVELS AND OTHER SERVICES

Various types of training programmes can aid small-scale industry. The four main types include programmes for the staff of planning and industrial policy bodies, for industrial extension staff, for small industrialists and for skilled workers. The first type of industrial training should be given by regional organizations such as the one proposed for the development of small-scale industry in Latin America. The development of small-scale industry requires staff trained in the tasks of policy planning and execution. The seminar believed that great importance should be attached to the training of staff of executive agencies (ministries of industry and development, development corporations and banks, productivity institutes, etc.) and planning bodies (central, regional and sectoral).

By industrial extension is meant the activities of experts who give advice and technical assistance to industrialists. It is difficult work requiring special qualities such as initiative, the ability and willingness to work with a minimum of supervision and a natural inclination to help small industrialists. As experts of this kind are in short supply in Latin America, it is especially important to train additional ones. It was recognized that the selection of candidates for training in this field is difficult and that the training methods and subjects should be similar to those that have given good results elsewhere.

The training of small industrialists also raises complex problems. Not much literature on the techniques of administration and production peculiar to small-scale industry is available, and little has been done to adapt this literature, which comes mainly from the United States, to the very different conditions existing in Latin American countries. Also, small industrialists have little spare time for attending training courses.

The seminar discussed methods of dealing with these difficulties. It was pointed out that self-instruction has given very good results in some European countries and might, if adapted to local conditions, be tried out in the region. In Asia, industrialists have been given theoretical instruction in administration, while their instructors have analysed specific problems in the factory. Demonstrations of the techniques used in modern enterprises could also be helpful.

The shortage of skilled labour is an obstacle to the development of small-scale industry. Although needs are in general being met through vocational programmes, the instruction in many cases has to be given without the benefit of the necessary equipment and machinery. The seminar felt that the efforts being made in various countries of the region should be expanded and that the training centres should be provided with the resources needed to do their work efficiently.

The seminar was informed about the training in the field of small-scale industry that the Inter-American Development Bank (IDB) provides. It was pointed out that because of the nature of IDB, the training programmes are more directly concerned with the preparation, execution and financing of projects. In this connexion, IDB has been conducting a series of courses and seminars for the short-term training of Latin American specialists in order to ensure more rapid use of the loans granted to development agencies for the benefit of small-scale and medium sized enterprise in Latin America. So far it has held a Central American course on the preparation of industrial projects, in collaboration with the Permanent Secretariat of the General Treaty on Central American Economic Integration (SIECA), in Honduras, in April 1966, and is at present conducting a national course on the preparation and evaluation of projects in Guatemala, in conjunction with the Bank of Guatemala. In addition it has held a seminar on industrial appraisal at IDB headquarters in Washington. The participants in this seminar were selected from the staff of Latin American development banks responsible for dealing with loan applications from manufacturing enterprises and for the conduct of assistance and promotion activities.

#### FORMS OF CO-OPERATION AND SELF-HELP

In some countries there is a growing realization that small-scale industries can act together to perform some functions which, because of their size, they are unable to perform individually. One form of association that has had much success in solving marketing and purchasing problems is the co-operative.

In the case of buyers' and sellers' co-operatives, each firm would either sell its products to the co-operative, which would make the sale to the consumer, generally in its own name, or would sell them through the co-operative, which would then act as a commission agent for its own chain of department stores or shops. The co-operative system would also enable the small industrialist to participate in fairs and exhibitions, something that would be difficult for him to do alone. A buyers' co-operative would proceed in a similar way, supplying all the material needed by the group of firms forming the co-operative.

Some buyers' and sellers' co-operatives do much more than act as intermediaries for the purchase and sale of products; they actually process them in their own plants. In Ecuador, a co-operative of this type set up to supply leather cheaply to a group of footwear manufacturers established its own tannery. Similarly in Chile, a co-operative formed by small farmers to sell pigs built a ham and bacon factory with State assistance. These co-operative groups, usually known as

"common services co-operatives", have been developed mainly in Japan. They cover various fields including furniture, transport, repair and maintenance workshops and finishing operations, such as the dyeing and printing of cloth, electrotyping and pottery-making. Another kind of co-operative is the credit union, which, as its name indicates, makes loans to its members either through co-operative banks or in some other way.

There are also co-operatives directly engaged in production. These are made up of individuals who pool their resources and work together as a single plant in order to produce a particular article. These co-operatives may remain small or grow into larger enterprises and are probably the most difficult to promote and operate with success. Some are of the "common services" type and can serve the needs of small-scale industry.

Most governments encourage the formation of co-operatives through tax incentives. Co-operatives are also given preferential treatment as regards loans and financial assistance because they are considered to be socially beneficial in that they enable small craftsmen and industrialists with limited resources to become proprietors. Co-operatives also facilitate the formation of capital on a small scale. Government action to promote co-operatives should be directed mainly to the initial stages of their formation.

Promotion of the various kinds of co-operatives would enable small industrialists to obtain certain economic advantages beyond their reach when they work alone. Experience in Latin America has been limited to the fiscal agencies that have encouraged and guided the formation of co-operatives, mainly consumer co-operatives. The seminar felt that in view of the results achieved in various European and Middle Eastern countries, it might be advisable to extend the field of co-operative action in Latin America to cover purchases, supplies, credit and marketing.

The formation of special industrialists' associations for small industry may also enable small industry to obtain certain market advantages in buying raw materials and distributing its products. Another form of self-help that has been applied in countries outside the region is the self-organizing group. This is a group of about ten small enterprises with an adviser or consultant who makes a study of each enterprise, helps organize them and finally prepares a report on the results. There are also groups consisting of some 60 small and not-so-small enterprises that draw on the consultant and technical services of large enterprises, such services being normally too costly for the small enterprise. It is sometimes advisable to encourage the formation of co-operatives in conjunction with the establishment of small-scale

industry associations. Such groupings, if properly integrated and given specific functions, can take part in technical assistance, vocational training and other activities for the benefit of small-scale industry.

#### INDUSTRIAL ESTATES: ORGANIZATION, ADMINISTRATION AND FINANCING

Despite the abundant evidence of the effectiveness of the industrial estate in promoting the development of small-scale industries, only two countries in the region—Jamaica and Venezuela<sup>3</sup>—have established estates with standard factories built in advance of demand. These estates also offer improved sites for large-scale and medium-sized industries, but there are no common service facilities, industrial extension centres nor other similar promotional facilities. None of the established estates has been devised exclusively or principally for the promotion of small-scale industries.

The predominant form of planned industrial clustering in the region is the industrial area offering only sites with the basic infrastructure—power, water, roads, etc. Usually such projects attract only large-scale and medium-sized industries, and they are in general successful only if combined with other inducements, such as tax concessions and a variety of services. Because of the lack of such complementary measures, a poor location and other factors, not all industrial areas in Latin America have been successful. Although the industrial estate and the industrial area are important tools in programmes of industrial decentralization, most of the existing projects are located in or near large metropolitan centres. In a few cases, industrial areas have been set up in smaller towns in predominantly rural districts where the prospects for industrial development are favourable. As a rule the offer of improved sites is accompanied by fiscal and financial incentives. The seminar noted another advantage of industrial estates, namely that they contribute to the decongestion of urban areas through the relocation of small industries to sites in the outlying areas of large towns.

Many countries of the region have made studies and drawn up plans for industrial estates for small-scale industries, but, for a variety of reasons, none of the planned projects has yet materialized. The seminar strongly urged governments of countries of the region to include industrial estates as an integral part of their development programmes for small-scale industry, since the success of these estates depends on measures to stimulate entrepreneurship, financing on liberal conditions, technical and managerial assistance, training and so forth.

<sup>3</sup> And the Commonwealth of Puerto Rico.



In the absence of such complementary measures, an industrial estate might remain vacant or be occupied only very slowly.

Industrial estates should be sponsored and financed by the Government and administered by autonomous authorities, with the participation, wherever possible, of local entities and of certain private groups. In the long run, when industrial estates have been sufficiently occupied, the ownership and management of the standard factories and of certain common service facilities may be transferred to the occupants, preferably grouped in co-operative associations, or to municipal bodies if these are sufficiently strong. An important purpose of publicly-sponsored industrial estates is to stimulate the interest of local communities and private groups to undertake—it need be with the assistance of the Government or of state organizations—their own industrial estate projects. Their main purpose, however, is to set in motion a cumulative process of industrialization on a small scale and to develop, as a result, secondary economic activities in trade and services in a region or in the country.

## FINANCING THE DEVELOPMENT OF SMALL-SCALE INDUSTRY

IN THE DISCUSSION of this topic, an expert from each country described the machinery and procedures for extending credit to small-scale industry in his country and the main problems that had arisen. These statements supplement the information on financial assistance contained in Part II of this publication, "Survey of small-scale industry in Latin America", and in the nineteen country monographs submitted to the seminar.

From the general state of small-scale industrial development in Latin America, it is apparent that financing is one of the weaker aspects. Internal sources of funds, i. e., those generated within the enterprise itself, are insufficient to support the growth of productive units. Relatively high costs resulting from small-scale production and low productivity are reflected in low wages and profits, and thus the percentage of profits available for reinvestment tends to be very much less than in the case of large units. The small enterprise is frequently obliged to consume its own capital, and this leads to capital depletion.

The external sources of financing, on the other hand, do not adequately compensate for the weakness of the productive unit's internal sources of funds; or else the financing terms are not adjusted to the reproductive cycle of the fixed capital investment, interest rates are high, the requirements for security are not consistent with the policy of aiding and promoting small industry, and technical assistance is either lacking or not co-ordinated with financial assistance.

The organizational structure of the small enterprise is therefore generally of the family type. The possibility of losing control of the enterprise and the non-existence of a securities market keep small and medium-sized industrialists in many countries from issuing shares to get the financial resources they need, and this significantly limits the growth of such enterprises. Because of their small size, moreover, it is difficult for them to find new shareholders, and access to organized security markets may therefore be impossible or inconvenient for them. This situation is aggravated both by the additional cost they would incur and by their ignorance of the ways in which such operations are conducted.

Medium-term or long-term bank loans, often reserved for large enterprises doing business with the commercial banks, are not available to small enterprises in most Latin American countries. Small enterprises must seek other sources of credit, the terms and interest rates of which tend to be less advantageous. Even suppliers' credit, as a factor contribution to capital formation, is less easily available or more expensive because of the difficulty of providing security or the frequent need to get the endorsement of some financial institution. In addition, the small scale of such operations, coupled with the risks involved both for suppliers and for the financial institutions, make them unattractive.

Only in recent years and only in some countries has small-scale industry been able to make use of foreign loans obtained through development corporations and banks and private financial agencies, and then only in a limited way. In many cases this kind of financial aid involves the "tied loan" system, which means that the small industrialist has to pay a higher price for equipment and machinery. It also deprives the developing countries of the important stimulus to domestic production that would result if the goods and services in question were acquired in the recipient country or in other Latin American countries.

The seminar participants agreed that the shortage of capital in the region is felt more strongly by small-scale industry and that the authorities of the different countries should give priority to the question and create or expand special machinery in accordance with the particular conditions in their country, to encourage investment in small-scale industry. In some cases state development banks might be established especially for this purpose.

One of the main reasons why small-scale industry finds it difficult to obtain adequate credit on terms suited to its special characteristics is that small-scale industries are not always in a position to offer the security required by financial agencies. The seminar participants agreed unanimously that when loans are granted, the viability of the project and the ability of the entrepreneur should outweigh the need to provide security.

The seminar agreed that there should be a substantial increase in the volume of foreign credit for small-scale industry and that it should be channelled through national financial and development institutions, which would establish the terms for granting the individual loans in accordance with the individual industrial development programmes of each country. These institutions should assume any risks arising out of fluctuations in exchange rates.

The relationship between financial assistance and technical assistance was a much discussed subject at the seminar. It was unanimously agreed that the latter produces more effective results if it is accompanied by the financial resources necessary to give it practical effect. Financial assistance, for its part, can help to make apparent the desirability of some form of technical assistance. It was recognized that action in both fields should be suited to the particular conditions of each country. In some cases it might be desirable for the two types of assistance to be given by different agencies acting in co-ordination. In others, the financial agency would consider the economic and administrative aspects of the projects and even go so far as to provide technical assistance, either directly or through other agencies, to enable the enterprise to set up its production facilities. A method considered appropriate for small-scale industry is that of supervised loans; this involves a combination of technical and financial assistance. Another method to which attention was drawn was that of promotion certificates issued by the financial agency and the technical assistance agency for the benefit of small-scale industries.

In analysing the criteria applied by financial agencies for extending credit to small-scale industry, the seminar agreed that such agencies should concentrate on the economic aspects of the proposed investment, since the social aspects are a matter for State planning organs, which may decide to subsidize industrial development, whether on a regional or sectoral basis, in the light of the social benefits that would accrue.

There was general agreement on the desirability of making credit for promotion purposes available through sectoral programmes, a subject of great interest. It was recognized that the initiative for loans should not come solely from the small industrialists, who often have difficulty in preparing the loan applications.

In view of the situation that small-scale industry faces in countries suffering from acute inflation, attention was drawn to the need to prevent small-scale industry from being at a financial disadvantage in comparison with large-scale industry. The latter, by obtaining a greater volume of loans at rates of interest lower than the decline in value of money, receives a larger subsidy from the community than the smaller-scale industries. This is undesirable in every respect, especially since

smaller-scale industries are in a weaker position in the competition for funds.

Measures suggested for channelling internal resources into the financing of small-scale industry include: the participation of private banks in such financing, the establishment of a securities market for small-scale industry, and financing by the central banks in the form of rediscount operations and advances within the context of a sound monetary policy. These measures are not alternative ones but complementary, and an imaginative approach should reveal other ways of achieving the same end.

Several Latin American countries have established machinery to give small-scale industry financial assistance. The forms and procedures differ according to the economic and social conditions of the country concerned. In Mexico and Venezuela, special funds and agencies have been set up to give financial aid to small enterprises; in some countries special arrangements have been introduced for small-scale industry within the existing credit agencies; but in others there is as yet no kind of financial machinery for the benefit of small-scale industry. This kind of assistance is extended in some cases to crafts, particularly in countries in which they are especially important. In the more highly-developed countries, on the other hand, aid to small-scale industry includes medium-sized industry. Almost all the countries consider it necessary to give special treatment to small-scale industry so that it does not have to compete with big business to obtain financial resources.

As a part of financial assistance policy, it was felt that loans for productivity studies in small manufacturing enterprises can give very good results, although they require some kind of special supervision and promotion machinery. The Banco Popular de la República in Colombia, the Banco Industrial in Argentina and the Banco Nacional de Desenvolvimento Económico in Brazil, the latter through a special fund (FUNDEPRO), engage in this kind of operation, and in the first two cases satisfactory results have been achieved.

The expert from Guatemala told the seminar about an arrangement for compulsory savings that exists in his country to promote industrial development. The Banco Industrial de Guatemala receives a sum corresponding to a certain percentage of the customs and tax exemptions granted by the State to industrial enterprises. The funds thus accumulated are used to finance the establishment of new enterprises or the expansion of existing ones.

In many countries general legislation bars special financial treatment for small-scale industry, and the seminar felt it would be desirable to change this situation, as in Peru, where laws have been

passed permitting priorities to be established in accordance with the development plans and differential rates of interest to be applied in accordance with those priorities.

It was stressed in the discussion that private financial agencies can make a significant contribution to the development of small-scale industry by serving as a channel for domestic and foreign resources. In Mexico and Ecuador, some financial agencies can participate in risk capital, but this is not always possible in other countries of the region either because of legislation or because of the small size of the financial market. There was agreement on the need to investigate the possibility of establishing machinery to enable small industrialists to obtain financial aid in the form of risk capital. State machinery for providing guarantees and security might facilitate the granting of loans to small-scale industry by commercial banks.

The representative of IDB spoke of the aid IDB is giving in the form of general loans for industrial development. The volume of such operations as of 30 September 1966 was \$ 405 million, distributed among nineteen Latin American countries. When considering a request for a general loan, IDB examines the legal, administrative and financial structure, and the operating policy of the requesting organization, in order to evaluate not only its technical and administrative capacity and its eligibility for a loan but also its ability to act as an intermediary. General loans are needed to finance a certain percentage of a programme taken as a whole. The body acting as intermediary is given some freedom in obtaining the remaining funds; it may obtain them either from the final users in the form of other loans obtained through the financial system or provide them itself. Terms, interest rates, and commissions and other charges applicable to the subsidiary or individual loans granted out of the general loan are approved by IDB, which tries to ensure that on the one hand, the rates are such as not to do financial harm to the intermediary nor, on the other hand, to give it too high a return and place an undue burden on the recipients.

Fundamentally, the system of general loans supplemented by technical assistance has the following objectives: (a) to establish suitable financial channels so that IDB can supply foreign resources to small and medium-sized agricultural, industrial and mining enterprises; (b) to strengthen the development banks and other intermediary credit institutions financially so as to afford them greater opportunities to invest in economic development and social betterment projects in their respective countries; (c) to promote the mobilization of domestic savings and foreign resources for development projects and thus expand the industrial base through a kind of multiplier effect or chain reaction; and (d) to help achieve the targets set in the development plans. Like loans for specific projects, general loans to development institutions must be

based on a development plan, which may be regional, sectoral or sub-sectoral. The regulations governing the general loan also specify the criteria for the granting of the subsidiary loans by the intermediary body. As a rule the bank lays down the maximum amount of a sub-loan that can be granted without its prior approval. The lending agencies also have to submit periodic reports on the use they have made of the funds lent to them.

## REGIONAL AND INTERNATIONAL CO-OPERATION IN THE FIELD OF SMALL-SCALE INDUSTRY

### POSSIBLE FORMS OF INTERNATIONAL CO-OPERATION

UNTIL NOW, the countries of the region have taken relatively little advantage of the technical co-operation facilities offered by the United Nations and other international organizations. The seminar noted that under the United Nations Development Programme (UNDP) and the regular programmes of technical assistance of the specialized agencies, expert services, fellowships and scholarships and some equipment for a variety of projects in the field of small-scale industry can be provided upon request from Governments. Certain assistance of this type may be obtained through the Programme of Special Industrial Services (SIS). Under all programmes, assistance can be provided for implementing development policies, programmes and general promotion measures and for undertaking industrial surveys and feasibility and pre-investment studies. The United Nations and its affiliated organizations may also organize and provide training and industrial extension services; advise in the field of financing; plan, construct and operate industrial estates; organize and carry out technological research; provide counselling on the construction and management of small-scale industries; and provide advice in marketing and export promotion. Also, OECD has a programme of research, information and transfer of experience for developing countries of which Latin American countries can avail themselves.

The seminar urged Governments of the region to take greater advantage of these facilities. It noted that assistance in the formulation of technical co-operation projects, in particular in drafting requests to UNDP (Special Fund) may be provided by ILO, UNIDO and ECLA.

As greater knowledge is gained of problems of industrial development, it will become increasingly possible to employ Latin American experts to provide technical assistance in the region itself. Some countries that have gained experience in industrial extension, industrial estates, financing of small-scale industry and other measures of promotion and assistance will already be able to provide experts to other countries of the region—a very interesting possibility.

It was also stressed that to be fully effective, services of foreign experts should include the training of national counterparts. In spite of the scarcity of qualified national technicians, every effort should be made to appoint talented young men to work with the foreign experts; these trainees would take over the functions of the foreign experts after they had left.

Many participants felt that the work of the seminar should be continued in the future through further seminars or working parties on different aspects of the development of small-scale industry.

The seminar took note of the programmes of work in the field of small-scale industry of the Centre for Industrial Development, ECLA, ILO, IDB and OECD and looked forward to the benefits which countries of the region would derive from the studies, conferences and other projects to be undertaken by these organizations.

Suggestions were made for a number of research projects in the field of small-scale industry that might be undertaken by international organizations or by the proposed Latin American centre for the development of small-scale industry. These projects might relate to:

- (a) Research on production techniques useful to small-scale industries, including development of suitable machinery and equipment. The following examples were mentioned in this connexion: food-processing techniques suitable for countries with relatively narrow markets; food preservation and canning of tropical products; processing of agricultural products; industrial use of by-products and waste products; use of national raw materials for building materials; and production for both the domestic and export markets.
- (b) Studies on the effects of incentive laws for the promotion of domestic or foreign industrial investment in countries of the region, with a view to formulating guidelines for a regional development policy in this field.
- (c) Studies on the methodology of feasibility and pre-investment surveys of industries suitable for small-scale operation under typical Latin American conditions.

The seminar felt that studies on small-industry problems now being carried out in countries of the region should be co-ordinated. This might be one of the functions of the proposed regional centre.

#### OBJECTIVES AND MACHINERY OF REGIONAL CO-ORDINATION

Up to now Latin American Governments have made no systematic efforts to achieve regional co-ordination in the field of small-scale industry. The objectives and machinery of regional co-operation in this field include three kinds of activity: the formulation of a special policy

for small-scale industry and its incorporation in an over-all development plan; the preparation of sectoral plans, the allocation of resources and the establishment of financial machinery; and action on the unit level to ensure that the policy of the small enterprise is consistent with the objectives of the general plan. In each kind of activity, such matters as exchange of information, technical assistance, training and research have to be taken into account.

As regards the formulation of a policy for small-scale industry, there has been no systematic exchange of information through symposiums, seminars and other kinds of conferences in Latin America. Similarly, the preparation of special programmes for small-scale industry is still at a rudimentary stage in most of the countries. This is a task that may require the services of technical assistance missions in addition to the training of the national personnel needed for preparing and executing the plans.

To carry these activities forward, it is necessary to examine ways in which a development policy for small-scale industry might be integrated with over-all programmes. At the same time, to avoid a dissipation of effort in research and other activities at the national level, the seminar considered the idea of creating some permanent machinery to seek solutions applicable to all the countries. It might take the form of a Latin American agency for the development of small-scale industry, whose functions could later be expanded to cover sectoral activities and activities relating to the individual enterprise.

In the discussion on the possibility of establishing such an organization, special consideration was given to its fundamental aims, its geographical scope and its institutional characteristics. Its activities should centre on research, technical assistance and training. As far as economic research is concerned, provision should be made for examining the various aspects of Latin American integration. As to the structure of the organization, advantage should be taken of the special features of the various international organizations and countries. Some experts favoured a decentralized structure and stressed the desirability of having a subsidiary headquarters in Central America.

In view of the importance that an organization for the development of small-scale industry in Latin America might have, the seminar agreed to request ECLA and the United Nations Centre for Industrial Development, the bodies sponsoring the seminar, to make a study of the form to be taken by such an organization and the procedures it should follow. The study might be carried out in co-operation with IDB, ILO, the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the Organization of American States (OAS).

The seminar requested ECLA to take all necessary steps to ensure that the Governments of the region had the information required for the establishment of the proposed organization.



## APPENDIX 1

## OPENING ADDRESSES

*Address by Galo Pico Mantilla, Minister of Industry and Trade of Ecuador*

The Government of Dr. Otto Arosemena Gomez and the Minister of Industry and Trade extend their greetings to the representative of the United Nations, the Executive Secretary of ECLA, the Director of the Programme on the Integration of Industrial Development, the Technical Director of the National Economic Planning and Co-ordination Board, the Director of CIESPAL, the ambassadors of friendly countries and the government officials who are present here, the members of the delegation of Ecuador and the representatives participating in the seminar.

It is a great pleasure to welcome you to the capital of our Republic as the inspirers and creators of a new development policy for small-scale industry in Latin America.

The President would have wished to welcome you personally but has been prevented from doing so by a prior engagement with the Ambassador from the friendly Republic of Brazil. He has therefore asked me to extend the warmest possible welcome to you and the most cordial hope that your work and your stay in Ecuador will contribute to the success of the plans that have been proposed, to your personal happiness and to successful industrial development in each and every one of the countries represented here.

Ecuador, for its part, has always pursued a progressive development policy and will continue to do so. Ecuador has laws on the promotion of crafts and small industry and on industrial development, and we shall make studies to correct any errors that may appear in practice. With the adoption of these procedures, we shall be in harmony with the other countries of America, and we shall be able to raise the status of small-scale industry, which in our case means crafts, so that it may be the instrument that will truly save the countries of Latin America from being simply exporters of agricultural produce and raw materials. Only industrialization under technical guidance will save the countries from this danger and prevent a deterioration of prices. We must set out to achieve the economic salvation of the various countries of America, by promoting import substitution, discussing its procedures and methods and finding out what the basis for it is and what the consequences are. In view of the statement by the Executive Secretary of ECLA, I shall refrain from referring to strictly technical matters in this statement.

You are here at this seminar to put your talents to use in providing guidance and to make a dispassionate statistical and numerical analysis of the situation in each country. Let these words not be mere phrase-making by the Minister of Industry and Trade, but real incentives to make an effective contribution on the social and economic progress of backward peoples.

If you fail to find a solution to the real and specific problems that beset our countries, I fear that we shall be unable to advance our interests.

Let us be objective and practical. Let us try to make our years of study a reality, and let us add to them an honest endeavour to ensure that Latin America can compete in the international arena on an equal economic and social footing.

From what I have been told by the Presidents of friendly nations and the representatives of the Government of Ecuador, your merits and abilities are incalculable, and this leads me to expect that this meeting and seminar will be successful. It leads me, even at this stage, to congratulate your Governments through you on having such specialists and technical personnel who will undoubtedly help to promote the social and economic development of the Latin American countries.

The Government of Ecuador, through its representatives, will submit a working paper on small-scale industry to you, but it is my desire and hope that those here present will give serious consideration to the establishment of a Latin American institute for small-scale industry in this country. A project that has been prepared in this connexion is before you and awaits your prudent discussion. It is the hope of the Government of Ecuador that you will bring this idea to maturity and will discuss the principles and the basis of this organization. It hopes further that you will do this with the purpose and intent of making it a centre situated in this very city of Quito, the capital of the Republic of Ecuador.

I leave with you, therefore, the project for the establishment of the Latin American institute for small-scale industry. I would ask you to state your views after calm and careful consideration and to help in this way, in so far as is necessary, to solve the problems which you have come, after Mexico, to this seminar to deal with.

The holding of this meeting was regarded as essential by the Government of Ecuador and by ECLA, and it is for this reason that we take pleasure in welcoming you to Ecuador, particularly now that the Government has embarked on its labours after the election of the Constituent National Assembly. The honourable Dr. Otto Arosemena Gomez, Acting Constitutional President of the Republic, wishes to demonstrate step by step that this Government will be one of effective achievement, of dynamic advances and progress in the social and economic progress and above all of integral development, in which there will be no frontiers in economic matters and no frontiers in the marketing of products. Thus, it will be obvious that we are all brothers in one and the same process of economic development throughout the continent.

*Address by José Antonio Mayobre, Executive Secretary of the Economic Commission for Latin America*

The Seminar on Small-Scale Industry that we are beginning today has been organized by the Centre for Industrial Development, the Bureau of Technical Assistance Operations and the Economic Commission for Latin America. It has also had the valuable assistance of the Government of Ecuador, for which I have the honour to thank the Government on behalf of the sponsoring institutions and particularly ECLA. The seminar reflects

the growing interest being taken by the countries of the region in the problems of small-scale industry because of the important role it can play in development. ECLA, being aware of this interest, has for some years been collecting information on small-scale industry in Latin America with the aim of assembling material on the basis of which a policy for the development of this important sector can be worked out.

At the Latin American Symposium on Industrialization held last March at Santiago, Chile, the participating delegations agreed on the dynamic role of small-scale industry, since even in the developed countries it has been able, by adapting itself to an established industrial system, to occupy an important position.

The task of the present seminar will now be to make further progress in clarifying the problems of this sector. For the first time an attempt will be made to review the situation of small-scale industry in the different countries of Latin America and to formulate what may eventually become a regional policy.

## I

For the past 30 years industrialization has been one of the main objectives of economic and social development in Latin America; and despite rapid population growth and urbanization, great inequality in income distribution, slow growth in the agricultural sector and violent fluctuations in foreign trade, progress has been made towards this objective. Proof of this is that the share of manufacturing in the total output of the region has grown to the point where, in 1966, it has reached an average of a little over 25 per cent and, in nearly half the countries, in 20 per cent or more. According to the latest estimates of ECLA, the total value of manufacturing output in 1966 was about \$ 66,000 million, with a value added of about \$ 30,000 million. The number of people employed in this sector is more than 11 million, or over 14 per cent of total employment in the region. Annual imports of manufactures have a total value of \$ 8,400 million and exports \$ 4,800 million. All this gives a total annual supply of manufactures in Latin America amounting to \$ 70,000 million or \$ 285 *per capita*, of which domestic output accounts for 86 per cent.

These figures show that in the last three decades a solid industrial base has been established in Latin America and makes it possible to supply a broad range of consumer goods and a growing variety of capital goods and intermediate products. This has been accompanied by the adoption of new techniques and processes of production that were formerly unknown in the region and the emergence of a considerable body of able entrepreneurs and skilled workers. A painstaking process of technological and industrial research has also been initiated because previous experience in this field was almost nil. All this has meant a vast investment effort.

There is reason to wonder whether these achievements, however praiseworthy they may be, correspond to the rapid economic development demanded by an explosive population growth and the increasingly ambitious striving of the people for material prosperity. It is, after all, evident, on the one hand, that the industrialized countries are far ahead of us in levels of living, income and technology and, on the other, that the process

of industrial development in Latin America has been showing clear signs of slackening in recent years. This gives reason to believe that the industrialization policy hitherto followed may have to be revised.

The present industrial base and the accumulated experience of industrialists and workers should now be taken as a point of departure for a new and broader approach. An appropriate industrial development model must be drawn up, which, given the region's limitations, will enable it to realize its potential. It is necessary to tackle with imagination and courage the task of establishing large export industries, introducing new production techniques adapted to the economic environment and increasing the efficiency of industry and the productivity of labour.

How these objectives are to be achieved, when many sectors of industry in the region are backward, when markets are still small by comparison with those of the developed countries and when the resources available for investment are limited is the essence of the problem which the industrialization of Latin America presents today, and it is the background against which the proceedings of this seminar must take place.

## II

The economic and social conditions in which small-scale industry has developed in Latin America are different from those in the developed countries. They include a shortage of capital, slow economic growth, political and social instability, marginal participation by the broad masses of the people in the money economy and a craft's sector using rudimentary techniques to produce simple goods. Nevertheless, small-scale industry has acquired economic importance in the region. According to the various industrial censuses, it is estimated that in 1960 over 1.5 million persons were working in small-scale industry, representing 31 per cent of manufacturing employment and 16 per cent of total industrial employment. In the same year, the value added of small-scale industry in Latin America amounted to about \$3,300 million, that is, 21 per cent of manufacturing output and 16 per cent of total industrial output.

At the present stage of industrialization in the Latin American countries, the small enterprise generally coexists with large-scale industry, a situation that almost always is to be explained by the special conditions prevailing in the markets and only occasionally by the fact that the small enterprise is efficient and employs modern equipment and production techniques. There is in fact a tendency in some circles to identify the small enterprise with inefficiency and poor organization. This situation is undesirable from all standpoints and must be changed in the new phase that the industrial development of Latin America is entering upon.

Small-scale industry can and must play an active role in the process of industrialization and in general economic development. Such was and still is the case in the more advanced countries, where in some sectors it is highly productive even by comparison with large-scale industry. In the United States, for example, despite the high level of industrial development and a population almost equal to the entire population of Latin America, small-scale industry is responsible for 12 per cent of manufacturing output and 15 per cent of manufacturing employment.

In addition, from the social standpoint, it plays a role of primary importance in bringing a considerable part of the labour force into the productive process and in providing favourable conditions for industrial decentralization and regional development.

Up to now, however, no special strategy has been determined for this sector in Latin America, since the action taken by Governments has consisted of isolated measures, based on a traditional and piecemeal approach to the problem. Efforts have been directed towards protecting small-scale industry instead of encouraging its modernization so that it may be in a better position to compete with larger units. Governments' industrial policy on small-scale industry has not always been responsive to the industry's needs. Its special characteristics and the environment in which it develops necessitate special treatment based on fiscal arrangements that not only facilitate profitable operations but also preserve its socially useful character. This does not mean that industrial policy in general should be subordinated to the interests of small-scale industry but rather that the latter has a specific function to fulfil. It means that the disadvantages of small-scale industry arising from its size must, where necessary, be evened out or that small-scale industry must be encouraged to produce those items for which it is better suited by reason of its ability to cope more effectively with market conditions or of its advantages as regards transport or specialization.

The obstacles to industrialization in Latin America have made themselves felt with greater force in small-scale industry, which has only fragile defences. Important obstacles to the development of small-scale industry are: shortage of capital for the purchase of modern machinery and equipment, difficulties with the supply of raw materials, inadequate marketing arrangements, lack of managerial training, inefficient techniques and under-utilization of equipment. Small enterprises are generally unable to make the cost studies that would help them to plan and control production, and they lack the flexibility to adapt their productive process to changes in the composition and form of the product. The small industrialist frequently clings to traditional methods of production because he is unaware of his own possibilities and lacks the necessary guidance to introduce the changes demanded by industrial progress.

### III

Apart from the general situation of small-scale industry in Latin America, which we have summarized, the agenda of the seminar includes other items, such as technical assistance, financing, and regional and international co-operation on behalf of small-scale industry.

The basic aim of technical assistance is to determine the economic environment conducive to the development of small-scale industry and the best ways of improving its efficiency and administration. It has been found—in Chile, for example—that technical assistance programmes carried out on behalf of a particular unit or branch of industry lead to an appreciable increase in the productive capacity of small industrialists and help them to solve their most urgent problems.

Another matter of great importance is the training of manpower, but the programmes conducted in various Latin American countries do not seem to have been sufficient to meet the needs of industrial development. The introduction of special training programmes for small-scale industry must be preceded by a thorough analysis of the activities that should be fostered, with the special conditions of each country taken into account.

An important means of support for small-scale industry, and one which presupposes a close relationship between small and large industrial units, is subcontracting. The experience of Brazil, Argentina and Mexico has much to offer in this regard.

The establishment of industrial estates in the developing countries can also be an effective instrument in industrial planning by promoting decentralization and the development of the more backward areas. Little has been done in this regard in Latin America, although in other parts of the world this type of action has taken on considerable importance since 1950. The experiments carried out in the United States, Italy, the United Kingdom and some Far Eastern countries are worthy of mention.

The situation of small-scale industry as regards financing is quite unfavourable. The shortage of capital with which to acquire modern machinery and equipment obliges small manufacturing establishments to make intensive use of labour, even when there is no economic advantage in doing so. Similarly, small-scale industry has difficulty in obtaining raw materials. Since the small volume it requires does not offer any great attraction to suppliers, it is forced to pay high prices in cash or is granted credit only on very short terms and at high rates of interest. Small-scale industry usually does not have access to foreign credit. If it does succeed in obtaining such credit, the transaction is conducted through development corporations or intermediary enterprises, which in general charge higher interest rates than banks and add their costs to the prices of equipment and machinery. To remedy this situation, several Latin American countries have established machinery for the provision of credit to small-scale industry. The action taken varies both in form and procedure. In some cases, such as Mexico and Venezuela, special funds and agencies have been established; in others, special arrangements have been made within the existing credit system.

As far as international co-operation to assist small-scale industry is concerned, some progress has been made in recent years, both in absolute terms and by comparison with other regions, but it has not been enough for the growing needs of the Latin American countries. Among the programmes that should be mentioned are those being conducted with the help of the United Nations Special Fund and the International Labour Organisation and the bilateral assistance programmes of some Governments, such as those sponsored by the United States Agency for International Development and by the Netherlands through the Research Institute for Management Science at Delft.

A proposal of great promise that will be discussed by the seminar is the possibility of establishing, on a basis of international co-operation and regional co-ordination, a centre for the development of small-scale industry in Latin America.

In our judgement, such a centre might undertake economic and social research relating to small-scale industry; devise special programming procedures for the sector and train personnel to apply them; and carry out research and train personnel for the purpose of providing technical assistance to small industrialists. All of this, of course, amounts to a large and complex task.

In the beginning, the centre should perhaps concern itself with more general matters such as economic research, the development of programming techniques and the training of senior and intermediate staff for the planning and operational agencies concerned with small-scale industry. At a later stage, the emphasis might be placed on research into manufacturing problems and the training of technical assistance personnel to aid the small industrialists; at this stage greater resources would be needed.

As regards the economic research to be carried out by the centre, the implications of Latin American integration should be borne in mind. The consequences for small-scale industry of an integrated market and the concomitant establishment of large-scale industrial enterprises would have to be taken into account in order to determine in what ways the smaller units could be improved and modernized so that they could play a meaningful role in economic development in general.

As regards the geographical area that the new centre should cover, the variety of conditions in the countries of the region should be borne in mind. The ideal would be for the centre to cover Latin America as a whole, but if that were not possible for administrative or other reasons, it might be composed of countries whose small-scale industry shows similar needs and characteristics, without prejudice to the possibility of extending its field of action later.

I am sure that the forthcoming discussion on this subject will produce a suitable solution, which will make it possible to go forward with this important proposal. ECLA offers its firmest support here and now for the general formulation of the project and the research and training programmes.

Distinguished representatives, I believe that this seminar offers an excellent opportunity for an exchange of ideas on small-scale industry. Clarification of the problems of this important sector of the manufacturing economy will make it possible to formulate a strategy for its development and a suitable policy for achieving the basic objectives of that strategy. I wish the seminar every success in its work.

## APPENDIX 2

## LIST OF PARTICIPANTS

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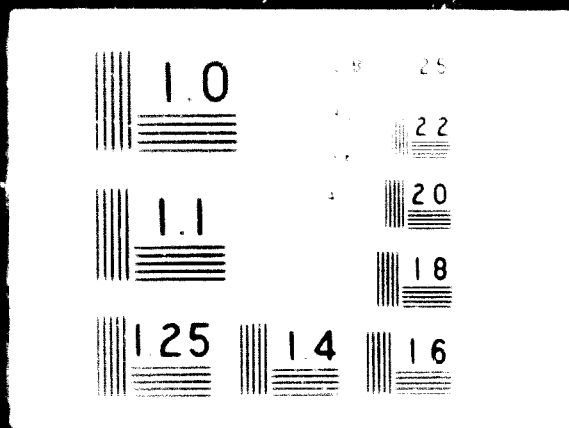


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## APPENDIX 3

## AGENDA

The seminar adopted the following agenda:

1. *The contribution of small-scale industry to the development of Latin America*
  - (a) Characteristics of small-scale industry in Latin America
  - (b) Small-scale industry in the over-all strategy of economic development
  - (c) Development possibilities for small-scale industry in specific sectors
  - (d) Over-all promotion programmes for small-scale industry: institutions, priorities in respect of sectors and means of action
2. *Technical services and assistance for the development of small-scale industry*
  - (a) Technical services at the plant level: organization, administration and methods
  - (b) Special training programmes for personnel at all levels and other services
  - (c) Forms of co-operation and self-help
  - (d) Industrial estates: organization, administration and financing
3. *Financing the development of small-scale industry*
  - (a) Alternative policies and their financing
  - (b) Internal and external sources of funds
4. *Regional and international co-operation in the field of small-scale industry*
  - (a) Possible forms of international co-operation
  - (b) Objectives and machinery of regional co-ordination

## APPENDIX 4

## LIST OF DOCUMENTS

<i>Symbol</i>	<i>Title</i>	<i>Submitted by</i>
ST/ECLA/Conf. 25/L. 1	Provisional annotated agenda and provisional list of documents (English and Spanish)	ECLA
<i>I. Contribution of small-scale industry to the development of Latin America</i>		
ST/ECLA/Conf. 25/L. 17	La pequeña industria en América Latina (Spanish)	ECLA
ST/ECLA/Conf. 25/L. 2	The definition of small-scale industry (English, French and Spanish)	P. C. Alexander, Consultant, United Nations Centre for Industrial Development (CID)
ST/ECLA/Conf. 25/L. 10	The role of small-scale industry in over-all industrial development strategy (English, French and Spanish)	P. C. Alexander, Consultant, United Nations Centre for Industrial Development (CID)
ST/ECLA/Conf. 25/L. 8	Over-all development programmes for small-scale industry in Latin America, general criteria, institutions, measures and priorities (English and Spanish)	Bernhard Stein, BTAO expert
ST/ECLA/Conf. 25/L. 18	Development possibilities for small-scale industry in specific fields of industrial activity (English and Spanish)	A. Neilson, BTAO expert
ST/ECLA/Conf. 25/L. 26	Estudo das pequenas indústrias de São Paulo (Spanish and Portuguese)	Marcos Telles Almeida Santos, ECLA consultant
ST/ECLA/Conf. 25/L. 11	La pequeña industria en el Uruguay (Spanish)	CIDE/ CONCORDE/CPU
ST/ECLA/Conf. 25/L. 13	La pequeña industria en Costa Rica (Spanish)	Ministry of Industry and Trade, Government of Costa Rica
ST/ECLA/Conf. 25/L. 14	La pequeña industria en Venezuela (Spanish)	CORDIPLAN

<i>Symbol</i>	<i>Title</i>	<i>Submitting Agency</i>
ST/ECLA/Conf. 25 L. 15	La pequeña industria en el Ecuador (Spanish)	Government of Ecuador
ST/ECLA/Conf. 25 L. 16	La pequeña industria en Paraguay (Spanish)	Ministry of Industry and Trade, Government of Paraguay
ST/ECLA/Conf. 25 L. 19	La pequeña industria en Mexico (Spanish)	Nacional Financiera S.A.
ST/ECLA/Conf. 25 L. 20	La pequeña industria en Chile (Spanish)	SCF CORFO
ST/ECLA/Conf. 25 L. 22	La pequeña industria en Panamá (Spanish)	SINAPI
ST/ECLA/Conf. 25 L. 29	Small scale industry in Brazil (Portuguese)	BNDE
ST/ECLA/Conf. 25 L. 24	La pequeña industria en Bolivia (Spanish)	Ministry of Planning, Government of Bolivia
ST/ECLA/Conf. 25 L. 23	La pequeña y mediana industria en Colombia (Spanish)	Government of Colombia
ST/ECLA/Conf. 25 L. 25	La pequeña industria en el Perú (Spanish)	Banco Industrial del Peru and the National Institute for Industrial Promotion, Peru
ST/ECLA/Conf. 25 L. 28	La pequeña industria en la Republica Dominicana (Spanish)	Corporación de Fomento Industrial
ST/ECLA/Conf. 25 L. 33	La pequeña industria en Honduras (Spanish)	Ministry of Economic and Financial Affairs, Government of Honduras
ST/ECLA/Conf. 25 L. 34	La pequeña industria en Guatemala (Spanish)	Government of Guatemala
ST/ECLA/Conf. 25 L. 35	Small scale industry in Trinidad and Tobago	Industrial Development Corporation (IDC), Trinidad and Tobago
<b>II. Technical services and assistance for the development of small-scale industry</b>		
ST/ECLA/Conf. 25/L. 3	Industrial extension services for small-scale industries (English, French and Spanish)	P. C. Alexander, Consultant, United Nations Centre for Industrial Development (CID)



<i>Symbol</i>	<i>Title</i>	<i>Author(s)</i>
ST/ECLA/Conf. 25 L. 4	The role of industrial estates in policies and programmes for the development of small scale industries (English, French and Spanish)	P. C. Alexander, Consultant, United Nations Centre for Industrial Development (CID)
ST/ECLA/Conf. 25 L. 5	Types of industrial estates (English, French and Spanish)	P. C. Alexander, Consultant, United Nations Centre for Industrial Development (CID)
ST/ECLA/Conf. 25 L. 6	Stimulation of entrepreneurship and assistance to small industrialists at the pre-investment stage (English and Spanish)	United Nations Centre for Industrial Development (CID)
ST/ECLA/Conf. 25 L. 7	Pre-project planning for industrial estates (English, French and Spanish)	P. Quigley, Consultant, United Nations Centre for Industrial Development (CID)
ST/ECLA/Conf. 25 L. 9	Industrial estate plans and projects in Latin American countries (English, French and Spanish)	United Nations Centre for Industrial Development (CID)
ST/ECLA/Conf. 25 L. 12	Evaluación de un programa de asistencia a la pequeña industria: el caso de Chile (Spanish)	SCICORIO
<b>III. <i>Regional and international co-operation in the field of small-scale industry</i></b>		
ST/ECLA/Conf. 25 L. 21	A Latin American development centre for small-scale industry (English and Spanish)	Arend Eisenloeffel, International Technical Assistance Department, Ministry of Foreign Affairs of the Netherlands
ST/ECLA/Conf. 25 L. 30	Technical co-operation for the development of small-scale industry (English, French and Spanish now published as Sales No.: 67.11.B.3)	United Nations Centre for Industrial Development (CID)

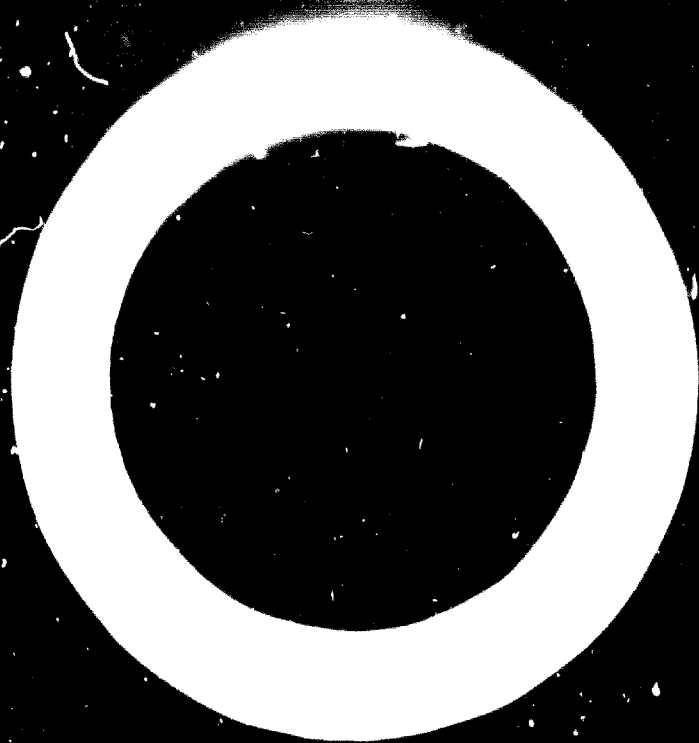
*Background papers*

	<i>Sales or document number</i>
Industrial estates in Asia and the Far East (English, French and Spanish)	62. II. B. 5
The physical planning of industrial estates (English, French and Spanish)	62. II. B. 4
Problems of procedure, administration and relationship to be considered in establishing the United Nations Organization for Industrial Development (English, French and Spanish)	A/AC.126/3 and Corr. 1 and 2
Industrial estates in Africa (English, French and Spanish)	66. II. B. 2
Industrial estates: policies, plans and progress (English, French and Spanish) — A comparative analysis of international experience	66. II. B. 16
Establishment of industrial estates in under-developed countries (English, French and Spanish)	60. II. B. 4

**PART II**

*Survey of Small-Scale Industry  
in Latin America*

Prepared by the secretariat of the Economic Commission for Latin  
America





## SMALL-SCALE INDUSTRY IN THE DEVELOPMENT OF LATIN AMERICA

### GENERAL CONSIDERATIONS

A STUDY OF THE industrialization process of the developed countries reveals the importance of modern small scale industry in the industrial structure and the dynamic role which it plays in inter industry relations, and in furthering development and growth.

In Latin America, however, a shortage of capital, slow economic growth, conditions of political and social instability, the existence of large sectors of the population outside the monetary market, the development of structural unemployment, and the presence of an artisan sector concerned with the production of simple articles requiring rudimentary techniques, are some of the features that have characterized the development of small scale industry.

At the present stage of industrialization in the Latin American countries, the small enterprise, operating alongside large scale industry and normally in direct competition with it, has been concerned with what are called traditional industries. In some cases, however, the small enterprise is engaged in highly specialized work or small scale production of no interest to medium sized or large enterprises.

Every industrialization policy must take into consideration the important social role that small scale industry can play by absorbing a large proportion of the labour force into the productive process, especially in activities where a satisfactory level of efficiency may be attained in return for a modest amount of capital outlay. This is the case in the food industry, certain types of textile manufacturing, the production of clothing and furniture. In the textile industry in Latin America, for instance, small plants of a low technical level compete side by side with large, modern establishments.

Furthermore, the complementarity of small scale and large scale industry in Latin America is being bolstered by a subcontracting system now in operation in the more industrially advanced countries of the hemisphere, e.g. Brazil and Mexico, which has been of particular benefit to the automotive industry.

Table 1. Latin America: definition of small-scale industry in the programmes of selected countries

Country	Number of employees	Capital (dollars)	Annual sales (dollars)	Type of enterprise	Body or authority	Year
Argentina	10 or fewer			Small	Industrial censuses	
	Not more than 15	Not more than 20,000 <sup>a</sup>	Less than 60,000 <sup>b</sup>	Small	Banco Industrial de la Republica	1965
Brazil	—	Not more than 3,600,000 <sup>c</sup>	—	Small and medium-sized	Banco Nacional de Desenvolvimento Económico	1966
	Between 10 and 50	Between 7,900 and 39,300 (fixed capital)	Between 15,700 and 157,000 <sup>d</sup>	Small	Technical Co-operation Service	1966
Colombia	Between 1 and 10	Up to 7,900	—	Handicrafts	Technical Co-operation Service	1966
	10 or more	31,250 <sup>e</sup>	—	Small	Banco Popular	1966
Ecuador	Fewer than 100	Between 31,250 and 125,000 <sup>f</sup>	—	Medium-sized	Banco Popular	1966
	—	11,000 <sup>g</sup>	—	Small	Parliament (Statute)	1965
Mexico	—	Between 2,000 and 1,200,000 for the Federal District and between 4,000 and 1,200,000 for Monterrey <sup>h</sup>	—	Small and medium-sized	Nacional Financiera S. A.	1965

	Between 5 and 49	—	—	Small	Ministry of Industry and Commerce	1966
Paraguay	Between 50 and 99	—	—	Medium-sized	—	1966
Peru	—	Not more than 29,600 <sup>1</sup>	Not more than 88,900 <sup>1</sup>	Small, including handicrafts	Banco Industrial del Peru	—
Uruguay	Between 5 and 49 <sup>j</sup>	—	—	Small	CIIDE	1966
Venezuela	Between 5 and 20	—	—	Small	CORDIPLAN (Industrial Survey)	
	—	Not more than 22,000	—	Small	National Board	1965
	—	Between 22,000 and 220,000	—	Medium-sized	for Financing Small-Scale and Medium-Scale Industry	
Central American countries	Between 5 and 14	—	—	Small	SIIECA	1962

<sup>a</sup> 3.5 million Argentinian pesos (1965); the rate of exchange adopted is 171.50 pesos = \$ 1.00.

<sup>b</sup> 10 million Argentinian pesos (1965).

<sup>c</sup> Value of fixed assets, equivalent to 8,000 million cruzeiros; in certain cases, firms with a capital of 12,000 million cruzeiros (\$ 5.5 million) might also be included. The rate of exchange adopted is 2,200 cruzeiros = \$ 1.00 (1966).

<sup>d</sup> The figures given show the equivalent in dollars to a number of annual living wages in the department of Santiago amounting in 1966 escudos to 3,141 escudos, equivalent to \$ 785 at an average free bank exchange rate in that year of 4 escudos = \$ 1.00.

<sup>e</sup> In Colombian pesos, between 500,000 and 2 million.

<sup>f</sup> Value of fixed assets, not including sites and buildings, 200,000 sucres; the exchange rate adopted is 18.18 sucres = \$ 1.00.

<sup>g</sup> That is to say, 25,000 pesos if the firms operate in the provinces and 50,000 pesos if they operate in the industrial areas of the Federal District and Monterrey; in both cases the capital at book-value may not exceed 15 million pesos; the exchange rate adopted is 12.49 pesos = \$ 1.00.

<sup>h</sup> In terms of national currency, the value of capital is 800,000 soles and that of sales 2,400,000 soles.

<sup>i</sup> Provisional classification.



Up to now, government concern for small-scale industry has taken the form of piecemeal action, reflecting a traditional and haphazard approach to the problem. In most countries credit facilities have been provided through financial agencies or machinery, while in others crash training courses at various levels have been organized, and in others technical assistance services have been provided. This help has on the whole proved inadequate, and the returns have not been proportionate to government expenditure and effort.

### THE CONCEPT OF SMALL-SCALE INDUSTRY

No uniform definition of small-scale industry exists in the various countries, either in the censuses when a separate category is given to this sector or in the programmes designed to provide assistance. In some instances the emphasis in the latter has been on the encouragement of the artisan industry and small factories; in others, the former has been excluded and the definition has been widened to include medium-scale industry; some Governments have concentrated on the development of artistic handicrafts as a complementary aspect of tourism.

When defining a small-scale enterprise, most Latin American countries have used as their guidelines the number of employees and the amount of fixed capital; sometimes the value of sales has also been employed (see table 1).

The heterogeneous nature of the criteria adopted arises partly because the concept of the small enterprise is governed by general conditions prevailing in the individual country. Thus, firms considered small in highly industrialized countries with broad markets may seem medium-sized or even large to small countries in the early stages of industrial development. In the United States, for instance, any establishment employing fewer than 250 people is considered small. In Japan, where special attention has been paid to small-scale industry, it is defined as an enterprise with fewer than 300 employees and capital of less than \$ 28,000. In India, where the sector has also been studied closely, it was defined until 1961 as an enterprise with 50 employees and power for mechanization or 100 employees without power but with fixed assets of up to \$ 100,000. Since 1961, the definition has been based exclusively on the capital of the enterprise, which was fixed at a maximum of 500,000 rupees (equivalent to approximately \$ 66,700 at the July 1966 rate of exchange). In February 1967, this maximum was raised to 750,000 rupees (equivalent to approximately \$ 100,000). On the other hand, in Trinidad and Tobago, a country with a much smaller population than those previously mentioned, enterprises with 25 or more people are considered large.

Defining a small enterprise in Latin America is difficult because of the dearth of statistical data in the industrial censuses. To overcome this deficiency, technical organizations in this sector and statistical bureaux should carry out national and sectoral surveys and should incorporate in the censuses questions pertaining to small enterprises. If quantitative data for this sector were available in each country, it would be easier to lay down the guidelines for an industrial development policy.

Nevertheless, for the purpose of an appraisal covering the whole of Latin America, a certain uniformity of concept can be assumed, since the part played by small-scale industry in the economies of the various countries presents many similarities, and many of the impediments hindering its evolution and growth stem from the same causes. Consequently, in this survey the term "enterprise" will designate the unit employing between 5 and 49 people. Furthermore, this analysis will focus on problems of the modern small enterprise, whether it is likely to expand into a medium-sized unit, or whether, by virtue of its functions, it will remain small, as, for instance, firms engaged in sub-contracting work or in highly specialized activities. Consequently, the problems of the handicraft industry will not be considered; they need to be treated in a separate survey.

#### SHARE OF SMALL-SCALE INDUSTRY IN EMPLOYMENT AND THE INDUSTRIAL PRODUCT

Before the problems of small-scale industry and the guidelines for the respective plans of action are examined, it would be appropriate to look at some statistics showing the relationship of this sector to industry as a whole. The most recent censuses held in some Latin American countries show that the vast majority of manufacturing establishments belong to the small-scale group, while medium-sized and large enterprises occupy only a small share of the total number of enterprises (see table 2 and figures 1—4). However, employment, value added and power are concentrated in the medium-sized and large industrial groups (100 or more employees); this trend is even more pronounced in countries where population is larger and development has been carried further. Nevertheless, in some countries the number of people employed in small-scale industry is far from negligible.

The share of small-scale industry in employment and the total industrial product has been calculated for the whole of Latin America on the basis of censuses and other data for the individual countries. For the purpose of this survey, the countries in the region<sup>1</sup> have been divided into three groups according to number of inhabitants and

<sup>1</sup> Cuba and the Dominican Republic have been omitted for lack of information.

relative degree of industrialization. Group I is composed of Argentina, Brazil and Mexico, and represents 80 per cent of the value added in Latin American industry. Group II includes Chile, Colombia, Peru, Uruguay and Venezuela, all countries which have attained a reasonable degree of industrialization, and contribute 16 per cent to the value added. Group III, comprising the five central American countries and Bolivia, Ecuador, Haiti, Panama and Paraguay, furnishes under 4 per cent of the value added.

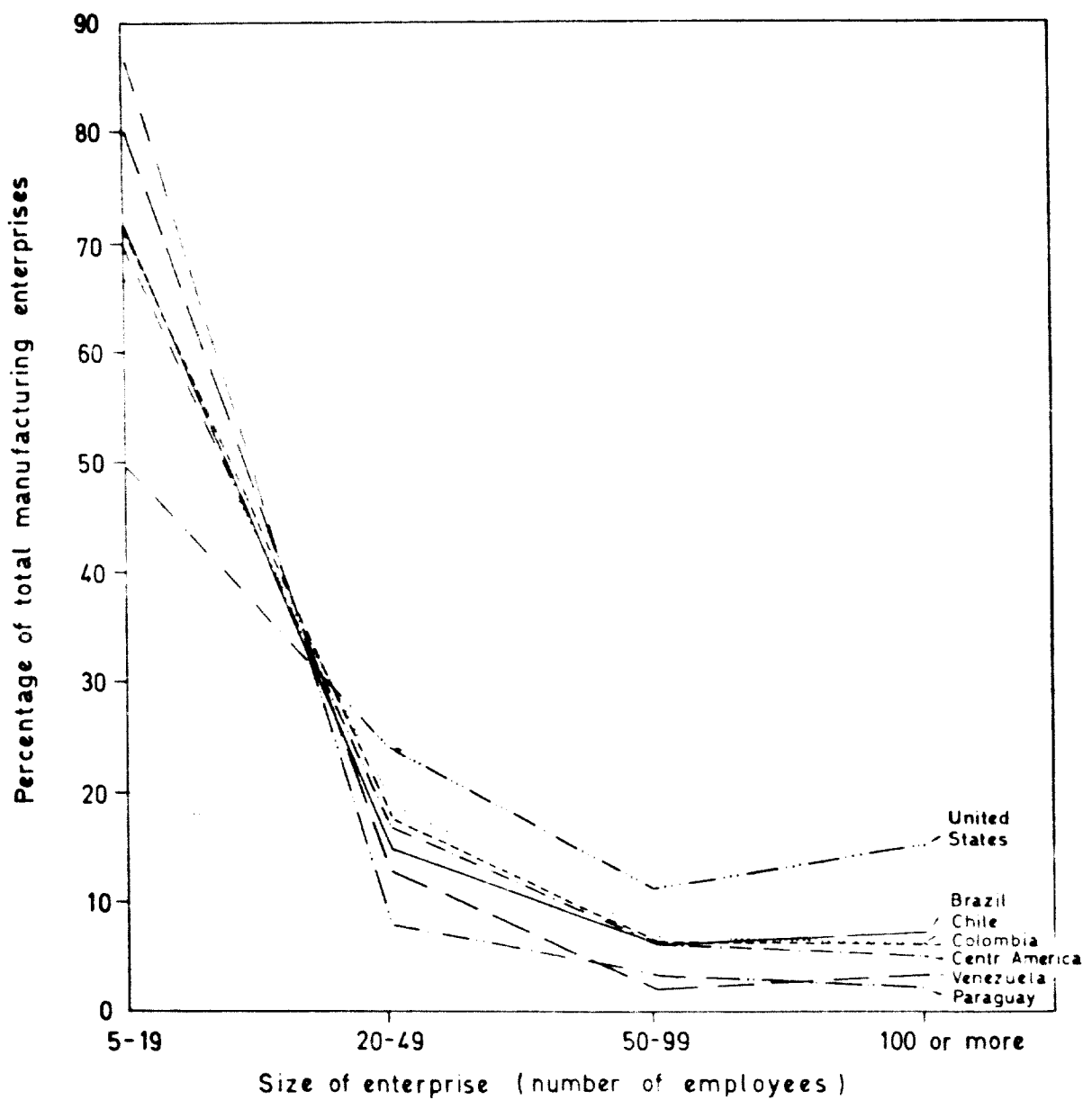


Figure 1. Latin America and the United States: number of enterprises in the manufacturing industry, classified by size of enterprise

Table 2. Latin America and the United States: characteristics of industrial enterprises employing 5 to 49 persons, according to censuses

	Brazil (1960)	Central America (1962)	Chile (1957)	Colombia (1960)	Paraguay (1963)	Venezuela (1961)	United States (1954)
Number of enterprises . . . . .	37,280	4,992	5,099	6,298	1,434	7,165	132,182
Number of employees . . . . .	466,118	70,300	63,073	83,175	13,874	86,821	2,297,319
Value added <sup>a</sup> . . . . .	119,507	100.9	63,483	855.8	1,653	1,316	14,004
Installed power . . . . .	1,039,484	—	132,316	135,665	22,474	180,644	8,677,000
Employees per enterprise . . . . .	12.5	14.1	12.4	13.2	9.7	12.1	17.4
Horsepower per enterprise . . . . .	27.9	—	25.9	21.5	15.7	25.2	65.6
Value added per employee <sup>b</sup> . . . . .	256.4	1,435	1,007	10,289	119.1	2.1	6,096
Horsepower per employee . . . . .	2.2	—	2.1	1.6	1.6	15,157	3.8

Source: Statistical appendix.

<sup>a</sup> In millions of the national monetary unit, except for Central America (millions of dollars) and Chile (thousands of escudos).

<sup>b</sup> In the national monetary unit, except for Brazil (thousands of cruzeiros per employee), Central America (dollars per employee) and Paraguay (thousands of guaranis per employee).

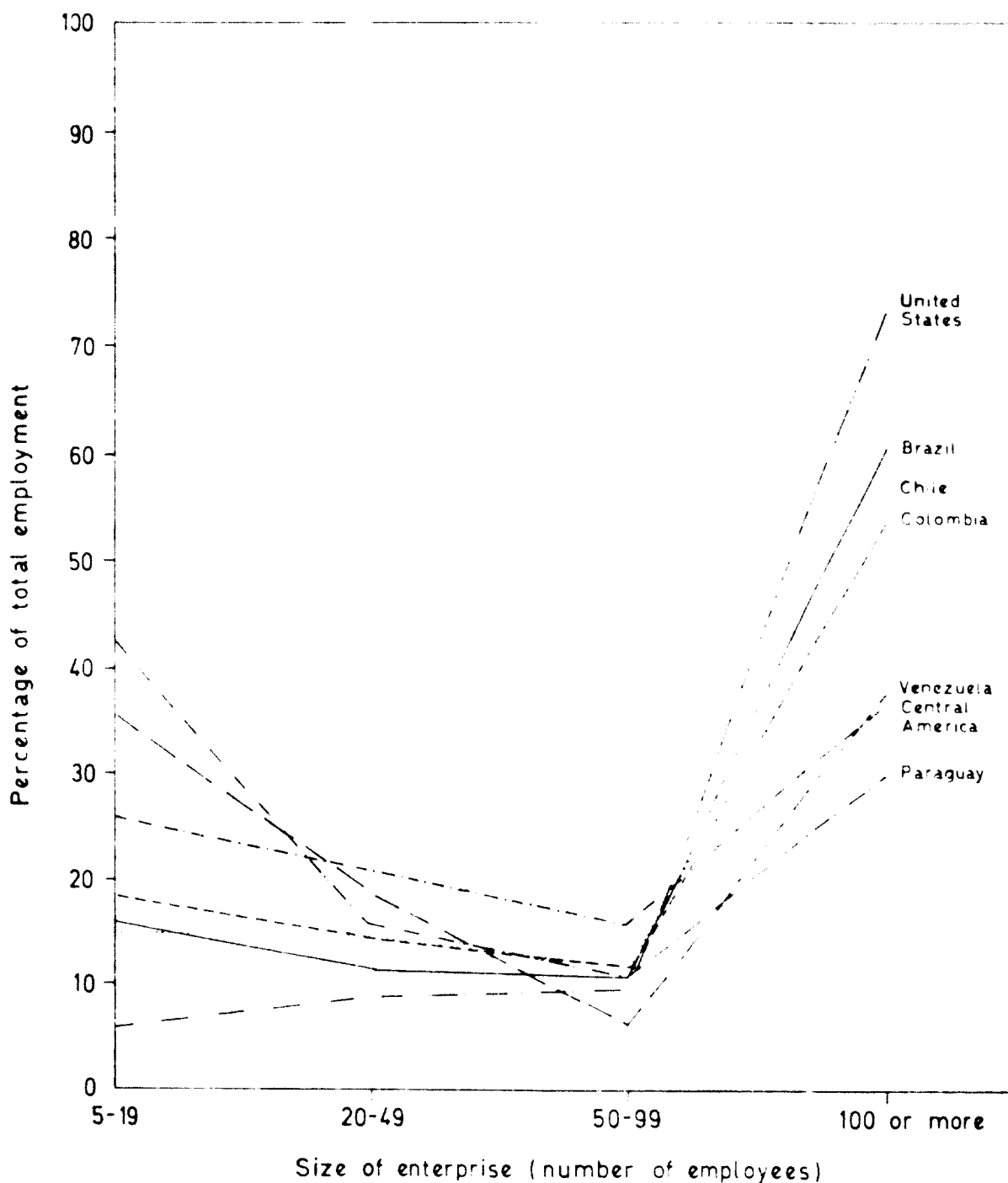


Figure 2. *Latin America and the United States: number of employees in the manufacturing industry, classified by size of enterprise*

Of the total number of employees in the manufacturing industry in Latin America in 1960—over 9 million people—48 per cent were artisans and 52 per cent factory workers (see statistical appendix, table G). In the factory sector, firms with 5 to 49 employees constituted 31 per cent (1,535,000 people), or 16 per cent of total industrial employment.

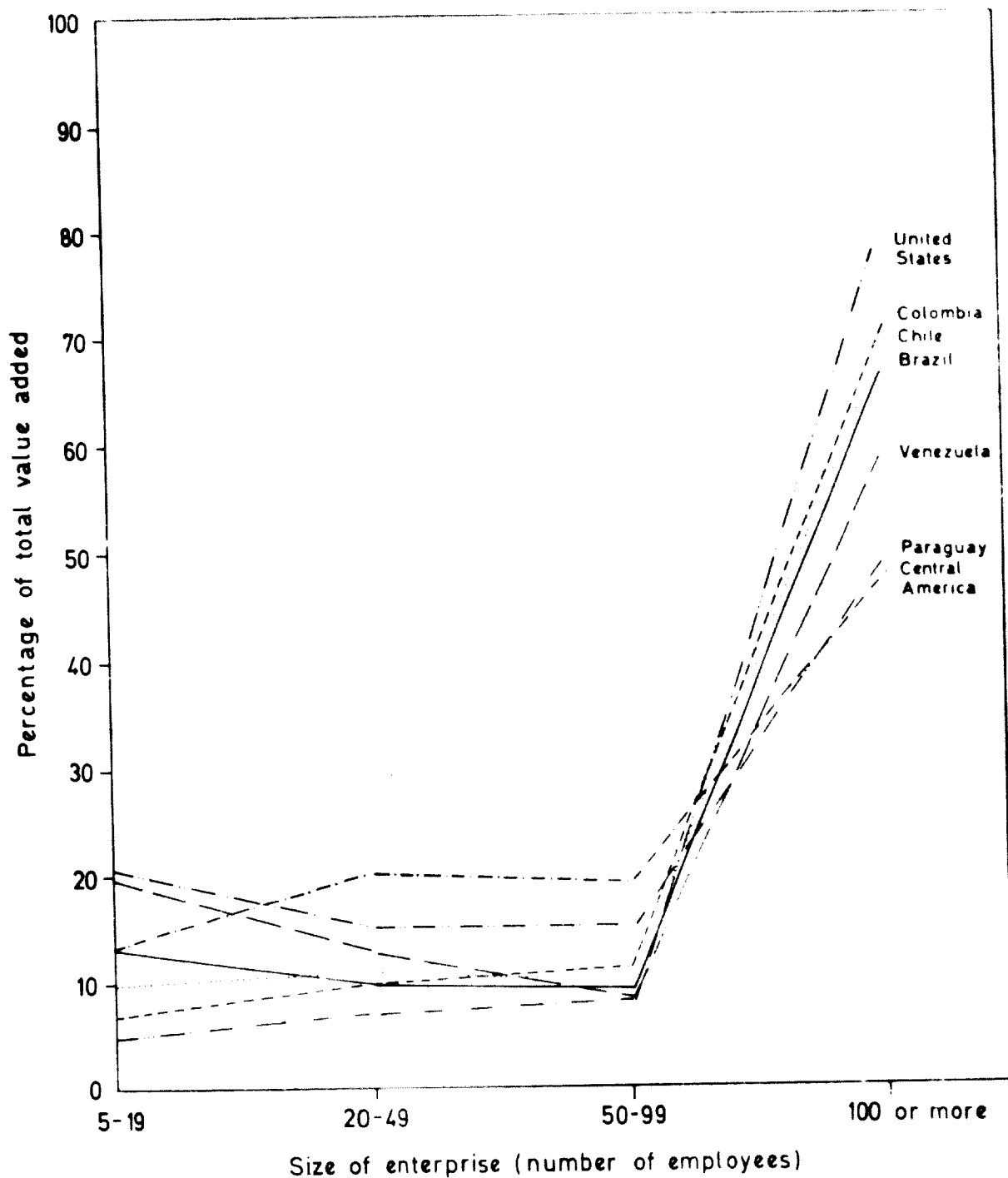


Figure 3. *Latin America and the United States: value added in the manufacturing industry, classified by size of enterprise*

With respect to absorption of labour, the importance of small-scale industry varies. Group III absorbs 50 per cent of factory employees and 13 per cent of the total industrial labour force. In Group II these figures are 38 and 18 per cent respectively, whereas in Group I, which includes the largest and most industrially advanced countries, they are 28 and 17 per cent.

Within the modern factory sector, the share of small-scale industry in employment diminishes from the less-developed to the more-developed group, with a corresponding sharp increase for large-scale industry, but the reverse is true for its share in total industrial employment (13 to 17 or 18 per cent); the share of handicraft trades in total industrial employment drops (from 75 to 54 and 41 per cent) from Group III to Group I. If one assumes that the three groups represent successive historic stages, small-scale industry must be playing a dynamic role in the absorption of labour in Latin America.

The contribution of small-scale industry to the industrial product of the hemisphere is less outstanding than to employment, but is nevertheless significant. Of the total manufactured product, which in 1960 exceeded \$21,000 million, 26 per cent pertained to handicraft trades and 74 per cent to manufacturing industry. Small-scale industry contributed about 21 per cent of the manufactured product (about \$3,340 million), equivalent to 16 per cent of the total manufactured product.

The importance of small-scale industry varies according to the degree of industrial development in each country. Thus, in the less-developed countries (Group III), small-scale industry contributes 34 per cent of the factory product and 25 per cent of total manufactured production. In Group II these percentages drop to 24 and 17 per cent respectively, and in the most industrially advanced countries, the figures are 20 and 16 per cent.

Table 3 below shows the estimated figures for the share of small-scale industry in employment and production.

*Table 3. Latin America: share of small-scale industry sector in employment and in the product of the modern factory sector, 1960*

(Percentage)

	<i>Employment</i>		<i>Product</i>	
	<i>Modern factory</i>	<i>Total manufacturing</i>	<i>Modern factory</i>	<i>Total manufacturing</i>
Group I	28.3	16.6	20.4	15.5
Group II	38.4	17.6	23.8	16.8
Group III	50.1	12.7	34.3	20.5
Total	31.5	16.4	21.4	15.9

Although the share of small-scale industry diminishes as the level of development rises, it is not to be discounted. Even in the United States, with its high level of industrial development and a population

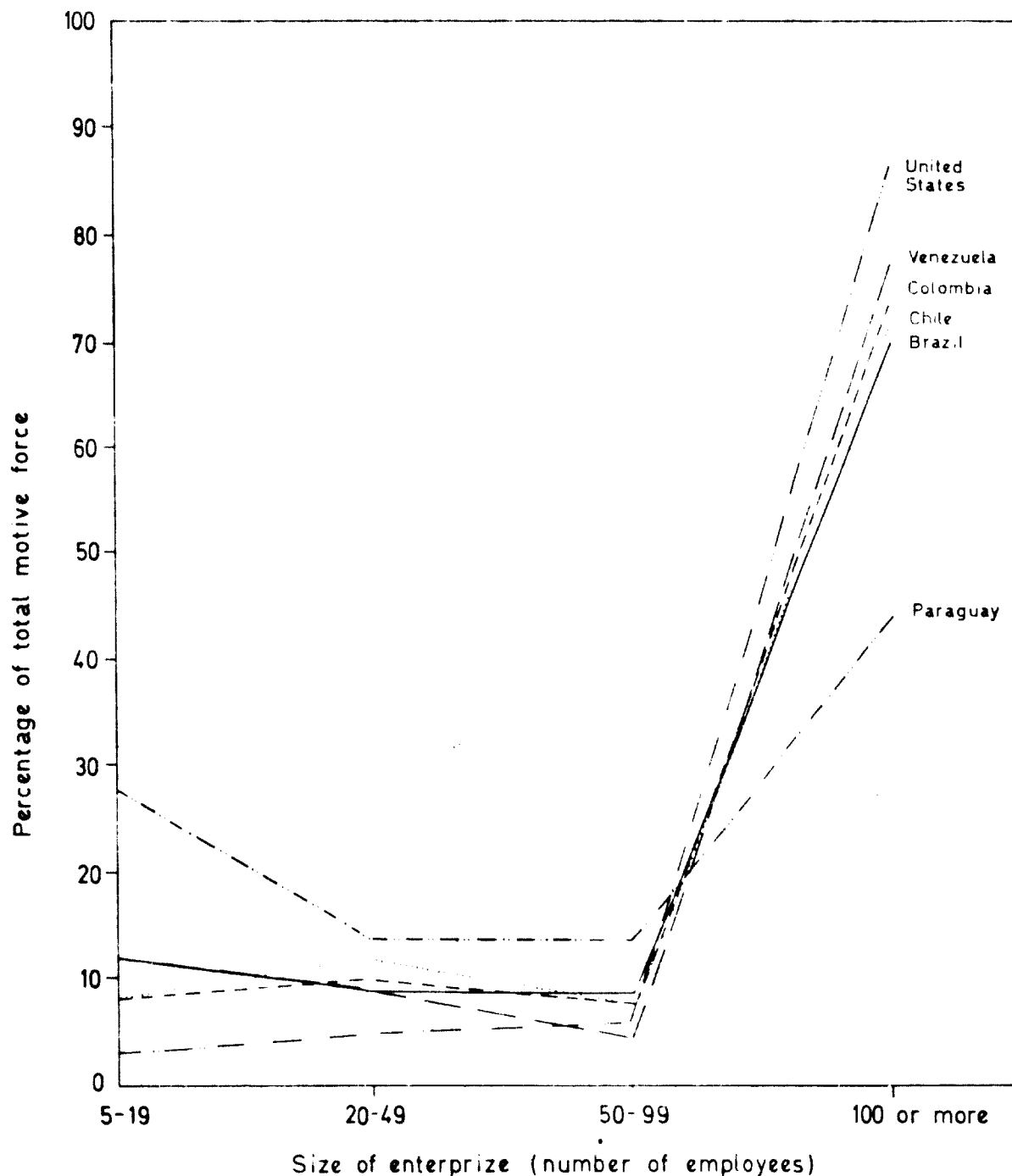


Figure 4. Latin America and the United States: installed power in the manufacturing industry, classified by size of enterprise

almost as large as that of the whole of Latin America, establishments with 5 to 49 employees represent 12 per cent of the factory product.<sup>2</sup>

The contribution made to the factory product by the group of establishments with 50 to 99 employees, which could be considered in

<sup>2</sup> These estimates may be somewhat unreliable because the census data on which they are based are vague, especially with respect to the artisan sector; however, the orders of magnitude indicated above can be regarded as reasonable approximations. (See the statistical appendix for an explanation of the methodology used.)



Latin America as medium-sized, also drops: from 18 per cent in Group III to 10 per cent in Group II and 9 per cent in Group I. This decline for small-scale and medium-sized industry is offset by a relative increase for the group of establishments employing 100 or more people: from 48 per cent in Group III to 66 per cent in Group II and 71 per cent in Group I.

It can therefore be assumed that as the Latin American countries develop and their markets broaden through regional integration or simply population growth, the relative share of the different industrial groups will probably continue to follow the above lines. If this is the case, small-scale industry in Latin America is destined to play an important role in the generation of production and above all in the absorption of manpower over the next few years.

The productivity of the labour force in small-scale industry, measured by value added per employee, is approximately \$ 2,170 per employee; the amount is much higher here than for the artisan sector (\$ 1,220 per person) and is closer to the sum for medium-scale industry (\$ 2,500 per person). Large-scale industry is characterized by a sharp increase in productivity (\$ 3,940 per employee). (See table 4.)

With due reservations as to their possible validity, these figures also show the differences existing between groups of countries at different levels of development and with differing sizes of population. The labour productivity of the small-scale industries in Group III (average of \$ 1,160 per employee) and in Group II (\$ 1,460 per person) is much lower than in Group I (\$ 2,580 per person). Parallel differences of the same kind, but of less magnitude, are to be found in the installed power per person employed: 1.8 hp for Group III, 1.9 hp for Group II and 2.3 hp for Group I.

#### THE STRUCTURE OF SMALL-SCALE INDUSTRY BY GROUP OF INDUSTRIAL PRODUCT

To complete the analysis, the situation of small-scale industry, as shown in the census findings of some countries must be considered by group of industrial product. The censuses studied cover Chile, Colombia, Paraguay and Venezuela, with the addition of the United States for reference purposes. The categories given correspond to those contained in the International Standard Industrial Classification (ISIC) of the United Nations.

The share of small-scale industry in the total product of the factory sector, with respect to employment and value added, is large for nearly all groups in the case of the less-developed countries, but smaller in the case of the more highly developed countries. On the one hand, it is only in some of the ISIC groups (20, food; 24, footwear and other

Table 4. Latin America: characteristics of manufacturing enterprises of various sizes, classified by group of countries, 1960a

Group of countries	Handicraft sector	Size of enterprise (number of employees)			Factory sector (number of enterprises) 50—99	100 or more	Factory sub-total	Manufacturing total
		5—19	20—49	50—99				
		<i>Number of employees (thousands)</i>						
I	2,528	575	442	426	2,155	3,598	6,126	
II	1,210	229	164	110	518	1,021	2,231	
III	738	77	48	37	87	249	987	
Total	4,476	881	654	573	2,760	4,868	9,344	
		<i>Value added (equivalent in millions of dollars)</i>						
I	4,157	1,376	1,248	1,120	9,079	12,823	16,980	
II	996	303	269	234	1,590	2,396	3,392	
III	282	66	79	75	205	425	707	
Total	5,435	1,746	1,596	1,429	10,873	15,644	21,079	
		<i>Value added per employee (dollars)</i>						
I	1,640	2,580	2,630	4,200	3,570	2,760	2,760	
II	820	1,460	2,130	3,070	2,330	1,520	1,520	
III	380	1,160	2,030	2,350	1,700	720	720	
Total	1,220	2,170	2,500	3,940	3,220	2,250	2,250	
		<i>Installed power per employee (hp)</i>						
I	2.4	2.3	2.5	3.3	3.3	3.3	3.3	
II	1.2	1.9	2.0	4.0	4.0	4.0	4.0	
III	0.8	1.8	2.7	3.3	3.3	3.3	3.3	

Source: Statistical appendix.

a Group I includes Argentina, Brazil and Mexico, Group II, Chile, Colombia, Peru, Uruguay and Venezuela and Group III, the five Central American countries and Bolivia, Ecuador, Haiti, Panama and Paraguay.

wearing apparel; 25, wood and cork; 26, furniture and fixtures; 28, printing and allied industries; 33, non-metallic minerals; 35, metal products (except transport equipment) that the share of small scale industry remains the same in all countries (see table 5 and statistical appendix, table G). When some groups are compared with others, it will also be found that in nearly all countries, groups 20, food; 24, footwear and other wearing apparel; 26, furniture and fixtures; 28, printing and allied industries; 31, chemical products; 33, non-metallic minerals; and 38, transport equipment, are those with the highest concentration of employment (60 to 78 per cent) and of value added (59 to 72 per cent) for the whole of small-scale industry in each country (see table 6). On the other hand, in groups 22, tobacco; 23, textiles; 27, paper and paper products; 30, rubber; 32, petroleum and coal derivatives; and 34, basic metals, small-scale industry accounts for a very small share of the total employment figure (3 to 14 per cent) and for total value added (4 to 12 per cent). In groups 21, beverages; 29, leather and leather products; 36, machinery except electrical machinery; 37, electrical machinery, apparatus, appliances and supplies; and 39, miscellaneous, the share of small-scale industry varies without any discernible regularity.

Possibly the industrial groups in the first set are particularly suited to production on a small scale and those in the second set to production on a large scale. However, only a more thorough analysis could reveal whether this situation is simply the result of a historical process.

It would be especially rewarding to study instances in which the participation of small-scale industry in employment and value added has been maintained or extended despite industrial development. This seems to be true, for instance, of groups 28, printing and allied industries; 35, metal products (except transport equipment); and 36, machinery except electrical machinery. One should also consider why the group 26, furniture and fixtures and 39, miscellaneous, are very important in the developing countries and why that importance diminishes sharply in the more developed countries.

The analysis of data on installed power per employee shows that in the five groups mentioned above mechanization does not appear to be a determining factor, since it remains relatively low in these groups in all the countries and in some is growing only very slowly in relation to the rate of industrial progress.

Furthermore, the differences by size of enterprise of *per capita* productivity (using as a yardstick the value added per employee) reveal in the various groups some tendencies that are repeated in the different countries. Thus, for instance, it is usual for productivity per worker to rise as the size of the enterprise grows. This trend might be considered normal in most groups, but in 21, beverages, and 22, tobacco, where the

*Table 5. Selected Latin American countries and the United States: percentage of small-scale industry in factory value added, classified by industrial group*

ISIC group	Chile (1957)	Colombia (1962)	Paraguay (1963)	Venezuela (1961)	United States (1952)
20. Food	35	36	32	36	18
21. Beverages	20	6	29	11	
22. Tobacco	—	2	5	2	1
23. Textiles	15	6	10	14	8
24. Footwear and other wearing apparel	31	40	93	80	32
25. Wood and cork	38	49	91	98	35
26. Furniture and fixtures	31	56	100	86	23
27. Paper and paper products	11	15	100	8	6
28. Printing and allied industries	23	33	34	54	23
29. Leather and leather products	45	23	66	60	11
30. Rubber	9	6	100	11	4
31. Chemical products	22	19	31	41	10
32. Petroleum and coal derivatives	—	8	—	1	5
33. Non-metallic minerals	13	21	66	27	14
34. Basic metals	3	2	100	13	4
35. Metal products except transport equipment	23	33	100	34	18
36. Machinery except electrical machinery	31	40	63	82	12
37. Electrical machinery, apparatus, appliances and supplies	17	24	46	87	4
38. Transport equipment	38	34	75	78	2
39. Miscellaneous	43	33	70	82	13
All industrial groups	21	19	36	33	12

Source: Industrial censuses and surveys.

monopolistic tendency of production may have some bearing, it is especially marked, and the same is true for 27, paper and paper products; 31, chemical products; 33, non-metallic minerals; and 34, basic metals.

However, in some groups, productivity remains constant or even diminishes as the size of enterprise increases. This applies, for instance, to 23, textiles; 24, footwear and other wearing apparel; 25, wood and cork; 26, furniture and fixtures; 29, leather and leather products; and 38, transport equipment. Even in the United States the productivity of groups 23 and 24 decreases from over \$5,700 per person for enterprises with 5 to 9 employees to little more than \$4,000 for those with 50 or more employees.

Table 6. Selected Latin American countries and the United States: breakdown of value added by small-scale industry, classified by industrial group

ISIC group	Chile (1957)	Colombia (1960)	Costa Rica (1963)	Venezuela (1961)	United States (1954)
20. Food	30	27	31	18	} 17
21. Beverages	4	5	6	4	
22. Tobacco	—	1	1	—	—
23. Textiles	9	5	4	3	3
24. Footwear and other wearing apparel	11	10	5	18	12
25. Wood and cork	6	2	7	3	7
26. Furniture and fixtures	2	2	3	8	3
27. Paper and paper products	1	2	—	—	2
28. Printing and allied industries	4	5	3	5	10
29. Leather and leather products	3	2	2	2	1
30. Rubber	1	1	—	1	1
31. Chemical products	8	10	11	9	7
32. Petroleum and coal derivatives	—	1	—	—	1
33. Non metallic minerals	3	6	7	5	4
34. Basic metals	1	—	—	—	2
35. Metal products except transport equipment	4	6	4	3	9
36. Machinery except electrical machinery	3	2	4	—	11
37. Electrical machinery, apparatus, appliances and supplies	1	3	1	4	2
38. Transport equipment	4	5	8	13	2
39. Miscellaneous	3	4	2	2	6
Total	100	100	100	100	100

Source: Industrial censuses and surveys.

These tendencies indicate that even in highly industrialized countries small-scale industry can compete effectively with large-scale industry in certain industrial groups.

The foregoing observations underline the importance of examining more closely the characteristics of small-scale industries in various industrial groups. Such a study would provide guidelines in the selection of future paths of development, highlighting groups or branches of industry able to contribute significantly to production and employment without requiring a vast outlay of capital. A closer study of industrial branches and even specific products would probably reveal more clearly the trends that have merely been touched upon here.

## PROBLEMS CONFRONTING SMALL-SCALE INDUSTRY

The fact that in most countries small-scale industry operates side by side with medium-scale and large-scale industry would indicate that it derives certain advantages from its size. Nevertheless, the growth of small establishments has been adversely affected by several factors that create serious problems for industry as a whole, but in the case of small-scale industry are aggravated and far more sharply defined because of its precarious defence mechanisms.

From the standpoint of the enterprise itself, these factors may be of an external or internal nature.

*External factors*

One of the most important of these factors is the market structure, which includes a population with low purchasing power and which is characterized by the availability of a wide range of imported products, the latter being due in some cases to incentives given for commercial activities.

Certain external factors influence production, such as the shortage of capital for purchasing suitable machinery and equipment for modern techniques—a matter of special concern to small factory establishments that are compelled to make intensive use of human resources even when to do so is uneconomic. The small industrialist is also at a disadvantage when he purchases raw materials because the quantities he needs are not attractive to suppliers, so he must pay a higher price, in cash, or over a brief period of time at a high rate of interest.

Another important drawback concerns the availability of skilled labour. With some exceptions, small-scale industry does not offer the same wage rate as the rest of the factory sector, and consequently does not attract skilled workers. Most of the employees in small-scale industry, which in the majority of Latin American countries is concentrated around large cities, regard the experience gained in the small firm or workshop as a form of training and means of developing skills that will give them access to more highly paid work and improved social security benefits, provision for the latter being inadequate in this sector. The labour force in urban areas mainly consists of the large mass of active population that has left rural areas in search of employment created by accelerated urbanization in the region. In rural areas, small-scale industry does not encounter the same problems in recruiting labour, since workers from the agricultural sector find the low regional wage in industry relatively more attractive than the agricultural wage, and there is usually no possibility of working locally in large industrial units.

A very important field in which small-scale industry is at a disadvantage compared with the rest of the industrial sector is in the marketing of its products. The complexity of market conditions and sales outlets restricts the ability of the small industrialist to analyse the trends in the market with which he is concerned and to discover possible new outlets. As a result, the small industrialist finds himself almost entirely dependent on intermediaries who launch the entrepreneur's products on the market and to whose orders the production programme must be adjusted. Frequently the intermediary decides to order from firms that supply on time and allow him exclusive rights of distribution. Payment for the goods received by the intermediary does not occur at the time of the deal, and delay in payment, however short, is financially embarrassing for the small industrialist. A small enterprise rarely has display and salesrooms at its disposal and usually lacks the resources to place articles in different parts of the country and certainly not in the international market. That would mean engaging salesmen whose salaries would be beyond its means.

Another problem, which is partly external and partly due to the entrepreneurs themselves, is the lack of associations of small industrial producers. Without trade organizations to unite them, the bargaining power of small producers is weak, with the result that they cannot command a sizable share of financial resources or enter into joint arrangements that would benefit them in such vital matters as procurement of raw materials and marketing and would increase their influence on economic policy.

#### *Internal factors*

Some obstacles to the progress of small units spring from factors within the enterprise and are caused by poor management methods and production techniques.

Most small entrepreneurs have learned the skills of management empirically, in the day-to-day operation of their establishments. One very often meets the small industrialist who has set up a small factory without qualifications other than a high degree of skill as a worker in large-scale industry or a certain administrative flair in purely commercial employment. The small entrepreneur must tackle problems requiring critical knowledge of the market, problems of design and quality of the product made, of appropriate technical equipment for the process, and so on. The management role of the small entrepreneur has, therefore, three basic aspects: economic, administrative and technical. Since ability in all three fields is rare, the smooth operation of the enterprise can only be ensured by professional personnel who supplement these aspects as necessary. Irrespective of his background, the small industrialist centralizes in his person the organization of the work and

usually does not assign duties to the employees nor delegate authority to ensure that the factory or workshop runs smoothly.

In view of the difficulty of taking full advantage of facilities when operating on a small scale and the high capital cost of infrastructure, the buildings and installations in small enterprises are far from adequate. Quite often their layout is not functional; they have poor power and water supplies; the working areas are badly lit, and the sanitary installations fall below the standards set by industrial legislation. Much of the plant is installed in old buildings built for other purposes, with the result that factory layout is usually not conducive to efficiency and maximum productivity. Many of these buildings are only leased by the enterprises, and the resulting uncertainty about future developments manifests itself in a certain wariness of expansion.

Some internal factors are related to the production process. Although it is advisable to study and analyse this problem within the different industrial groups in view of the complex and diverse nature of technical processes and methods, a glimpse at the general background reveals some problems common to a large part of small-scale industry. In the first place, the manufacturing process is modelled on traditional methods entailing poor utilization of plant capacity. Of the various alternative techniques available for manufacturing a product, the one most appropriate to the circumstances of the enterprise and country is usually not adopted. Since few small enterprises possess quantitative records of production costs, it is difficult to plan and check the productive process. They also lack the necessary facilities to switch over at any given moment if the composition or design of a product is modified. Very often the small industrialist clings to traditional production methods because he is unaware of the possibilities open to him and lacks the necessary guidance to introduce up-to-date innovations.

These difficulties, which are arresting the potential development of small-scale industry, do not seem to have motivated any search for satisfactory solutions. Of the wealth of official measures, laws, organizations and bodies determining industrial policy in the countries of the hemisphere, few are specifically designed to help and guide this sector. Government action in this area has generally been fragmentary, through programmes of limited scope; few organizations exist with the necessary attributes and legal instruments to act at the national level on behalf of the whole of small-scale industry, which has such a vital role to play on the Latin American industrial scene.

The industrial policy of governments vis-à-vis small-scale industry has not answered the latter's needs. Its individual features and the circumstances in which it operates call for special treatment in the form of fiscal measures aimed at improving its economic condition and achieving certain social objectives. This does not mean that over-all industrial policy should be made subordinate to or be replaced by a



policy for small-scale industry; the latter should rather serve to complement the former and to level out the disadvantages stemming from size in a broad area of manufacturing industry. Further on, the records of the various countries in this field will be described. The achievements outlined include government projects; in many cases these fulfil the need to assign small-scale industry a prominent part in the industrial sector of the economy.

## THE EXPERIENCE OF LATIN AMERICA IN THE DEVELOPMENT OF SMALL-SCALE INDUSTRY

### DEVELOPMENT PLANNING

#### *The integration of the small enterprise into national plans*

IN RECENT YEARS the countries of Latin America have made great progress in planning their development. Most have framed general medium-term and long-term plans for over-all industrial growth but have usually not included any special provision for small-scale industry. The plans generally contain a few figures on the handicraft trades, but these are almost always very approximate estimates obtained from censuses. There is no special reference to small-scale industry. If there is to be a drive to increase employment and help small-scale industry to overcome the problems created by size and low productivity, industrial plans should include programmes for small-scale industry and handicraft trades as well as provisions for their implementation.

Ecuador is taking steps in this direction. In the development programme for the manufacturing industry, provision is made for transforming handicraft techniques into factory processes by converting suitable existing artisan enterprises into small industrial units and setting up new ones on the same lines.

Some artisan activities in Ecuador have little growth potential and will be replaced by more modern means of production, especially with respect to common articles that the factory sector can produce at lower cost. Competition between the artisan and the modern factory in many groups is based on very low salaries — a situation that should not be allowed to continue.

The structural change in the industrial sector is reflected in the differential growth rates projected in Ecuador's plan. Between 1964 and 1973, it is estimated that the factory sector will grow at an annual rate

of 10.5 per cent and its production will increase by 147 per cent, while the handicraft trades will grow at an annual rate of 5.4 per cent and their production by 61 per cent.

In the gradual displacement of handicrafts under the programme, provision has been made for offering this sector the necessary opportunities and incentives to adapt to new conditions. The process will be carried out by transforming some artisan units into dynamic small industrial enterprises, developing those trades with growth prospects and channelling some handicraft workers into other productive occupations.

### *Regional programmes*

The location of small-scale industry may be of great consequence in some developing countries and provide an effective tool for implementing an industrial decentralization policy. However, vast areas of the hemisphere lack the necessary economic and social infrastructure to accommodate industry.

A development policy for small-scale industry in the more backward areas would have the advantages of requiring less capital, creating employment to absorb the labour displaced from agricultural work, encouraging the best utilization of natural and economic resources and producing on a scale suited to a small market.

In Peru, local promotional organizations have introduced in their programmes promotional and assistance measures including development plans for small-scale industry. The Corporation for the Social and Economic Development and Promotion of Puno was set up in December 1961 to improve the standard of living in that department. For the implementation of its plans, it relies on help from international agencies and the Industrial Bank of Peru. Similar organizations that have prepared aid programmes for small-scale industry include the Board for the Rehabilitation and Development of Arequipa, which has granted modest loans to handicraft workers and small industrialists in the department. In Arequipa and Tacna there are programmes for establishing industrial parks. Finally, the Corporation for the Rehabilitation and Economic Development of the Department of Moquegua is making special provision for the promotion of small-scale industry.

In Ecuador, regional industrial development plans have included a series of measures designed to promote the establishment of small industrial plants; specific projects have been drawn up for this purpose. Similar plans have also been drawn up for the provinces of Azuay and Cañar, Manabí, Carchi, Imbabura and Esmeraldas.

In Chile, the Technical Co-operation Service has launched regional programmes for the north and the province of Magallanes in the extreme south of the country. In both cases the possibility of setting

up new industry is under consideration. Thirty-three industrial projects have been or are being studied for the north, and recently the preparation of twelve projects for the province of Magallanes was started. Technical and financial assistance are also being given in both areas.

### *Industrial areas and estates<sup>3</sup>*

Industrial estates for small-scale and medium-sized industry may well become an important element in industrial decentralization and regional planning.

Industrial estates help to absorb manpower in suburban areas and the more backward regions. They provide basic general facilities and services for the small entrepreneur. Little capital outlay on infrastructure is needed, and huge savings in the construction of power facilities and buildings are possible. The grouping of several firms in one place allows for the concentration of advisory services and plays a significant part in industrial decentralization.

From the 1950s on, many industrial estates and areas have been established throughout the world, even in industrialized countries. The experience of Great Britain, Italy<sup>4</sup> and the United States in this field as well as that of several developing countries, above all in the Far East,<sup>5</sup> is especially enlightening.

Experience with industrial estates has on the whole been limited in Latin America, and only two countries, Ecuador and Venezuela, have actually framed policies for industrial zones and have set up finance machinery run by state and private organizations. In the rest of the hemisphere, plans for developing industrial estates and areas are at different stages of preparation and implementation.<sup>6</sup>

### FINANCIAL ASSISTANCE

The shortage of capital characterizing industrial evolution in Latin America has severely affected small-scale industry; it has slowed down its development by preventing the timely renewal of plant and machinery and the introduction of new components to extend and modernize equipment. The trend has also had an effect on the

<sup>3</sup> Industrial estates are defined as "planned clusterings of industrial enterprises offering standard factories erected in advance of demand, and a variety of services and facilities to the occupants". Industrial areas are "tracts of land offering only sites with the necessary infrastructure — power, water, roads, sewerage, etc." For more details, see "Policies and Programmes for the Establishment of Industrial Estates" (IDCONL. 129, a document submitted to the International Symposium on Industrial Development, Athens, December 1967).

<sup>4</sup> The Italian Government started to implement a regional plan in 1957 for the industrialization of the South placing special emphasis on industrial areas.

<sup>5</sup> See United Nations (1963) *Industrial Estates in Asia and the Far East* (Sales No.: 62 II. B. 5).

<sup>6</sup> A comparative analysis of industrial estates and areas in selected Latin American countries appears in Part IV of this publication.

availability of working capital, especially in countries beset by inflation, making it difficult for the small industrialist to reap the benefits of bulk purchasing and wholesale marketing and frequently forcing him to negotiate with financial intermediaries, all of which increase the operating costs.

Furthermore, small-scale industry does not usually have access to foreign credit. This source of finance can only sometimes be tapped through development corporations or intermediary concerns that normally charge higher rates of interest than the banks, and this adds to the cost of plant and machinery.

This unhealthy situation has induced several Governments in Latin America to provide credit assistance facilities for small-scale industry on lines adapted to the economic conditions of the respective countries. In Mexico and Venezuela, for example, organizations and funds have been set up specifically for giving financial aid to small enterprises; in others a special department or system for this sector has been set up within existing credit bodies. In Mexico, the Finance Department of the Federal Government set up in 1954 the Guarantee and Development Fund for Small-Scale and Medium-Sized Industry, which received a significant proportion of the Government's financial contribution, administered in trust by the Nacional Financiera. The fund guarantees payment of credits up to 200,000 pesos (\$ 16,000) by deposit banks and finance companies to small and medium industrialists. The fund can underwrite and purchase securities issued by small-scale or medium-sized industry up to a limit of 1 million pesos; it can also purchase bonds issued by financing institutes, and it is empowered to give rebates on credits known as "de habilitación o avío" and "refraccionarios"<sup>7</sup> extended by banks and finance companies to small-scale or medium-sized industry. Through the fund, private credit institutions have been able, without utilizing their own resources, to provide small and medium-sized industries with an alternative to the banks. They have the distinct advantage of being able to spread their action all over the country through a national network of offices. The interest rate levied by the fund is lower than the market one. A yearly rate of 10 per cent has been adopted for outstanding balances, 4 per cent of which is earmarked for the institutions participating in the negotiations.

The credit amortization period varies between three and six years, which seems to have been appropriate for the transactions undertaken. The fund has shown the highest repayment rate, recovering 100 per cent of its loans. By the middle of 1966, 3,800 industrial firms employing 142,000 workmen had benefited from its credits. This outlay represented 31 per cent of the capital at book-value of the firms and 18 per cent of their annual production value.

<sup>7</sup> Credits "de habilitación o avío" are intended to finance operating costs and the "refraccionarios" to purchase and install plant and machinery, or carry out building alterations or extensions.

On 30 June 1966 the resources of the fund amounted to 262.8 million pesos (\$ 22 million).

According to origin, the fund was composed as follows: 44 per cent was allocated by the Government; 18 per cent represented interest earned by the fund; 35 per cent was loaned by the Inter-American Development Bank (IDB); and 3 per cent was a loan from the Nacional Financiera S. A. and other liabilities. There was also a further loan of 8 million dollars from IDB, which had still not been utilized.

In Venezuela, the National Committee for Financing Small-Scale and Medium-Scale Industry was established in 1959 within the Ministry of Development, with funds from the fixed budget. The committee has funds for helping handicraft trades and small-scale industry by means of medium-term loans up to a total of 40 million bolívares (\$ 3.2 million); the fund provided for medium-scale industry is 25 million bolívares (\$ 2 million). It operates through regional committees in the different states, which pass on the applications from entrepreneurs to the National Committee for approval or rejection. The fund is divided into quotas proportionate in size to each of the 20 states in Venezuela. The committee implements two programmes:

- (a) *For handicraft trades and small-scale industry:* The maximum loan period is five years with twelve months' grace, which may be extended later to eighteen. The maximum is 25,000 bolívares (\$ 5,700). The operation is carried out through a contract and the funds are deposited with the Industrial Bank. The annual interest rate is 6 per cent and there is a single token payment of 0.5 per cent commission on the value of the loan. For the purposes of the schema, a small-scale industry is defined as one with a capital of not more than 100,000 bolívares (\$ 22,700).
- (b) *For medium-scale industry:* The maximum loan period is six years for credits intended for the purchase of plant and machinery and three years for those spent on operating costs. Loans cannot exceed 250,000 bolívares (\$ 57,000), and an annual interest rate of 7.5 per cent is paid on them. They are extended through commercial banks, endorsed by the National Committee, which in return receives 1 per cent of the value of the loan as commission. For this purpose a medium-sized enterprise is defined as one having a net worth of between 100,000 bolívares (\$ 22,700) and 1 million bolívares (\$ 227,000).

Another financial aid programme for small-scale and medium-sized industry is being implemented by the Venezuelan Development Corporation (CVF). The measure comprises a "plan for the lease of fixed

assets with purchase option". The terms of this scheme are very unusual, and Venezuela is the only country in Latin America, and possibly in the world, to apply it. Designed for the purpose of industrial promotion, this programme is mainly aimed at the establishment of small and medium-sized factories and embodies a form of long term credit.

After a project has been studied, CVF offers the factory to the entrepreneur on a long-term lease with purchase option. The organization undertakes to pay the site, the building of the factory, the purchase and the installation of the plant and machinery. The only condition to which the occupant must agree is to pay in cash the operating costs required for the initial financing. The regulations governing the purchase of premises and that of plant and machinery are different. For the purchase of land and premises, the lease period is ten years, with a monthly rental that represents 1 per cent of the original cost. The CVF applies an annual interest rate of 6 per cent on this rent, and another 1.5 per cent to cover taxes and administrative and recovery costs. The balance is credited to the value of the property, as amortization for the benefit of the industrial enterprise exercising the purchase option. A term of eight years is set for the purchase of machinery and equipment, and a rent of 12.32 bolivars is payable on each thousand of the total cost; on this sum the CVF applies an annual rate of 6 per cent as interest on the investment, and the balance is credited to the value of the equipment as amortization for the benefit of the enterprise exercising the option to purchase.

In spite of the obvious advantages of this plan for the lease of fixed assets, only a few entrepreneurs have taken advantage of it, evidently because of the lack of projects existing in the country, which only embarked on an accelerated and sustained industrialization effort at the beginning of the 1950s.

In Brazil, as a result of a measure adopted by the National Economic Development Bank (BNDE), the Programme for the Financing of Small-Scale and Medium-Scale Enterprises (FIPEME) was initiated in 1965 for the purpose of providing loans to small and medium-sized enterprises about to be established or already in operation, chiefly to finance the acquisition of fixed capital.

The FIPEME funds come partly from the BNDE itself and partly from a \$27 million loan provided by IDB and from credits made available to Brazil by the Federal Republic of Germany for a total amount equivalent to \$8 million.

The branches of industrial activity deriving most benefit from the programme have been growth industries—engineering, metallurgy, electrical equipment, communications, chemicals, fertilizers, insecticides and fungicides, cellulose—and some traditional industries—wood,

textiles, leather and hides, processing of vegetable fibres, rubber and plastic goods, and mineral prospecting and processing.

In May 1965, regulations were laid down for operations covered by the IDB loan and executed by BNDE directly or through the transfer of funds to other credit institutions. The funds are used to finance investments in fixed-asset goods of domestic or imported origin and a portion may be used for the procurement of technical services, for the preparation of projects, and studies aimed at increasing the productivity of beneficiary enterprises.

Application of the agreement with IDB is the responsibility of the executive group of FIPEME, which decides the priorities for granting loans, bearing in mind the need to:

- (a) Promote the regional economy;
- (b) Contribute to the national product;
- (c) Improve the supply of goods for general consumption;
- (d) Complement the various branches of industrial activity existing in the country;
- (e) Ensure continuity in the country's economic development process;
- (f) Increase internal demand to ensure better utilization or expansion of the installed capacity in the industries for the manufacture of intermediate goods;
- (g) Promote exports.

In order to publicize these objectives, FIPEME issues twice a year a list of branches of activity that meet these conditions, thus directing action towards sectors whose development needs to be promoted more rapidly.

In these credit operations, an interest of 8 per cent is collected on the unpaid balances, plus a 0.5 per cent commission for control, a charge of 1 per cent of the total amount of credit as an opening commission, and a charge for monetary correction not exceeding 25 per cent a year. In the event of transfers to other credit agencies, the interest charged by the bank is 6 per cent. Loans are for a maximum period of four years, which includes the period of grace; however, in exceptional cases, the time-limit may be extended to six years.

In addition to the facilities afforded by FIPEME, financing is also provided to small-scale and medium-sized industry by the Bank of Brazil through its Fund for Agricultural Industrial Credit (CREAI), out of resources deriving from the Agency for International Development (AID).

The loans are administered by the Industrial Development Fund. Its activities extend to small-scale and medium-sized producers of

capital goods and intermediate and end consumer goods in the food, clothing and housing lines. Enterprises situated in the less-developed areas may seek financial assistance regardless of their field of activity.

The conditions governing the operation of the Industrial Development Fund are very simple: applications must conform to the standard model devised by CREAL. The normal time-limit is four years, and the maximum is ten years. The guarantee may be a lien on chattels or a mortgage on real estate, the latter being dispensed with wherever possible.

The interest rate is 12 per cent, with an added 1.5 per cent commission and a monetary adjustment charge of up to 14 per cent. CREAL contributes 60 per cent of the value of the fixed investments, or as much as 80 per cent in the less-developed regions.

In addition to the institutions already mentioned, there are other agencies to meet financing needs in regions where there is a certain concentration of small-scale and medium-sized industry. These agencies include: the North-East Brazil Bank; the Regional Bank for the Development of the Extreme South; the Minas Gerais Development Bank; COPEG (Company for the Development of the State of Guanabara) and CODEPAR (Company for the Economic Development of Paraná).

In Argentina, the machinery established for financing industrial decentralization is represented by a system of special loans from the Industrial Bank of the Republic. These credits are intended for the "installation, extension and improvement of small-scale industries located in the interior of the country", preference being given to the less-developed areas. The areas belonging to the Federal Capital and its environs, the Rosario Department of the province of Santa Fé and the Capital Department of the province of Córdoba are specifically excluded from this credit scheme.

The objectives of the scheme are as follows:

- (a) To utilize local raw materials;
- (b) To provide employment for available manpower;
- (c) To satisfy local and other needs; and
- (d) To contribute effectively to the development of the regional economies.

For the purposes of the loan scheme, the Industrial Bank considers a small-scale industry to be one whose capital does not exceed 7 million pesos (\$ 35,000), whose annual sales are not less than 20 million pesos (\$ 100,000)<sup>8</sup>, and which does not employ more than 15 workers. The limits were set in consideration of the amount of funds available. Loans for the purchase of machinery, equipment and tools must be spent on new items, and only in exceptional cases is financing allowed for used

<sup>8</sup> At the official exchange rate for 1966.



equipment, as in the case of high-output machinery or equipment for very under-developed areas. Similarly, loans are made available for the construction of buildings and transport equipment. The financing of working capital covers only initial needs connected with the installation or expansion of establishments.

Loans up to a maximum of 3 million pesos (\$15,000) are provided, subject to the following maximum percentages:

- (a) For the acquisition of capital goods of domestic origin: 70 per cent; imported: 50 per cent;
- (b) For the acquisition of used capital equipment, available in the country: 50 per cent;
- (c) For the acquisition of raw materials and other supplies: 70 per cent.

These types of loan, when sought for establishments located in development zones, increase by ten percentage points. The interest rate is 15 and 12 per cent in the case of small-scale industries situated in development zones. The amortization period is up to five years in the case of loans for the purchase of capital goods, and up to three years in the case of loans for operating capital. The type of guarantee required is mostly a lien on chattels and, in exceptional cases, a mortgage on real estate or some other type of guarantee.

Since 1950, the Industrial Bank has made loans for handicrafts for development purposes. The handicraft activities are selected on the basis of a list drawn up by the International Labour Organisation (ILO). Loans are made available for the purchase of equipment and tools up to a maximum of 200,000 pesos (\$1,000) for a period of up to five years, and also as operating capital, for a maximum of 100,000 pesos (\$500) with a time-limit of two years for amortization. These loans are granted on the basis of the credit-worthiness of the beneficiary and no material guarantee is required.

Another special credit facility provided by the bank that can be of some help to small-scale industry consists of personal loans to professional industrial technicians who have graduated in the country. These loans, with amortization periods varying from five to ten years, may be used either to acquire equipment and basic working materials or to give a professional the financial means of becoming a partner in a small-scale or medium-sized industry that needs a technician with a university training.

The financial assistance programme of the Technical Co-operation Service (SCT) in Chile is designed to promote medium and long-term loans, provided by the Corporación de Fomento de la Producción (CORFO), for the acquisition of equipment and the purchase of raw materials. Two types of loan have been arranged—one for handicrafts and another for small-scale industry.

Handicraft loans are provided for a maximum period of five years for the purchase of capital goods, and two years for the acquisition of raw materials. They are not readjusted, and the interest paid on them corresponds to a percentage of the bank interest applicable during the previous six months, according to a scale which, during the first two years, represents 70 per cent of the interest, during the third year 80 per cent, in the fourth year 90 per cent and, in the fifth year, the same as the bank interest. In the period 1963—1965 loans totalling 4,571,000 escudos were approved for 941 craftsmen.

Loans to small-scale industry differ from those granted to craftsmen in that the time-limits are longer (from six to eight years), they are subject to a 6 per cent interest rate and are readjustable in accordance with the retail price index for domestic industrial products. In some cases small-scale industry may directly import equipment, deferring payment of customs duty. For working capital the time-limit is twelve months. In one year of effective operation of this scheme, 70 requests for credit were approved for an amount of 3,577,000 escudos.

CORFO is the agency that finances the loans, sets the rules, approves or rejects the application and carries out the operations connected with the payment and recovery of the loans. SCT prepares the techno-economic report, provides technical assistance to the recipients and exercises appropriate supervision.

Selective criteria are applied in the granting of loans; and the benefits that may derive for the national economy from earnings or savings of foreign exchange, subcontracts and the provision of specialized services are borne in mind. Furthermore, the rules devised by CORFO establish priorities for a fairly wide range of activities, giving preference to enterprises that promote regional development and to artisans producing popular and artistic handicrafts.

The credit scheme is applied throughout the country by agents assigned to the provinces.

In Colombia, the Banco Popular has a special section dealing with the requirements of medium-sized and small-scale industry, but so far the funds at its disposal for this purpose have been very limited. However, it is interesting to note that this bank is especially concerned with co-ordinating financial and technical assistance, with the aim of ensuring better utilization of available resources.

Financial assistance to small-scale industry in Ecuador is provided by two institutions: the Banco Nacional de Fomento and the Corporación Financiera Nacional.

The Banco de Fomento grants low-interest loans for the purchase of machinery and equipment and for the construction and repair of immovable property; similarly, the bank can maintain technical assistance programmes, promote the organization of co-operatives, etc. Beginning in December 1964, when it was given its present statute, it

assumed responsibility for providing loans to small-scale industry and handicrafts as well as agricultural loans. Financing is carried out by two divisions of the bank: the bankers' credit division and the division of assistance loans. The former provides loans for the following purposes:

- (a) Programmes for the expansion of operations on a short-term, medium-term or long-term basis;
- (b) Working capital for industry and handicrafts on a short-term basis;
- (c) Financing of sales on a short-term basis.

The usual rate of interest is 8 per cent, plus 1 per cent for a contingency fund. Loans may be granted for an amount not exceeding 60 per cent of the value of the guarantee, in the case of a mortgage or industrial lien, while in the case of a commercial lien it may amount to 75 per cent.

The assistance loan division grants loans for the following purposes:

- (a) The construction, repair or extension of facilities for small-scale industrial activities;
- (b) The purchase of machinery, equipment and tools;
- (c) Repair of machinery and equipment;
- (d) The acquisition of furnishings and fixtures necessary for the operation of shops for the sale of finished products;
- (e) Operating capital.

Under this scheme the bank may grant loans covering the total value of the investment plan, prescribing time-limits and a form of payment to suit the objectives and income of the borrower. Time-limits for amortization have varied between one year and over five. The interest rate is at present 8 per cent, with no additional cost for the reserve fund; this form of credit has the special feature of being accompanied by technical assistance and training facilities, with the co-operation of such other agencies as CENDES and the Misión Andina. During the five-year period 1961—1965, the Banco Nacional de Fomento granted 11,022 loans totalling 123.3 million sucres (approximately \$ 6.8 million). In 1965, the amount of credit made available under the two schemes totalled 25 million sucres (\$ 1.4 million).

The other official agency providing financial assistance to small-scale industry is the Comisión de Valores—Corporación Financiera Nacional, which set up a "Fund to Promote and Guarantee Small-Scale Industry". The purpose of this fund is to finance fixed and operating capital for small-scale industry through the national banking system and through private financing institutions.

The private sector participates in the financing of small-scale industry through the national banking system; it also makes available short-term loans for operating capital.

In Peru, the official agency responsible for financing the manufacturing industry is the Industrial Bank. Under its general credit scheme it provides financial assistance to craftsmen and to small-scale industrialists, to whom it affords special facilities. The different types of loan are as follows:

- (a) Handicrafts, up to 50,000 soles (\$ 1,852)
- (b) Supervised, from 50,000 to 250,000 soles (from \$ 1,852 to \$ 9,259)
- (c) Ordinary, over 250,000 soles (more than \$ 9,259).

The first two types of loan do not call for the usual guarantee and need only meet the requirements of being supervised. These two categories are the ones most frequently employed to finance small-scale industry although, if the bank's requirements are fulfilled, access can also be had to ordinary credits.

The time-limits vary between five and ten years, and the interest is 6 per cent, a rate lower than that charged by a commercial bank. The purpose of the loan need not be specified, although a certain degree of priority is accorded to industries considered most beneficial to the national economy or located in provinces or regions of the Sierra and Selva. Loans in the latter region are granted on very favourable terms.

#### TECHNICAL ASSISTANCE

In the developing countries, technical assistance and advice to small-scale industries are very important, since it is very difficult for the small-scale entrepreneur to deal with the complex problems of operating his establishment without adequate outside help. Furthermore, the need to expand or modernize an enterprise and to attain satisfactory standards of efficiency makes technical assistance even more necessary to small-scale industry.

Technical assistance may take various forms, but it is aimed essentially at increasing efficiency in the organization of production and administration. In many cases assistance also extends to market and merchandizing.

Technical assistance is provided mainly in two ways: at the plant level, in the case of technological improvements in the organization and administration of the small-scale enterprise; and at the sector level, where, in addition to the above-mentioned services, assistance often covers technological research, standardization and help with business organization and marketing. However, technical assistance may also extend to enterprises in different industrial sectors or situated in a particular centre or region and includes the preparation of studies and manuals of general interest on different topics, which may be disseminated by means of publications, conferences, or seminars.

This type of assistance may be supplemented by international technical assistance, which can be provided through multilateral assistance agencies or through bilateral arrangements with particular countries that have specialized in this kind of action. In the next section information is given on the subject of international technical assistance for small-scale industry.

In Latin America, technical assistance to small enterprises has not been applied intensively or in all its possible forms. Governments have preferred to concentrate on financial assistance to this sector. This may be a result of the complexity entailed in establishing efficient machinery for technical assistance.

In many countries of the area, the main form of technical assistance is provided through suppliers of equipment and machinery, with all the limitations that this kind of action entails.

In Latin America, Chile has so far been the country that has accomplished most progress in the field of technical assistance to small enterprises. This has been done through SCT, a branch of CORFO, which since 1963 has been doing valuable work in this area.

For a number of years SCT has been carrying out studies and research on the structure of and obstacles to small-scale industry, with a view to improving environmental conditions in the sector, through the implementation of programmes for the improvement and modernization of enterprises.

SCT has been providing small-scale industry with advice on such questions as: the improvement of production methods, the use of accounting and costing systems, the organization and promotion of sales and other economic problems. It also assists small-scale entrepreneurs in marketing matters and also provides assistance and guidance on legal and administrative questions.

By August 1966, SCT had granted technical and administrative assistance to various branches of 416 small-scale industries in different parts of the country. Its reports and recommendations pertain to such subjects as planning and control of production, costs, supply control, distribution of plant and equipment, and methods.

On the technological side, SCT has assisted 203 enterprises through three teams of specialists: (a) the mechanical team, dealing with projects, product design, improved use of cutting tools, design of matrices, technical treatment, etc.; (b) the chemical team, which provides advice to the food industry on the packaging of products (painting, chromium and nickel plating) and on chemical problems in general; and (c) the metallurgical team, which deals with moulding processes, design and construction calculations for furnaces and stoves, etc.

SCT also has a study and project programme that provides four main types of service: general studies, designed to orient the development of small-scale industry and handicrafts by providing an over-all

perspective—by 1966, 41 projects of this type had been completed; feasibility studies, designed to determine the needs of new industries—by 1966 150 such studies had been made, including two that were rejected; feasibility studies for third parties, carried out at the request of industrialists themselves if considered justified; and regional development planning—a regional development project was launched in August 1965, with technical assistance under the Chile-California Programme, which is part of the Alliance for Progress.

As its name suggests, SCT's Office of Information and Co-operation is responsible for carrying out an information programme. Between March 1964 and June 1966, 2,000 consultations were provided in Santiago and 1,300 in the provinces, while 5,400 publications were distributed in Santiago and 7,200 in the provinces, on such topics as: associations, co-operatives, tenders, subcontracts, credits, establishment of new enterprises, or tax systems. In addition, 50 courses were held in Santiago and six provincial capitals on administrative and commercial subjects and were attended by 860 small-scale industrialists.

Another important feature of this programme is the promotion of co-operatives by means of special courses in co-operative education, socio-economic studies and advice to existing co-operatives or those about to be set up. In this way it has contributed to the establishment of 36 co-operatives and associations of small-scale industrialists.

Special attention has also been paid to the promotion of subcontracting and marketing of the products of small-scale industry. SCT also plans to organize a design centre for small-scale industry and handicrafts.

In Ecuador, too, special attention has been devoted to technical assistance for small-scale industry, which is provided through the Industrial Extension Division of the Development Centre (CENDES). Assistance is provided directly in the form of advice in actual workshops and factories, while feasibility studies are made for specific projects.

#### INTERNATIONAL ASSISTANCE

In connexion with international co-operation and assistance to small-scale industry, special mention should be made of the programmes carried out with the help of the United Nations Development Programme (Special Fund), ILO and the Government of the Netherlands, through the Delft Research Institute for Management Science.

The activities of ILO have mostly been concerned with occupational training. The programmes now in execution in Latin America are being carried out in co-operation with UNDP (Special Fund). The most recent example of this form of co-operation is provided by Chile, where SCT, in close co-operation with the Special Fund and ILO, has

organized special courses to qualify and train instructors and foremen. Both agencies have been asked to extend their assistance to a programme designed to procure advice and technical equipment for the advanced training of personnel and the establishment of scholarships to enable SCT technicians to undergo specialized training.

In Panama, at the end of 1965, the National Plan for the Development of Handicrafts and Small-Scale Industry was completed, and in June 1966, UNDP (Special Fund) approved the project submitted by the Government of Panama for the "creation and establishment of the National Service for Handicrafts and Small-Scale Industries (SENAPI)"; ILO was asked to participate in the execution of the project. SENAPI began to implement its programme in 1966. The Special Fund is contributing experts, equipment and machinery for experimental and training laboratories and workshops, vehicles, scholarships for the Panamanian staff of SENAPI, design equipment, audio-visual media and operational costs. This contribution will cover a period of four years, and the Government of Panama will take care of the other requirements for the programme.

In Colombia, UNDP (Special Fund) is participating with the Institute for Technological Research (IIT) in a joint programme of assistance to small-scale industry, directed mainly towards the metallurgical-mechanical, chemicals and food and other agricultural products industries. The goals of the programme are the following:

- (a) To offer technical assistance for the development of efficient operating methods that will lead to improved utilization of raw materials and equipment;
- (b) To assist in the establishment of suitable control systems that will ensure uniform and acceptable quality in this sector;
- (c) To determine possibilities for the development of new products in accordance with national capital and manpower resources, raw materials and demand;
- (d) To develop appropriate techniques through written and visual information systems, especially in those fields where no knowledge exists at the present day;
- (e) To assist private or government organizations at present engaged in promoting industrial development so that higher productivity may be achieved;
- (f) To co-ordinate investment in small-scale and medium-sized industry with agencies promoting industrial development or providing credits on a government or private basis.

In Ecuador, ILO and the Agency for International Development (AID) are providing technical assistance in the field of handicrafts and small-scale industry in the form of advisory services of experts.

The technical assistance of ILO involves the preparation of development programmes; it is channelled through the National Planning

Board to the executive organs in charge of the handicrafts and small-scale industry programme of the general development plan.

AID is offering advice to CENDES through two expert instructors in ceramics and footwear who have organized courses in their special fields. In addition, a group of six advisers specializing in industrial design, co-operatives, production, accounting and organization are attached to the Ecuadorian Trade Organization for Handicraft Products (OCEPA).

The Delft Research Institute for Management Science has organized each year since 1955 an international postgraduate course on the problem of small-scale industry, which has been attended by a number of Latin American graduate fellows. Under an agreement between the Federation of Industries of the State of São Paulo (Brazil), the university of São Paulo and the Delft Research Institute, courses in São Paulo are being planned on small-scale industry similar to those organized in the Netherlands.

In Uruguay, a joint programme of ILO and the Productivity Centre of Uruguay, directed towards the small-scale and medium-sized textile industry, has been under way since 1966. This programme has had encouraging results, and increases in production of around 50 and 60 per cent have been recorded. Very significant improvements have also been brought about in the quality of products.

Inter-American Development Bank recently established a pre-investment fund for the integration of Latin America, with the object of promoting the study of programmes and the preparation of projects. Among other programmes, "the fund will encourage regional action to strengthen small-scale and medium-scale industry, including handicrafts, in the countries of Central America and in countries which are less developed and have inadequate markets, particularly with regard to technological matters, the training of personnel and the organization of common services".

#### OTHER MEANS OF ASSISTANCE

Besides the steps outlined above, other measures have been taken to promote the development of small-scale industry. The forms and intensity of these measures have depended on the particular situations existing in the Latin American countries. However, it can be said in general that the steps enumerated below have been undertaken in a limited and inadequate form when compared, for example, with the financial assistance described earlier.

#### *Training of manpower*

Although important efforts have been made in the instruction, training and apprenticeship of manpower in most Latin American countries for some years, these efforts still seem inadequate in the light



of the growing requirements of industrial development. In the sphere of vocational education and training, the Governments have concentrated on partially satisfying the demand for skilled labour and intermediate-level personnel for medium-scale and large-scale industry. No special programmes of this type have been planned for small-scale industry—despite the special importance of small-scale industry in terms of the absorption of labour, to which attention was drawn earlier.

In view of the scope and complexity of the problem, government agencies in each country should analyse it within the context of their particular system of industrial training. It would be desirable in this regard to consider, *inter alia*, the possibility of situating training units in regions or areas whose development is being planned, in order to assist the decentralization of the manufacturing sector.

#### *The organization of self-help machinery*

There has been insufficient promotion of self-help organizations in the small-scale industry sector. In some countries special agencies for encouraging co-operatives have been set up, generally in ministries of development and economic affairs; but their work in most cases is limited to the creation of consumer co-operatives. The formation of production, distribution and credit co-operatives is still considered to be of less importance.

With a few exceptions (Chile, Venezuela), small industrialists have failed to form their own organizations or to affiliate with existing manufacturers' associations and federations; in these, large-scale industry plays a preponderant role, with problems and characteristics quite different from those of the small-scale enterprise.

A special entrepreneurial organization of small-scale industrialists might be of great value to this sector; through joint action it might be able to obtain benefits such as procurement of raw materials, marketing of manufactures, in foreign markets in some cases, and technical and financial assistance.

#### *The organization of subcontracting*

If industrialization is thought to require industrial units of all sizes, with a certain relationship existing between large and small units, subcontracting may become a very important mechanism for creating this situation. This form of complementarity has reached a considerable level of development in several industrialized countries. In Latin America, progress has been made in this field in Argentina, Brazil and Mexico, especially with regard to the automotive industry. As countries

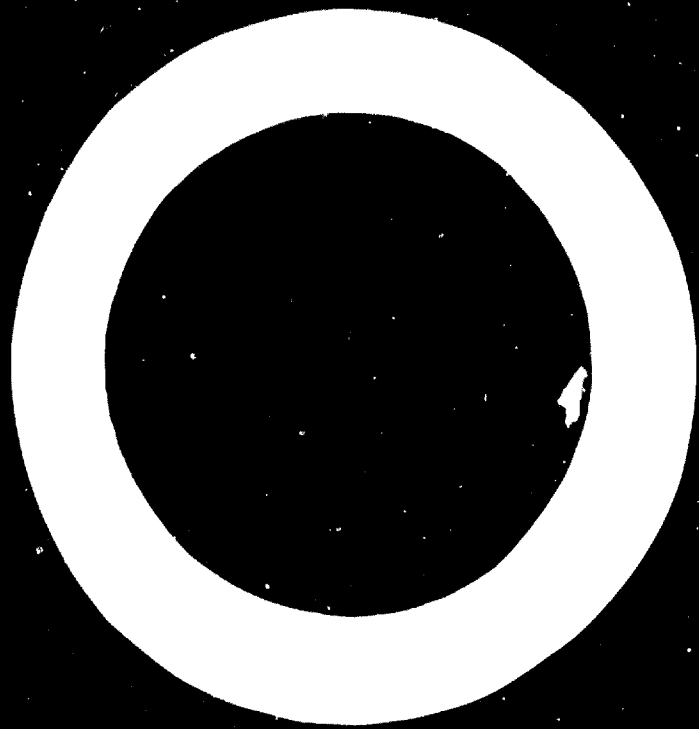
achieve higher levels of industrialization, it would seem that the advantages of subcontracting become more obvious and its use is facilitated.

Small-scale industries are able to meet demand for small quantities of a variety of articles. Specialization and flexibility in adjusting to variations in demand compensate for the higher costs usually associated with reduced scales of production.

### *Other measures*

In Latin America, other measures have also been taken to facilitate the development of small-scale industry. Thus, in Argentina, the Secretariat for Industry, Commerce and Agriculture, and Livestock Production, can grant special exemptions for the importation of equipment intended for projects in the sphere of small-scale and medium-sized industry.

Attention can also be drawn to certain legislative provisions that oblige enterprises to acquire part of their material inputs within the country, the tariff protection for certain capital goods that can be manufactured on a small scale, the lifting of national and municipal taxes on small enterprises, or exemption from customs duties for certain capital goods and raw materials employed by small-scale industry.



## STATISTICAL APPENDIX

COMPARATIVE SIZE STATISTICS OF INDUSTRIAL ESTABLISHMENTS IN  
LATIN AMERICA AND THE UNITED STATES

Table A. Latin America and the United States: characteristics of manufacturing establishments by size

	Handicrafts (1-4 employees)	Factory sector (number of employees per establishment)				100 or more	Total
		5-19	20-49	50-99			
<i>Brazil</i>							
Number of establishments . . . . .	66,301	30,771	6,509	2,501	2,775	108,857	
Number of employees . . . . .	152,741	268,733	197,385	172,869	1,005,109	1,796,837	
Value added (millions of cruzeiros) . . . . .	24,283	65,239	54,268	49,043	355,826	548,659 <sup>b</sup>	
Motive power (hp) . . . . .	362,730	586,140	453,344	423,748	3,335,834	5,161,796	
Value added per employee . . . . .	158,981	242,763	274,935	283,700	354,017	305,347	
Horsepower per employee . . . . .	2.4	2.2	2.3	2.5	3.3	2.9	
Horsepower per establishment . . . . .	5.5	19.0	69.6	169.4	1,202.1	47.4	
Employee per establishment . . . . .	2.3	8.7	30.3	69.1	362.2	16.5	
<i>Central America</i>							
Number of establishments . . . . .	...	3,965	1,027	346	255	5,593	
Number of employees . . . . .	211,103	38,225	32,075	24,048	55,598	361,049	
Value added (thousands of \$) . . . . .	126,378	39,377	61,489	58,482	148,744	434,470	
Value of electrical energy consumed (thousands of \$) . . . . .	...	1,910	1,753	1,328	4,455	9,446	
Value added per employee (\$) . . . . .	599	1,030	1,917	2,432	2,675	2,055	
Electrical energy per employee (\$) . . . . .	...	50	55	55	80	63	
Cost of energy per establishment (\$) . . . . .	...	481	1,707	3,838	17,471	1,689	
Employees per establishment . . . . .	...	9.6	31.2	69.5	218.0	26.8	

*Chile*

Number of establishments . . . . .	3,970	1,129	388	367	5,854
Number of employees . . . . .	31,798	31,280	25,360	118,268	206,701
Value added (thousands of escudos) . . . . .	29,549	33,934	31,498	208,417	303,398
Motive power (hp) . . . . .	52,715	79,601	53,679	463,189	649,184
Value added per employee (escudos) . . . . .	929	1,085	1,242	1,762	1,468
Horsepower per employee . . . . .	1.7	2.5	2.1	3.9	3.1
Horsepower per establishment . . . . .	13.3	70.5	138.3	1,262.1	110.9
Employees per establishment . . . . .	8.0	27.7	65.4	322.3	35.3

*Colombia*

Number of establishments . . . . .	5,077	1,221	438	425	10,446
Number of employees . . . . .	45,715	37,460	29,338	132,235	254,100
Value added (millions of pesos) . . . . .	382.2	473.6	483.2	3,238.5	4,649.7
Motive power (hp) . . . . .	60,310	75,355	56,427	541,462	747,454
Value added per employee (pesos) . . . . .	8,360	12,643	16,470	24,490	18,299
Horsepower per employee . . . . .	1.5	1.3	1.9	4.1	2.9
Horsepower per establishment . . . . .	4.2	61.7	128.8	1,274.0	71.6
Employees per establishment . . . . .	2.8	30.7	67.0	311.1	24.3

*Mexico*

Number of establishments . . . . .	6-25	26-100	3,535	1,615	101,271
Number of employees . . . . .	89,143	187,971	180,143	555,354	1,012,652
Value added (millions of \$) . . . . .	1,702	1,634	3,980	18,135	25,451
Electrical energy consumed (million kWh) . . . . .	178	183	610	4,721	5,692
Value added per employee (\$) . . . . .	9,054	18,322	22,093	32,655	25,133
Kilowatt hour per employee . . . . .	947	2,052	3,386	8,501	5,621
Kilowatt hour per establishment . . . . .	1,997	26,225	172,560	2,923,220	56,206
Employees per establishment . . . . .	2.1	12.8	50.9	343.9	10.0

Table A (continued)

	Factory sector (number of employees per establishment)					Total
	Handicrafts (1-4 employees)	5-19	20-49	50-99	100 or more	
<b>Paraguayh</b>						
Number of establishments . . . . .	1-4	5-19	20-49	50-99		
Number of employees . . . . .	4,297	1,309	125	38	29	5,798
Value added (millions of guaraní) . . . . .	11,018	10,185	3,689	2,674	6,966	34,532
Motive power (hp) . . . . .	679	971	682	675	2,203	5,210
Value added per employee (guaranís) . . . . .	9,139	14,906	7,568	7,214	23,231	62,058
Horsepower per employee . . . . .	61,626	95,336	184,874	252,431	316,250	150,875
Horsepower per establishment . . . . .	0.8	1.5	2.1	2.7	3.3	1.8
Employees per establishment . . . . .	2.1	11.4	60.5	189.8	801.1	10.7
	2.6	7.8	29.5	70.4	240.2	6.0
<b>Venezuelai</b>						
Number of establishments . . . . .	—	6,216	949	170	196	7,531
Number of employees . . . . .	—	57,488	29,333	11,690	58,427	156,938
Value added (millions of bolívars) . . . . .	—	793	523	305	2,378	3,999
Motive power (hp) . . . . .	—	90,557	90,087	47,765	765,077	993,486
Value added per employee (bolívars) . . . . .	—	13,794	17,830	26,091	40,700	25,481
Horsepower per employee . . . . .	—	1.6	3.1	4.1	13.1	6.3

Horsepower per establishment . . . . .	—	14.6	94.9	281.0	3,903.5	131.9
Employees per establishment . . . . .	—	9.2	30.9	68.8	298.1	20.8
<i>United States<sup>j</sup></i>						
Number of establishments . . . . .	106,960	89,384	42,798	21,091	26,584	286,817
Number of employees . . . . .	258,219	937,228	1,360,091	1,474,907	11,620,811	15,651,256
Value added (millions of \$) . . . . .	1,554	5,653	8,351	9,662	91,692	116,912
Motive power (hp) (thousands) . . . . .	2,492	3,157	5,520	6,234	90,959	108,362
Value added per employee . . . . .	6,018	6,032	6,140	6,551	7,890	7,470
Horsepower per employee . . . . .	9.7	3.4	4.1	4.2	7.9	6.9
Horsepower per establishment . . . . .	23.3	35.3	129.0	295.6	3,421.6	377.8
Employees per establishment . . . . .	2.4	10.5	31.8	69.9	437.1	54.6

*Sources and notes:*

- <sup>a</sup> Industrial Census of Brazil, 1960.  
<sup>b</sup> The sum does not coincide with that given in the census, because this total includes the value added of 1,482 establishments classified as "not reporting", amounting to 867 million cruzeiros.  
<sup>c</sup> Central American Industrial Survey, 1962 (preliminary version).  
<sup>d</sup> Third National Census of Manufactures, 1957.  
<sup>e</sup> Industrial Survey for 1960, covering 10,446 establishments with more than five employees or more than 24,000 pesos of production value. *Monthly Bulletin of Statistics*, No. 151, October 1963.  
<sup>f</sup> Seventh Industrial Census, 1961.  
<sup>g</sup> Without paid personnel.  
<sup>h</sup> Industrial Census of Paraguay, 1963.  
<sup>i</sup> Industrial Survey 1961, CORDIPLAN, November 1963 (first version).  
<sup>j</sup> Manufacturing Census, 1954.



*Table B. Latin America and the United States: percentage distribution of factories by size of establishment<sup>a</sup>*

	Establishment size (number of employees)				Total
	5-19	20-49	50-99	100 or more	
Argentina . . . . .	58 <sup>b</sup>	21 <sup>c</sup>	11	10	100
Brazil . . . . .	72	15	6	7	100
Central America . . . . .	71	18	6	5	100
Chile . . . . .	68	19	7	6	100
Colombia . . . . .	71	17	6	6	100
Mexico . . . . .	58 <sup>d</sup>	29 <sup>e</sup>		13	100
Paraguay . . . . .	87	8	3	2	100
Peru . . . . .	65		35 <sup>f</sup>		100
Venezuela . . . . .	82	13	2	3	100
United States . . . . .	50	24	11	15	100

Source: Table A. The data for Argentina are taken from the Industrial Census of 1954 and those for Peru from the First National Economic Census, 1963.

<sup>a</sup> Only establishments employing more than five persons are considered.

<sup>b</sup> 11-25 employees

<sup>c</sup> 26-50 employees

<sup>d</sup> 6-25 employees

<sup>e</sup> 26-100 employees

<sup>f</sup> 20 or more employees

*Table C. Latin America and the United States: percentage of labour force employed in factory establishments of various sizes<sup>a</sup>*

	Establishment size (number of employees)				Total
	5-19	20-49	50-99	100 or more	
Argentina . . . . .	16 <sup>b</sup>	13 <sup>c</sup>	13	58	100
Brazil . . . . .	16	12	11	61	100
Central America . . . . .	26	21	16	37	100
Chile . . . . .	15	15	12	58	100
Colombia . . . . .	19	15	12	54	100
Mexico . . . . .	11 <sup>d</sup>	22 <sup>e</sup>		67	100
Paraguay . . . . .	43	16	11	30	100
Peru . . . . .	16		84 <sup>f</sup>		100
Venezuela . . . . .	36	19	7	38	100
United States . . . . .	6	9	10	75	100

Source: Table A. The data for Argentina are taken from the Industrial Census of 1954 and those for Peru from the First National Economic Census, 1963.

<sup>a</sup> Only establishments employing more than five persons are considered.

<sup>b</sup> 11-25 employees

<sup>c</sup> 26-50 employees

<sup>d</sup> 6-25 employees

<sup>e</sup> 26-100 employees

<sup>f</sup> 20 or more employees

*Table D. Latin America and the United States: percentage of value added in factory establishments of various sizes<sup>a</sup>*

	<i>Establishment size (number of employees)</i>				<i>Total</i>
	<i>5—19</i>	<i>20—49</i>	<i>50—99</i>	<i>100 or more</i>	
Brazil . . . . .	13	10	9	68	100
Central America . . . . .	13	20	19	48	100
Chile . . . . .	10	11	10	69	100
Colombia . . . . .	8	10	11	71	100
Mexico . . . . .	7 <sup>b</sup>	17 <sup>c</sup>		76	100
Paraguay . . . . .	21	15	15	49	100
Venezuela . . . . .	20	13	8	59	100
United States . . . . .	5	7	8	80	100

Source: Table A.

<sup>a</sup> Only establishments employing more than five persons are considered.

<sup>b</sup> 6—25 employees

<sup>c</sup> 26—100 employees

*Table E. Latin America and the United States: percentage of installed power in factory establishments of various sizes<sup>a</sup>*

	<i>Establishment size (number of employees)</i>				<i>Total</i>
	<i>5—19</i>	<i>20—49</i>	<i>50—99</i>	<i>100 or more</i>	
Brazil . . . . .	12	9	9	70	100
Chile . . . . .	8	12	8	72	100
Colombia . . . . .	8	10	8	74	100
Paraguay . . . . .	28	14	14	44	100
Venezuela . . . . .	9	9	5	77	100
United States . . . . .	3	5	6	86	100

Source: Table A.

<sup>a</sup> Only establishments employing more than five persons are considered.

Table F. Latin America: estimated manufacturing product by size of establishment and group of countries, 1960

Group of countries	Establishment size (number of employees)				Handicrafts (1-4 employees)	Factory product (number of employees)			Factory total	Total manufacture product
	5-19	20-49	50-99	100 or more		50-99	100 or more	100 or more		
<b>Group I</b>										
Argentina . . . . .	469	426	384	2,984	1,542			4,263	5,805	
Brazil . . . . .	667	513	462	3,491	2,005			5,134	7,139	
Mexico . . . . .	240	308	274	2,604	610			3,426	4,036	
Sub-total	1,376	1,248	1,120	9,079	4,157			12,823	16,980	
<b>Group II</b>										
Chile . . . . .	69	76	70	480	240			695	936	
Colombia . . . . .	37	46	50	325	369			458	827	
Peru . . . . .	49	41	37	247	192			374	566	
Uruguay . . . . .	47	40	36	238	60			362	421	
Venezuela . . . . .	101	66	41	299	135			507	642	
Sub-total	303	269	234	1,590	996			2,396	3,392	

<b>Group III</b>									
Bolivia	43.2	5.3	5.6	5.3	14.8	31	74		
Central America	97.1	25.1	38.6	36.6	92.6	193	290		
Ecuador	73.2	17.3	18.3	17.3	48.7	102	175		
Haiti	19.1	3.4	3.6	3.4	9.8	20	39		
Panama	5.3	6.8	7.2	6.8	19.3	40	45		
Paraguay	43.8	8.3	5.9	5.9	19.3	39	83		
Sub-total	282.0	66.0	79.0	75.0	204.0	425	707		
Totals	5,435.0	1,746.0	1,596.0	1,429.0	10,873.0	15,644	21,079		

Source: The basis for the calculations was the figures for the gross industrial product at factor cost for the year 1962 taken from the national accounts of the respective countries and converted into dollars for the same year, applying calculated exchange rates (for further details see *The Process of Industrialization in Latin America*, Statistical annex E.C.N. 12/16 Add. 2, mimeographed, December 1965).

The gross industrial product, which includes factory and handicraft activity, has been broken down into these two sectors, using the productivity ratios between handicraft and factory employment, calculated on the basis of the value added per employee (see table 17). These productivity ratios were obtained from the national censuses, surveys and industrial plans of the countries for which information was available. In the case of countries for which there was insufficient data, the average of the productivity ratios of countries at a similar level of development was applied.

The share of the various sectors, including that of small-scale industry, in the factory product was calculated on the basis of the percentage ratios obtained from the industrial censuses and surveys of the various countries (see table D). Where no information was available, it was estimated that the share of the different sectors would be similar to that in countries presenting similar features.

Because of the form in which they were calculated, the figures in this table are not valid for specific countries, although they can be regarded as suitable estimates for the groups of countries.

• Cuba and the Dominican Republic have been omitted for lack of information.

Table G. Latin America: estimated number of employees in manufacturing industry by size of establishment and group of countries, 1960

Group of countries	Handicrafts <sup>a</sup> (1-4 employees)				Factory sector <sup>b</sup> (number of employees per establishment)			Factory total	Manufacturing total
	5-19	20-49	50-99	100 or more	52-99	100 or more	100 or more		
<b>Group I</b>									
Argentina	159	130	130	579	998	1,720			
Brazil	256	192	176	976	1,600	2,850			
Mexico	160	120	120	600	1,000	1,556			
Sub-total	<u>575</u>	<u>442</u>	<u>426</u>	<u>2,155</u>	<u>3,598</u>	<u>6,126</u>			
<b>Group II</b>									
Chile	36	36	29	139	240	447			
Colombia	48	38	30	136	252	748			
Peru	47	33	23	103	206	536			
Uruguay	34	23	16	73	146	205			
Venezuela	64	34	12	67	177	295			
Sub-total	<u>229</u>	<u>164</u>	<u>110</u>	<u>518</u>	<u>1,021</u>	<u>2,231</u>			
<b>Group III</b>									
Bolivia	8	4	3	8	23	185			
Central America	33	26	20	46	125	342			
Ecuador	17	9	7	17	50	251			
Haiti	6	3	3	6	18	101			
Panama	5	3	2	5	15	26			
Paraguay	8	3	2	5	18	82			
Sub-total	<u>77</u>	<u>48</u>	<u>37</u>	<u>87</u>	<u>249</u>	<u>987</u>			
Totale	<u>881</u>	<u>654</u>	<u>573</u>	<u>2,760</u>	<u>4,868</u>	<u>9,344</u>			

<sup>a</sup> Based on percentage estimates for each sector in accordance with figures from censuses in Argentina, Brazil, Chile, Colombia, Paraguay, Venezuela and Central America.

<sup>b</sup> Taken from a document in preparation on manpower in Latin America.

<sup>c</sup> Cuba and the Dominican Republic have been omitted for lack of information.

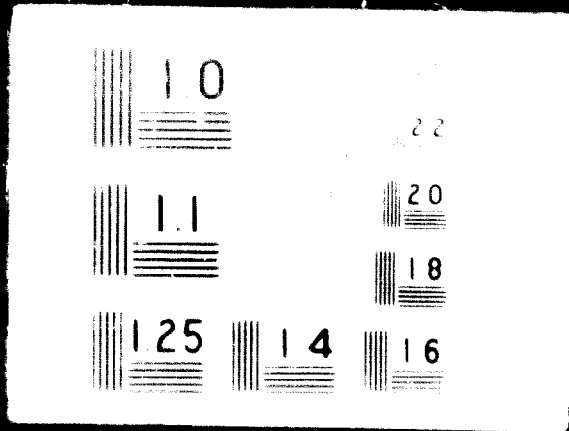


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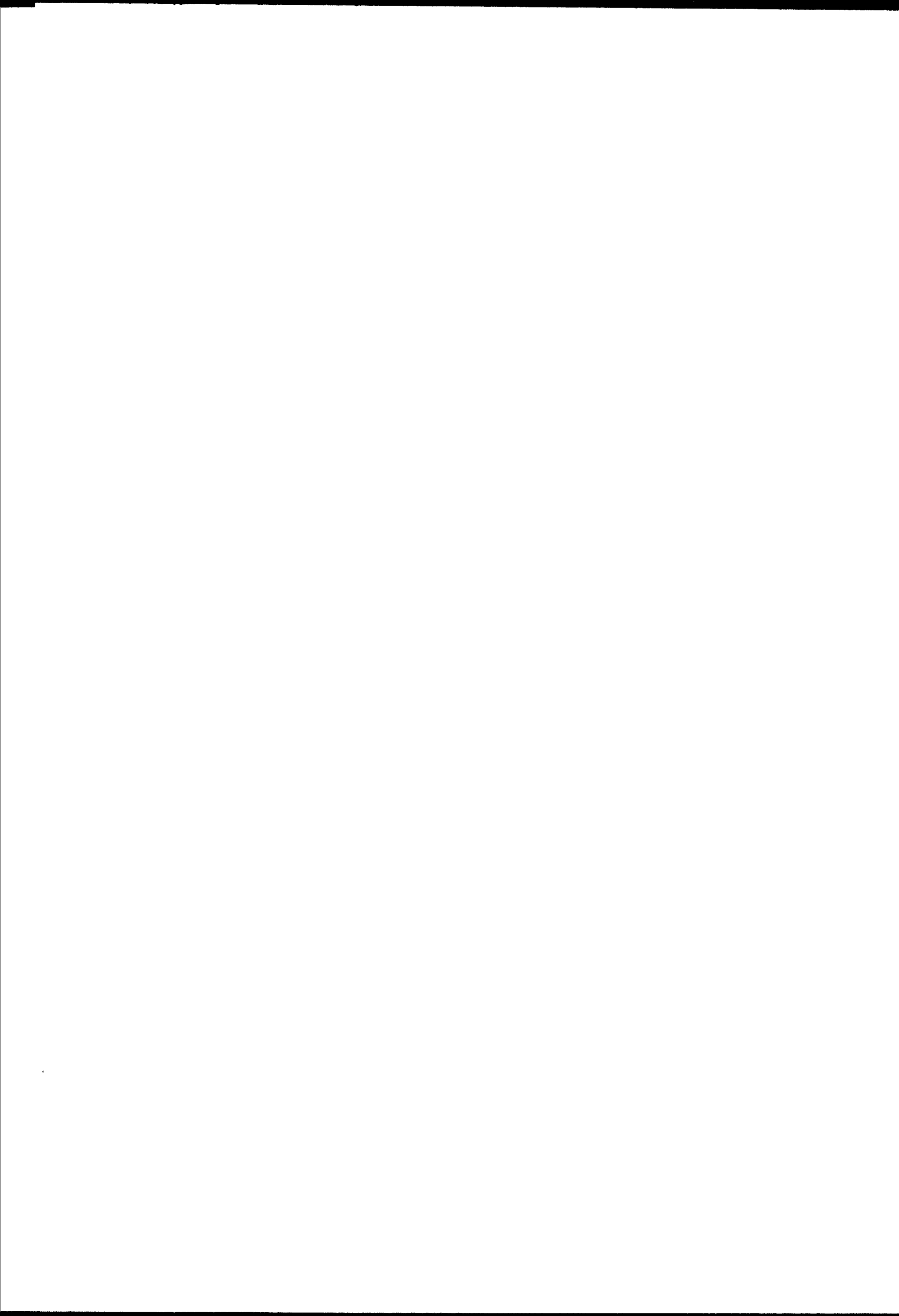




Table H. Chile: number of employees in factory establishments of various sizes, classified by industrial group, 1957

ISIC group	Establishment size			Total
	5-19	20-49	50 or more	
20. Food	8,640	7,498	18,912	35,050
21. Beverages	509	668	3,997	5,174
22. Tobacco	41	—	1,165	1,206
23. Textiles	2,789	4,278	30,522	37,589
24. Footwear and other wearing apparel	5,530	4,562	16,565	26,657
25. Wood and cork	2,012	2,312	6,581	10,905
26. Furniture and fixtures	1,375	956	2,490	4,821
27. Paper and paper products	402	456	2,569	3,427
28. Printing and allied industries	983	1,079	4,888	6,950
29. Leather and leather products	696	852	1,623	3,171
30. Rubber	206	107	1,634	1,947
31. Chemical products	1,387	1,583	9,073	12,043
32. Petroleum and coal derivatives	25	26	1,109	1,160
33. Non-metallic minerals	1,427	1,028	10,279	12,734
34. Basic metals	462	491	10,494	11,447
35. Metal products except transport equipment	1,577	1,679	9,583	12,839
36. Machinery except electrical machinery	1,009	757	3,108	4,874
37. Electrical machinery, apparatus, appliances and supplies	453	444	2,339	3,236
38. Transport equipment	1,392	1,594	3,963	6,949
39. Miscellaneous	878	910	1,734	3,522
Total	31,793	31,280	142,628	205,701

Source: Third National Census of Manufactures, 1957.

*Table 1. Chile: value added in factory establishments of various sizes, classified by industrial group, 1957*

(Thousands of pesos)

ISIC group	1957			Total
	Small	Medium	Large	
20. Food	9,106	10,204	35,629	54,939
21. Beverages	1,106	1,591	11,012	13,709
22. Tobacco	—	—	—	16,327
23. Textiles	2,275	3,616	34,306	42,197
24. Footwear and other wearing apparel	4,050	3,166	16,426	23,642
25. Wood and cork	1,640	1,999	5,901	9,540
26. Furniture and fixtures	791	789	3,375	4,925
27. Paper and paper products	318	335	5,087	5,740
28. Printing and allied industries	1,184	1,410	8,577	11,171
29. Leather and leather products	705	1,002	2,107	3,814
30. Rubber	225	119	3,421	3,765
31. Chemical products	2,254	2,874	18,635	23,763
32. Petroleum and coal derivatives	—	—	—	9,643
33. Non metallic minerals	1,062	1,012	13,784	15,858
34. Basic metals	395	509	32,112	33,016
35. Metal products except transport equipment	1,338	1,493	9,500	12,331
36. Machinery except electrical machinery	842	764	3,550	5,156
37. Electrical machinery, apparatus, appliances and supplies	352	500	4,181	5,033
38. Transport equipment	1,046	1,673	4,396	7,115
39. Miscellaneous	738	875	2,099	3,712
Total	29,427	33,901	214,098	303,396

Source: Third National Census of Manufactures, 1957

Table J. Colombia: number of employees in manufacturing establishments of various sizes, classified by industrial group

ISIC group	Handicrafts (1-4 employees)	Factory sector (number of employees per establishment)			Manufacturing total
		3-19	20-99	10 or more	
20. Food	2,747	10,788	7,370	17,970	36,128
21. Beverages	100	725	1,305	12,346	14,476
22. Tobacco	112	1,089	758	2,446	4,405
23. Textiles	393	1,576	2,451	39,821	44,241
24. Footwear and other wearing apparel	2,241	8,577	5,498	13,367	29,683
25. Wood and cork	410	1,971	890	2,638	5,909
26. Furniture and fixtures	400	1,839	1,067	1,700	5,006
27. Paper and paper products	13	405	733	2,828	3,979
28. Printing and allied industries	293	2,573	2,153	5,868	10,887
29. Leather and leather products	321	916	715	2,513	4,465
30. Rubber	6	333	238	5,228	5,805
31. Chemical products	338	1,999	2,472	11,649	16,458
32. Petroleum and coal derivatives	—	88	204	1,782	2,074
33. Non-metallic minerals	856	4,361	3,521	13,867	22,605
34. Basic metals	10	111	83	2,975	3,179
35. Metal products except transport equipment	269	2,472	3,333	7,644	13,718
36. Machinery except electrical machinery	163	1,200	409	1,542	3,314
37. Electrical machinery, apparatus, appliances and supplies	81	911	931	4,244	6,167
38. Transport equipment	453	2,736	1,916	7,427	12,532
39. Miscellaneous	146	1,045	1,413	3,718	6,322
	<u>9,352</u>	<u>45,715</u>	<u>37,460</u>	<u>161,573</u>	<u>254,100</u>

Source: Monthly Bulletin.

Table K. Colombia: value added in manufacturing establishments of various sizes, classified by industrial group, 1960  
(Millions of pesos)

ISIC group	Manufacturing		Factory sector		Manufacturing	
	Handicrafts employers	Value added	Number of establishments	Value added per establishment	Value added	Value added
20 Food	23.0	108.4	123.3	403.8	635.5	658.5
21 Beverages	0.8	8.1	34.3	650.4	692.8	693.6
22 Tobacco	0.4	3.5	2.9	252.7	259.1	259.5
23 Textiles	1.9	22.6	22.3	681.6	726.5	728.4
24 Footwear and other wearing apparel	12.5	51.8	37.3	132.1	221.2	233.7
25 Wood and cork	2.9	14.8	5.4	21.2	41.4	44.3
26 Furniture and fixtures	2.6	11.4	8.6	16.0	36.0	38.6
27 Paper and paper products	0.3	4.1	9.0	71.6	84.7	85.0
28 Printing and allied industries	2.0	17.8	25.7	87.0	130.5	132.5
29 Leather and leather products	2.4	8.3	6.8	49.6	64.7	67.1
30 Rubber	—	4.4	2.7	107.0	114.1	114.1
31 Chemical products	3.2	26.2	61.2	383.2	470.6	473.8
32 Petroleum and coal derivatives	—	6.2	7.1	149.7	163.0	163.0
33 Non metallic minerals	4.4	24.1	31.1	211.9	267.1	271.5
34 Basic metals	—	2.3	1.0	154.0	157.3	157.3
35 Metal products except transport equipment	1.8	19.1	34.7	109.8	163.6	165.4
36 Machinery except electrical machinery	9.0	10.0	2.8	18.9	31.7	40.7
37 Electrical machinery, apparatus, appliances and supplies	0.7	8.7	18.3	83.7	110.7	111.4
38 Transport equipment	2.6	20.4	19.1	75.3	114.8	117.4
39 Miscellaneous	1.7	10.0	20.0	62.2	92.2	93.9
<b>Total</b>	<b>72.2</b>	<b>382.2</b>	<b>473.6</b>	<b>3,721.7</b>	<b>4,577.5</b>	<b>4,649.7</b>

Table L. Paraguay: number of employees in manufacturing establishments of various sizes, classified by industrial group, 1963

ISIC group	Handicrafts (1-4 employees)	Factory sector			Manufacturing total
		1-19	20-49	50 or more	
20 Food	2,421	3,396	782	3,037	9,636
21 Beverages	181	632	140	641	1,594
22 Tobacco	5	82	60	674	821
23 Textiles	37	120	148	1,516	1,821
24 Footwear and other wearing apparel	1,293	817	112	1,33	2,355
25 Wood and cork	521	976	364	69	1,930
26 Furniture and fixtures	533	470	52	—	1,055
27 Paper and paper products	9	14	37	—	60
28 Printing and allied industries	65	190	173	504	932
29 Leather and leather products	323	201	102	69	695
30 Rubber	35	18	—	—	53
31 Chemical products	1,898	658	408	1,457	4,421
32 Petroleum and coal derivatives	3	—	—	—	3
33 Non-metallic minerals	2,241	1,244	531	633	4,649
34 Basic metals	24	47	—	—	71
35 Metal products except transport equipment	120	189	124	—	433
36 Machinery except electrical machinery	171	209	210	221	811
37 Electrical machinery, apparatus, appliances and supplies	158	131	36	123	448
38 Transport equipment	612	574	377	379	1,942
39 Miscellaneous	368	217	33	184	802
Total	11,018	10,185	3,689	9,640	34,532

Source: Industrial Census of Paraguay, 1963.

Table M. Paraguay: value added in manufacturing establishments of various sizes, classified by industrial group, 1963  
(Millions of guaranis)

ISIC group	Handicrafts (1-4 employees)	Factory sector (number of employees per establishment)			Factory total	Manufacturing total
		5-19	20-49	49 or more		
20. Food	180.1	283.3	224.0	1,076.1	1,583.4	1,763.5
21. Beverages	49.7	82.4	15.9	238.3	336.6	386.3
22. Tobacco	0.1	8.2	7.4	319.4	335.0	335.1
23. Textiles	29.2	21.2	37.4	508.9	567.5	596.7
24. Footwear and other wearing apparel	72.5	67.6	13.3	6.4	87.3	159.8
25. Wood and cork	41.3	92.4	35.5	12.1	140.0	181.3
26. Furniture and fixtures	31.7	40.0	5.6	—	45.6	77.3
27. Paper and paper products	1.3	1.2	4.6	—	5.8	7.1
28. Printing and allied industries	8.1	23.7	25.0	93.0	141.7	149.8
29. Leather and leather products	24.5	18.2	16.9	17.9	53.0	77.5
30. Rubber	3.0	3.7	—	—	3.7	6.7
31. Chemical products	42.7	80.2	110.9	423.4	614.5	657.2
32. Petroleum and coal derivatives	0.6	—	—	—	—	0.6
33. Non-metallic minerals	69.8	64.8	45.1	57.4	167.3	237.1
34. Basic metals	4.4	9.1	—	—	9.1	13.5
35. Metal products except transport equipment	19.8	21.4	40.6	—	62.0	75.8
36. Machinery except electrical machinery	20.1	34.0	35.9	41.2	111.1	131.2
37. Electrical machinery, apparatus, appliances and supplies	14.9	18.8	5.4	28.5	52.7	67.6
38. Transport equipment	49.3	76.1	55.9	43.4	175.4	224.7
39. Miscellaneous	21.7	24.5	3.0	12.0	39.5	61.2
Total	684.8	970.8	682.4	2,878.0	4,531.2	5,210.0

Source: Industrial Census of Paraguay, 1963.

*Table N. Venezuela: number of employees in factory establishments of various sizes, classified by industrial group, 1961*

ISIC group	Establishment size (number of employees)			Total
	5-20	21-50	51 or more	
20. Food . . . . .	11,111	4,113	13,420	28,644
21. Beverages . . . . .	1,866	878	6,534	9,278
22. Tobacco . . . . .	406	196	2,251	2,853
23. Textiles . . . . .	966	921	12,797	14,684
24. Footwear and other wearing apparel	9,133	6,626	4,008	19,767
25. Wood and cork . . . . .	1,858	1,305	169	3,332
26. Furniture and fixtures . . . . .	6,481	3,088	1,331	10,900
27. Paper and paper products . . . . .	697	367	3,106	4,170
28. Printing and allied industries . . . . .	2,771	1,311	1,904	5,985
29. Leather and leather products . . . . .	1,162	420	863	2,445
30. Rubber . . . . .	939	650	2,166	3,755
31. Chemical products . . . . .	2,001	1,276	4,178	7,455
32. Petroleum and coal derivatives . . . . .	45	31	6,893	6,969
33. Non-metallic minerals . . . . .	3,897	1,176	4,833	9,906
34. Basic metals . . . . .	242	208	1,406	1,856
35. Metal products except transport equipment . . . . .	2,450	1,032	1,917	5,399
36. Machinery except electrical machinery	205	222	71	498
37. Electrical machinery, apparatus, appliances and supplies . . . . .	1,649	1,528	247	3,424
38. Transport equipment . . . . .	8,388	2,812	1,694	12,894
39. Miscellaneous . . . . .	1,221	1,173	329	2,723
Total	<u>57,488</u>	<u>29,333</u>	<u>70,117</u>	<u>156,938</u>

Source: Industrial Survey, 1961.

*Table O. Venezuela: value added in factory establishments of various sizes, classified by industrial group, 1961*

Millions of Bolívares

ISIC group	Establishment size (number of employees)			
	1-20	21-50	51 or more	Total
20. Food	173	62	420	655
21. Beverages	30	25	461	516
22. Tobacco	4	1	229	234
23. Textiles	17	18	219	254
24. Footwear and other wearing apparel	126	104	60	290
25. Wood and cork	27	14	1	42
26. Furniture and fixtures	63	47	18	128
27. Paper and paper products	6	3	107	116
28. Printing and allied industries	31	32	53	116
29. Leather and leather products	18	7	17	42
30. Rubber	6	8	98	122
31. Chemical products	66	54	169	289
32. Petroleum and coal derivatives	3	1	510	514
33. Non-metallic minerals	38	23	165	226
34. Basic metals	1	3	27	31
35. Metal products except transport equipment	24	10	66	100
36. Machinery except electrical machinery	4	5	2	11
37. Electrical machinery, apparatus, appliances and supplies	25	31	8	64
38. Transport equipment	108	60	46	214
39. Miscellaneous	15	16	7	38
Total	<u>785</u>	<u>524</u>	<u>2,693</u>	<u>4,002</u>

Source: Industrial Survey, 1961.



Table P. United States: number of employees in manufacturing establishments of various sizes, classified by industrial group, 1954

SIC group	Handicrafts (1-4 employees)	Factory sector (number of employees per establishment)			Factory total	Manufacturing total
		5-19	20-49	50 or more		
20. Food	36,519	153,447	214,362	1,242,872	1,610,681	1,647,200
21. Beverages						
22. Tobacco	495	1,052	1,825	91,491	94,368	94,863
23. Textiles	3,228	21,937	50,823	961,449	1,034,209	1,037,437
24. Footwear and other wearing apparel	20,618	109,114	234,522	825,804	1,169,440	1,190,058
25. Wood and cork	49,721	122,596	115,738	357,880	596,214	645,935
26. Furniture and fixtures	9,827	33,226	47,981	249,659	330,866	340,693
27. Paper and paper products	1,798	12,994	34,336	481,045	528,376	530,174
28. Printing and allied industries	39,067	106,147	106,450	552,674	765,271	804,338
29. Leather and leather products	3,193	13,663	25,549	314,172	353,384	356,577
30. Rubber	901	3,967	6,967	234,655	245,589	246,490
31. Chemical products	9,157	36,529	59,342	634,223	730,294	737,251
32. Petroleum and coal derivatives	702	4,614	6,220	204,289	215,123	215,825
33. Non-metallic minerals	10,398	37,094	49,440	394,870	481,454	491,802
34. Basic metals	2,913	16,731	35,287	1,062,070	1,114,088	1,117,001
35. Metal products except transport equipment	19,020	79,429	114,980	805,876	1,000,285	1,019,305
36. Machinery except electrical machinery	23,280	89,088	113,037	1,316,224	1,518,349	1,541,629
37. Electrical machinery, apparatus, appliances and supplies	3,506	15,704	29,179	910,311	955,194	958,700
38. Transport equipment	3,905	15,300	24,849	1,660,447	1,703,506	1,704,501
39. Miscellaneous	19,971	64,650	89,204	794,535	948,359	968,362
<b>Total</b>	<b>258,219</b>	<b>937,282</b>	<b>1,360,091</b>	<b>13,094,547</b>	<b>15,349,923</b>	<b>15,650,139</b>

Source: Census of Manufacturers, 1954

Table Q. United States: value added in manufacturing establishments of various sizes, classified by industrial group, 1954  
(Millions of dollars)

ISIC group	Handicrafts (1-4 employees)	Factory sector (number of employees per establishment)			Factory total	Manufacturing total
		5-19	20-49	50 or more		
20. Food . . . . .	218	925	1,448	10,810	13,183	13,401
21. Beverages . . . . .						
22. Tobacco . . . . .	1	4	6	977	987	988
23. Textiles . . . . .	23	127	251	4,349	4,727	4,750
24. Footwear and other wearing apparel	142	617	1,005	3,383	5,005	5,147
25. Wood and cork . . . . .	207	495	541	1,946	2,982	3,189
26. Furniture and fixtures . . . . .	55	181	267	1,464	1,912	1,967
27. Paper and paper products . . . . .	12	80	211	4,278	4,569	4,581
28. Printing and allied industries . . . . .	251	687	726	4,602	6,015	6,266
29. Leather and leather products . . . . .	19	64	110	1,444	1,618	1,637
30. Rubber . . . . .	7	28	48	1,819	1,895	1,902
31. Chemical products . . . . .	75	336	596	8,436	9,368	9,443
32. Petroleum and coal derivatives . . . . .	9	49	68	2,455	2,572	2,581
33. Non-metallic minerals . . . . .	52	222	325	3,223	3,770	3,822
34. Basic metals . . . . .	20	106	232	9,016	9,354	9,374
35. Metal products except transport equipment . . . . .	127	528	802	6,139	7,469	7,596
36. Machinery except electrical machinery	171	638	848	10,681	12,167	12,338
37. Electrical machinery, apparatus, appliances and supplies . . . . .	24	105	195	7,080	7,380	7,404
38. Transport equipment . . . . .	22	93	165	13,645	13,903	13,925
39. Miscellaneous . . . . .	121	368	507	5,607	6,482	6,603
Total	1,556	5,653	8,351	101,354	115,358	116,914

Source: Census on Manufacturers, 1954.

*Table R. Latin America and the United States: share of factory workers employed in small-scale industry, classified by industrial group and country*  
(By percentage of value added within each group)

<i>ISIC group</i>	<i>Chile</i>	<i>Colombia</i>	<i>Paraguay</i>	<i>Venezuela</i>	<i>United States</i>
20. Food . . . . .	46	50	57	53	} 23
21. Beverages . . . . .	23	16	55	30	
22. Tobacco . . . . .	3	43	17	21	3
23. Textiles . . . . .	19	9	9	13	7
24. Footwear and other wearing apparel	38	52	57	80	29
25. Wood and cork . . . . .	40	52	96	95	57
26. Furniture and fixtures . . . . .	47	63	100	89	25
27. Paper and paper products . . . . .	25	29	100	25	9
28. Printing and allied industries . . . . .	30	45	41	68	28
29. Leather and leather products . . . . .	49	39	81	65	11
30. Rubber . . . . .	16	10	100	42	5
31. Chemical products . . . . .	24	28	42	44	13
32. Petroleum and coal derivatives . . . . .	4	14	—	1	5
33. Non-metallic minerals . . . . .	19	36	74	51	18
34. Basic metals . . . . .	8	6	100	24	5
35. Metal products except transport equipment . . . . .	25	43	100	65	19
36. Machinery except electrical machinery	36	51	65	85	13
37. Electrical machinery, apparatus, appliances and supplies . . . . .	28	30	58	93	5
38. Transport equipment . . . . .	43	38	71	87	2
39. Miscellaneous . . . . .	51	40	58	88	16
All industrial groups . . . . .	30	34	59	55	15

Source: Tables H, J, L, N and P.

*Table S. Latin America and the United States: percentage distribution of employment in small-scale industry, classified by industrial group and country*  
(By percentage of total employment for small-scale industry)

ISIC group	Chile	Colombia	Paraguay	Venezuela	United States
20. Food . . . . .	26	22	30	18	} 16
21. Beverages . . . . .	2	2	6	3	
22. Tobacco . . . . .	—	2	1	1	—
23. Textiles . . . . .	11	5	2	2	3
24. Footwear and other wearing apparel	16	17	7	18	15
25. Wood and cork . . . . .	7	3	10	4	10
26. Furniture and fixtures . . . . .	4	3	4	11	4
27. Paper and paper products . . . . .	1	1	—	1	2
28. Printing and allied industries . . . .	3	6	3	5	9
29. Leather and leather products . . . .	2	2	2	2	2
30. Rubber . . . . .	—	1	—	2	—
31. Chemical products . . . . .	5	5	8	4	4
32. Petroleum and coal derivatives . . . .	—	—	—	—	—
33. Non-metallic minerals . . . . .	4	9	13	6	4
34. Basic metals . . . . .	2	—	—	—	2
35. Metal products except transport equipment . . . . .	5	7	2	4	8
36. Machinery except electrical machinery	3	2	3	—	9
37. Electrical machinery, apparatus, appliances and supplies . . . . .	1	2	1	4	2
38. Transport equipment . . . . .	5	6	7	13	2
39. Miscellaneous . . . . .	3	3	2	3	7
Total	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>

Source: Tables G, H, L, N and P.

Table T. Latin America and the United States: value added per employee in small-scale industry, classified by industrial group and country

ISIC group	Chile (1,000 escudos per employee)	Colombia (1,000 pesos per employee)	Paraguay 1,000 guaranis per employee	Venezuela (1,000 bolivars per employee)	United States (1,000 dollars per employee)
20. Food . . . . .	1.20	12.8	121	15.4	} 6.5
21. Beverages . . . . .	2.21	20.8	127	20.1	
22. Tobacco . . . . .	...	3.5	110	8.3	3.5
23. Textiles . . . . .	0.83	11.1	218	18.5	5.2
24. Footwear and other wearing apparel	0.72	6.3	87	14.6	4.8
25. Wood and cork . . . . .	0.84	7.1	95	13.0	4.3
26. Furniture and fixtures . . . . .	0.67	6.9	87	11.5	5.5
27. Paper and paper products . . . . .	0.77	11.5	114	8.5	6.2
28. Printing and allied industries . . . . .	1.26	9.2	134	15.4	6.6
29. Leather and leather products . . . . .	1.10	9.3	116	15.8	4.4
30. Rubber . . . . .	1.10	12.4	205	8.8	6.9
31. Chemical products . . . . .	1.73	19.5	179	36.7	9.7
32. Petroleum and coal derivatives . . . . .	...	45.5	—	53.0	10.8
33. Non-metallic minerals . . . . .	0.85	7.0	62	12.0	6.3
34. Basic metals . . . . .	0.95	17.0	193	8.9	6.5
35. Metal products except transport equipment . . . . .	0.87	9.3	198	9.8	6.8
36. Machinery except electrical machinery	0.91	8.0	167	21.0	7.4
37. Electrical machinery, apparatus, appliances and supplies . . . . .	0.95	14.6	145	17.6	6.7
38. Transport equipment . . . . .	0.91	8.5	138	15.0	6.5
39. Miscellaneous . . . . .	0.90	12.2	110	13.0	5.7
All industrial groups	1.00	10.3	119	15.2	6.1

Source: Based on figures from tables H to Q.

*Table U. Latin America and the United States—installed power per employee in small-scale industry, classified by industrial group and country*  
(Horsepower per person employed)

<i>ISIC group</i>	<i>Chile</i>	<i>Colombia</i>	<i>Paraguay</i>	<i>Venezuela</i>	<i>United States</i>
20. Food . . . . .	2.3	2.3	1.5	2.9	4.7
21. Beverages . . . . .	1.4	4.1	1.0	1.4	
22. Tobacco . . . . .	—	0.1	1.1	0.3	1.0
23. Textiles . . . . .	1.0	1.5	7.2	1.3	2.8
24. Footwear and other wearing apparel	0.4	0.2	0.2	0.6	—
25. Wood and cork . . . . .	3.7	3.6	4.1	1.4	7.7
26. Furniture and fixtures . . . . .	1.0	1.0	1.0	3.5	2.1
27. Paper and paper products . . . . .	1.6	1.8	5.4	1.1	8.2
28. Printing and allied industries . . . . .	0.9	0.8	0.4	1.1	0.8
29. Leather and leather products . . . . .	3.0	3.8	1.8	4.0	1.5
30. Rubber . . . . .	2.8	2.2	4.6	1.7	6.1
31. Chemical products . . . . .	6.1	1.5	2.2	2.8	9.9
32. Petroleum and coal derivatives . . . . .	—	22.0	—	6.7	15.3
33. Non-metallic minerals . . . . .	1.3	1.5	0.8	2.3	7.0
34. Basic metals . . . . .	2.5	3.8	1.7	5.9	9.4
35. Metal products except transport equipment . . . . .	2.1	1.8	2.6	3.8	3.7
36. Machinery except electrical machinery	1.7	2.9	1.4	7.2	3.6
37. Electrical machinery, apparatus, appliances and supplies . . . . .	0.8	1.0	0.3	1.2	1.4
38. Transport equipment . . . . .	0.7	0.8	0.7	1.7	3.7
39. Miscellaneous . . . . .	10.2	1.2	1.0	1.1	1.4
All industrial groups	2.1	1.6	1.6	2.1	3.8

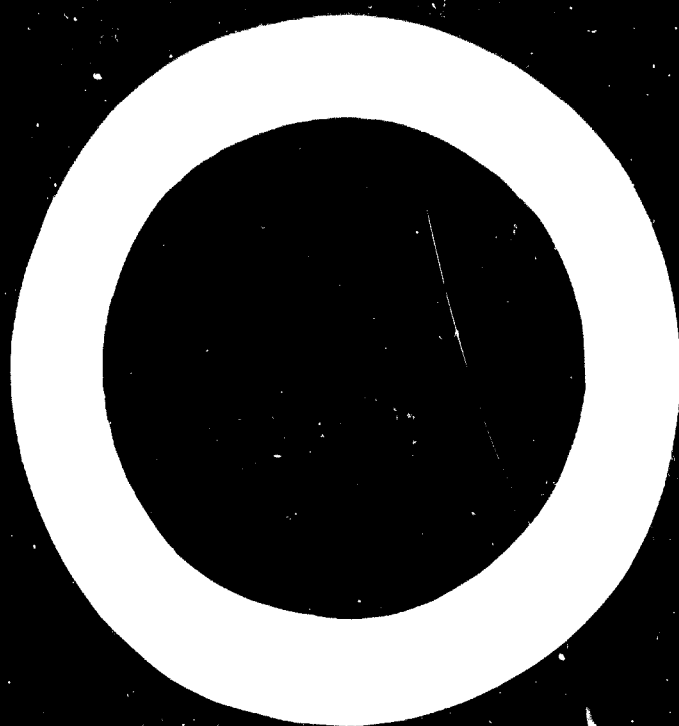
*Source:* Based on figures from the censuses of the respective countries.

**PART III**

*Development Possibilities  
for Small-Scale Industry in Specific Fields  
of Industrial Activity*

by  
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## INTRODUCTION

### FUNCTIONAL CHARACTERISTICS OF SMALL-SCALE INDUSTRY

THERE ARE WIDE differences between industrial enterprises—even between those in the same field: in the number of persons employed, the capital investment, the level of mechanization and the organizational structure. For convenience, or for legal purposes, an enterprise is classified as “large”, “medium” or “small” with reference to an arbitrary parameter—usually its number of employees, sometimes its investment in fixed capital, and sometimes both. The boundaries of the categories are always indistinct. They vary from country to country, within the same country, and even from trade to trade. Until recently, in India an undertaking using mechanical power and employing not more than 50 persons, or 100 persons with hand power, was regarded as small; some years ago, the employment ceiling was abandoned and the definition now covers all manufacturing enterprises with an investment in capital of not more than 750,000 rupees (\$100,000), except ancillary enterprises for which the capital ceiling is 1,250,000 rupees (\$166,660). The employment ceiling in Japan is 300. The Small Business Administration in the United States classifies a business as small if it has fewer than 250 employees, but within the range of 250 to 1,000 it may be either small or large depending on the industry. These limits have been set with the object of defining the scope of government assistance.

Where numerical indexes are attached to the classifications, large, medium, and small, they tend to disguise the essential similarity of establishments on both sides of the dividing lines and there is some logic in distinguishing industries by their functional characteristics, as suggested by Eugene Staley (Staley, 1958; Staley and Morse, 1965).<sup>1</sup> While there are exceptions, the distinguishing features of small scale industry in the developing countries are:

- (a) Very little specialization, or none, in management functions;
- (b) Shortage of capital, and only very limited access to institutional finance.

<sup>1</sup> References mentioned in the text are listed at the end of the paper.

- (c) Weak bargaining position in its markets;
- (d) Close personal contact between management and workers, and often between the firm and its customers;

To these Staley adds "a relatively close integration with the local community through local ownership and management, and dependence on nearby markets and sources of supply". He suggests that the possession of several, perhaps two or more, of these characteristics places an establishment in the small-scale category. Features (a) and (b) may be the more prevalent, the others being either secondary or incidental.

Associated with the foregoing may be:

- (e) The employment of obsolete technological processes;
- (f) The preference for the production of traditional lines; and
- (g) A reluctance to introduce innovations.

The latter group may be exhibited in varying degrees or may be absent altogether. In any case, it is necessary to consider these in relation to the general level of technology in the countries.

According to this viewpoint, two extreme types of small-scale industrial undertakings exist: one in which only the first group of characteristics, perhaps only (a) and (b), is present; and another in which all of the features are represented. Between these there are many intermediate types.

A useful distinction can be made between industries employing modern technological processes and those clinging to obsolete practices. The latter have grown directly or indirectly from artisan or handicraft workshops and still tend to produce the types of article needed in an unsophisticated community. These relics of the pre-industrial era may be described as "traditional" small-scale enterprises. Opposed to these are the "modern" small-scale undertakings, which may have come into being in their present form, or may have the same origins as the traditional type but at some point in their process of growth broke with the past by introducing new and technologically more advanced methods, accompanied, very often, by diversification of production.

In all but the most isolated communities, the traditional type of enterprise tends to disappear. Such enterprises are unable to compete with modern undertakings in terms of price and variety and, in some cases, of quality. There are, of course, exceptions, particularly in relation to goods of an artistic nature (special woven materials, non-utilitarian ceramics) and specialized foods such as "farina". Whether the products of the traditional undertaking are replaced by those of a large- or small-scale modern factory will depend on a number of factors: the

size and sophistication of the market, the effectiveness of the distribution system, the extent of the raw materials available, and government policy in relation to decentralization and protection. Even in the field of food processing, where personal taste and local custom may play a significant part, this trend is evident. A classic example is the gradual disappearance of the small local bakery.

The objective of economic development is to raise the level of living. This is not a stationary target, since with each improvement the objective is raised higher. Progress in the desired direction can be made only if the most effective use, consistent with the current levels of technology, is made of the available resources—capital, skills, materials and power. The emphasis is on “most effective use”. This phrase cannot be equated to efficiency in the narrow technical sense; by it is to be understood the optimum use of all the varied factors that affect production. Under certain circumstances this may involve a compromise with technical efficiency. In the same field, large-scale undertakings often, but by no means invariably, are technically more efficient than their smaller counterparts. That is not to say that they make more effective use of their inputs. To replace a manual operation by a mechanized one, for instance, is not effective use of capital if the machine cannot be kept employed for a reasonably large part of its useful life. As effective users of resources, large and small-scale enterprises have their places. But the traditional small enterprises do not as a rule make the best use of their available resources. Their replacement by, or transformation into, the modern small-scale undertaking is a necessary step towards industrialization and the living standards that only industrialization can bring.

It is not uncommon to hear the opinion expressed that small-scale industry is a transitional phase in the industrial evolution of a country; that in highly industrialized countries, manufacturing industry is composed entirely of large undertakings; and that only such establishments can take advantage of modern techniques. The last contention may be omitted for the moment. If there were any substance in the others, one would expect statistics to show over a number of years a decrease in the ratio of small-scale to large-scale enterprises in industrializing countries and a significantly lower proportion of small-scale establishments in the highly industrialized countries. Table 1 shows, however, that the ratio of small-scale to large-scale establishments tends, if anything, to increase, and that the proportion of small-scale enterprises is remarkably alike in both industrializing and industrialized countries.

In the highly industrialized countries (the Federal Republic of Germany, Japan, the United Kingdom and the United States), the position, as shown in table 2, with due allowance for the change of base, is much the same as that in the countries listed in table 1.

Table 1. Small-scale industrial establishments in selected countries in 1920, 1935 and 1950<sup>a</sup>

Country	Establishments employing 11 to 50 persons as a percentage of all establishments with a staff of 11 or more			Employees in establishments employing 11 to 50 persons as a percentage of all employees in establishments with a staff of 11 or more		
	1920	1935	1950	1920	1935	1950
Argentina <sup>b</sup>	—	76	78	—	27	29
Belgium <sup>c</sup>	76	74	76	27	24	26
Brazil <sup>d</sup>	74	77	—	20	24	—
Canada <sup>e</sup>	75	78	79	23	23	21
France <sup>f</sup>	77	77	—	28	27	—
Japan <sup>g</sup>	81	81	87	30	29	38
Sweden <sup>h</sup>	68	74	73	22	24	23
Switzerland	71	72	73	26	26	27

Source: International Labour Organisation (1965) "The Size of Industrial Establishments", *International Labour Review*, Vol. 63, No. 6, p. 640.

<sup>a</sup> Manufacturing industries except where otherwise stated.

<sup>b</sup> Number of wage earners.

<sup>c</sup> Ten or more wage earners excluding members of employer's family.

<sup>d</sup> Wage earners in 1920.

<sup>e</sup> Establishments with 5 to 50 employees (5 to 49 in 1949), as percentages of establishments with 5 or more employees.

<sup>f</sup> Including construction.

<sup>g</sup> Wage earners in 1921 and 1935.

<sup>h</sup> Including quarrying and metal mining.

Table 2. Role of manufacturing establishments having fewer than 100 employees in selected countries

Country	Year	Percentage of all manufacturing establishments	Percentage of all manufacturing employees	Percentage of all manufacturing output
Germany (Federal Republic of)	1953	89	27	23
Japan	1952	99	59	37
United Kingdom	1954	95	33	n. a.
United States	1954	91	26	22

Source: E. Staley (1958) *Small Industry Development*, Stanford Research Institute, Menlo Park, Calif. (Research Program on Small Industry Development, Miscell. Paper No. 1).

It may be concluded from the foregoing that in all countries small enterprises form the largest group by number in the manufacturing industries, and there is no evidence that it is diminishing.

To consider modern technology as being applicable only to large undertakings is to ignore factor prices and to regard all such processes as being large and indivisible. The economies of scale are only fully realized when the indivisible factors of production are combined in optimum proportions. For the lowest cost of production the most advanced technology may not be the best, "for there are at all times a long string of mechanical devices known to the engineer which appear to have everything in their favour except that they would not pay" (Jewkes, 1952). Some operations require large and expensive units of equipment. Such operations, or processes, are indivisible in that they will not be profitable if the output is below a certain minimum. A blast furnace for the smelting of iron ore is such a unit. The investment and labour required place blast furnaces outside the limit of small-scale industry by any definition. On the other hand, in many large establishments the operations are performed on a battery of identical machines. In these circumstances the process is divisible and could be carried out equally well in a small-scale undertaking. Letterpress printing and the making of cutlery are good examples of industries where the size is a matter of multiplication. As is to be expected, small-scale enterprises are well represented in these fields.

There is a general trend in industrialized countries for establishments to increase in size. In plants employing fewer than 100 workers, the average number of employees per establishment was 3 in Italy (1954) and 7 in Japan (1951), while in the United States (1947) and the United Kingdom (1956) the comparable figures were 17 and 38, respectively. It would appear that the longer the history of industrialization the greater the average size of small-scale undertakings. Some small-scale enterprises may outgrow the classification, and others, no doubt, are forced out of business. These factors tend to diminish the relative importance of the small-scale sector as a provider of employment. However, the persistence of approximately the same ratios of numerical strength and employment between large and small establishments over three decades suggests that, however many undertakings graduate out of the small-scale class or fall by the wayside, new opportunities arise that this sector is able to seize.

The correlation in table 2 between the percentages of total employment and total production attributable to small-scale industry will be observed. Although it cannot be denied that in every country the average productivity, as measured by the value of production per worker, is lower in the small-scale sector than in the large, the difference is not so great as the exponents of "big business" would have people believe. A point that is not often taken into consideration

in relation to productivity is that while complex machines continue to displace direct labour, a disproportionately large staff is required to ensure that they are kept in production. For every 100 operatives in Britain in 1924, 11.8 were employed in administrative, technical and clerical duties, in 1935 the figure was 15.1 and by 1948 it had reached 20 (Florence, 1953).

The conclusion to be drawn from the foregoing is: "If small-scale industry appears, broadly speaking, to maintain its relative importance in national economies as economic growth proceeds, it does so not through sheer inertia, but through a process of adaptation—of evolution and natural selection. To a large extent the process of adaptation that is required would seem to be a process of shifting the centre of gravity of small-scale industry from activities that compete with large-scale industry to activities that are complementary to it" (ILO, 1961). For far too long, small-scale industry to most people has been synonymous with backyard enterprise. But by the level of employment it provides and by its contribution to the national product, it is a potent factor in all national economies and should be recognized as such.

#### ROLE OF SMALL-SCALE INDUSTRY IN DEVELOPED AND DEVELOPING ECONOMIES

In the foregoing paragraphs it has been shown that small and large establishments can, and do, exist side by side. This co-existence does not, of course, pervade the entire industrial field. There is an area that is the exclusive domain of the large undertaking, just as there is a section in which small establishments predominate. Between these two extremes is a region where large and small enterprises are in competition. In both developed and developing economies there are certain common features in the respective parts that small-scale industry has to play, but there is often a difference in the emphasis that must be placed on them.

In most countries, particularly in developing ones, there are concentrations of population that are widely dispersed. These densely populated areas form the principal markets for the products of industry. It may be found that the savings resulting from large-scale production in any one of them are diminished, or completely lost, by the high cost of transport to the market in the other centres. This applies particularly to perishable and low value, high-freight goods. For that reason a large concern may establish a small-scale production unit in an area remote from the centre of gravity of population to cater to the local market.

There is a tendency, at the present time among large undertakings to decentralize part of their activities. It is no longer believed that all the varied operations that make up a complex product must be

performed under one roof. There are valid reasons for so thinking. Land values usually are lower away from urban districts. There may be more, and possibly cheaper, labour available, and less social unrest. A firm may decide to process its raw material at its source rather than ship it to the central factory. Another may consider that the jigs and tools used in production could be made equally well and at less cost in a small branch factory. The units that are set up, for the reasons given in the two preceding paragraphs, although small in terms of the numbers employed will have some or all of the advantages of specialized management because of their integration with their parent companies.

The circumstances that permit the proliferation of branch factories and subsidiary production units are equally effective in promoting the growth and development of small, independent units. In the countries that are now highly industrialized, it was the custom, before mechanical power was generally used, to contract out work to artisans to be done in their own homes. This practice ceased when steam power was introduced because only the large operator could afford to install machinery using it. The advent of electrical power and the ease with which it could be distributed altered the situation. The complexity and scale of modern production processes makes a return to production in the home quite inadvisable, but the part that was formerly played by the household worker can now be carried out by small-scale enterprises. Some countries undergoing industrial transformation were not slow to take advantage of the new position. Indeed, in the highly industrialized countries, where the majority of the industries at that time were vertically integrated, the possibilities of the situation were less evident. It is now recognized, however, that one of the most promising fields for small-scale enterprises is in supplying the needs of large undertakings. An idea of the extent of the co-operation between large-scale and small-scale industry in Japan is given in table 3.

*Table 3. Selected data on subcontracting in Japan*

<i>Industry</i>	<i>Percentage of total cost of finished product</i>
Rolling stock	70
Shipbuilding	70
Motor cars	62
Textile machinery	34
Telephone switchboards	26

*Source:* United Nations, 1955, *Report of Study Group on Small Scale Industry Exports on their Visit to Japan* (documents E/CN.11.1 and E.128, mimeographed).

The existence of small-scale establishments is not to be attributed solely to their ability to supply and/or complement large-scale under-

takings. Every community has different needs, and within a community the various levels of society have different needs. Many of these needs cannot be met by the mass producers. Where services are directly provided to customers, where the demand is for a wide variety of product, and where long production runs are impossible, the small enterprise is preferable to the large.

It is obviously impossible to operate a large enterprise unless the appropriate quantities of raw or intermediate materials, as the case may be, are readily and continuously available. The sources of such materials are by no means uniformly distributed. Where local sources are sparse, the enterprises depending on them must, of necessity, be small. Deficiencies may be made good by importation, but this is not always possible. There are many instances, particularly in relation to the processing of agricultural materials, where the quantities arising in any one location are relatively small and must be treated so soon after collection that central, large-scale processing is impossible. Many local resources, not only agricultural, but mineral and silvicultural as well, would not be exploited but for small-scale industry.

#### ADDITIONAL ROLES OF SMALL-SCALE INDUSTRY IN DEVELOPING COUNTRIES

In countries undergoing the transformation from an agrarian to an industrial economy, the traditional practice of investing savings in land and valuables still exists. The capital needed to start a small enterprise is seldom too great to be raised by the owner, usually an individual or a small partnership, from personal resources supplemented by loans from friends and relatives. In this way the small enterprise can mobilize the wealth frozen in unproductive assets for productive use, and so assist in capital formation.

Agriculture is still the principal activity in the industrializing countries and is frequently characterized by a dichotomy between plantation and peasant farming. The former is becoming more capital-intensive, and the latter, through lack of capital, continues to employ obsolete methods with low returns. Furthermore, in many areas all or nearly all of the available land is under cultivation. Increased yields can be obtained only by better methods, irrigation or improved strains. The consequence is that countries are faced with declining agricultural employment and increasing population—in other words, a decreasing *per capita* income. The solution to this problem is industrialization, in which the small scale enterprise can play its part.

To absorb the redundant agricultural workers, industries must be established. It is less costly in social overheads if these industries can be set up in the areas where the unemployed normally reside. The drift to the towns may be lessened. As these areas are rural and



perhaps remote from the centres of high population density, small undertakings are likely to be the only possible type.

Small-scale industry may also play other roles. The managerial skills required by large-scale industry have to be acquired. The small-scale industry can, and does, provide an excellent training ground for those with the proper entrepreneurial spirit. The experience gained there can be translated into wider fields.

In newly industrializing countries wealth is frequently concentrated in the hands of a small minority, and where there is dualism in agrarian economies this condition tends to increase rather than diminish. Small-scale industry has the effect of creating a new class of small capitalists, leads to the formation of a middle class, and to a wider distribution of income.

The planners of national industrial programmes often fail to consider the possibilities of small-scale industry and tend to concentrate on large projects. In not a few cases these super-scale undertakings have been costly failures. Some are kept in operation only by government subventions. It is extremely difficult to forecast demands accurately under rapidly changing conditions, and mistakes must occur from time to time. With large-scale establishments mistakes are expensive and may actually slow down the progress towards industrialization. This is not the case with small undertakings. Indeed, it may be that in countries where capital is scarce the only road to a transformed economy is through the small-scale sector.

### INDUSTRIES IN WHICH SMALL ENTERPRISES CANNOT COMPETE

TWO NEGATIVE attributes of small-scale industry—lack of capital and specialized managerial skills—have already been noted. It is to be expected, therefore, that the small enterprise will not be represented in industries requiring a heavy capital investment and specialized managerial functions. Both of these criteria call for some amplification. While the capital investment must be great, it must not be so only by reason of the multiplicity of identical unit processes. The indivisible units of production must be physically large or so interdependent one with another that the complex virtually is one large, individual unit. In many instances the products will be of substantial size and value. Specialized management, of course, is only the division of the various functions, which are carried out, however indifferently, in a small undertaking by one or two persons, among a relatively large number of officials who are experts in their particular fields.

The products listed below require for their manufacture on a commercial scale the employment of a large or integrated plant. No small establishment can compete successfully in these lines.

Cement	Textile machinery	Aircraft (assembly)
Heavy chemicals	Marine engines	Ocean-going ships
Heavy electrical machinery	High-pressure boilers	Tinplate
Locomotives	Motor vehicles (assembly)	Mineral oil (refining)
Heavy armaments	Iron and steel smelting	Linoleum
Paper machinery	Machine tools (high precision)	Cane sugar (refining)
	Plate glass	

The list is not exhaustive, but illustrative of the types of product, nearly all of which are capital goods or intermediate materials, which are seldom produced by the small-scale sector. There are some exceptions for such materials as lime and rubber, and when capital goods are produced they are usually of relatively low value.

The validity of the preceding statements is not affected by the level of industrial development. The plants manufacturing the above items will all be above a certain minimum size in terms of initial capital investment, irrespective of the country in which they are located. Some, no doubt, grew from small undertakings. If so, the growth was not gradual, but by discrete steps with an accompanying change of product. Others, such as those producing cement or tinplate, came into being at or above the minimum size.

#### INDUSTRIES IN WHICH SMALL AND LARGE ENTERPRISES CAN COMPETE

IN MOST INDUSTRIES, with the exception of those manufacturing the products listed in the preceding section, small, medium and large establishments can be found. In the wool and worsted industry in Great Britain, for example, the number of employees in the largest unit is at least 40 times that in the smallest. Certain factors, locational and economic, operate in such a manner that for most products there is, in broad terms, a prevalent or representative size of plant. In an industrialized country, if small establishments are found in an industry in which the prevalent size is medium or large, and the products are comparable, it is because of the industry's appropriate adjustment to the size of the market it serves and to the availability of raw materials. In relation to availability of materials the cost of transport may be important. Articles, nominally the same, produced at different industrial levels may in fact differ in quality and design. The garment industry is a case in point. The creations of the famous fashion houses cannot be compared with mass-produced clothing. The same applies to the shoe

industry. Very often it will be found that the small establishment caters to a specialized market, and there is no competition with the large producer.

In countries undergoing industrialization, entire industries may be comparatively small; certain industries may be absent altogether. Under these conditions the prevalent plant size, where there is one, will be small, and enterprises entering any industrial field, except that reserved for the "giants", will also be small. The opportunities for small enterprises will depend on such factors as the size and sophistication of the local market, the possibilities of exporting, the supply of materials either locally obtainable or imported, the costs of labour and capital, and the degree of protection, if any, provided.

An enterprise cannot survive unless there is a market to absorb its products. Every entrepreneur considering entry into the manufacturing field must assess the potential market. This is so obviously essential that one hesitates to mention it, but a surprisingly large number of entrepreneurs fail to make such an assessment. It is not an easy task. The published statistics are of only limited assistance because the commodity classifications are almost invariably too broad. Advertising, radio and television have educated the public to expect and demand a greater variety of products than hitherto. In a country where the market for a certain category of goods appears to be adequate to support production, this sophistication may mean that the consumption of each individual item within the group is very low and that the demand can suddenly switch from one line to another. Such a situation is less likely to affect adversely the small than the large producer because the organization of the small producer is more adaptable to change. For example, a retail store may find it necessary to stock 40 to 50 different styles of shoes, and its sales of each may be comparatively small. No factory could undertake to manufacture profitably such a range unless it had access to an immense market. Indeed, it has been said that four or five styles are the maximum for optimum production. The demand for one or two styles may be sufficient to absorb the output of a small factory, which can relatively easily change to another style in accordance with the vagaries of the market.

In the light engineering field, particularly in connexion with metal pressings, there are many articles that require expensive and specialized appliances for their production, the cost of which must be charged against the goods manufactured. If the price is not to be unreasonably high, long production runs are essential. This situation must be faced in those countries in which consumer durables are being assembled from components that are imported for the most part. Naturally, such countries are eager to have as many locally made parts as possible incorporated in the assemblies. Many of these, without any difficulty,

could be made if the quantities needed were sufficient to allow the equipment to be written off as a reasonably low component of the unit price. The automobile assembly industry provides an excellent example of this state of affairs, and in it the situation is not improved by the almost annual changes in design, which have been described as built-in obsolescence. In those countries that have legislation to compel assemblers to use a proportion of locally made parts, the position has been reached where items have to be redesigned so that they can be made with less expensive tools. This does not mean that the local product will be less expensive than the imported equivalent; the reverse is usually the case. The essential decision in selecting articles to be manufactured is not "Can it be made?" but "Can enough be sold to cover the cost of production and leave a reasonable margin for profit?"

The costs of labour and capital usually are the most important items in the price structure of a manufactured article. In developing countries the cost of capital may outweigh the cost of labour, but that is not always the case. In most feasibility studies made for the purpose of selecting suitable products for small-scale industry, one is faced with the problem of balancing the cost of labour against the capital cost of machinery. The cost of labour in some Latin American countries is so high that machinery must be used to replace it if the product is to be competitive. Very often, it will be found, the break-even production of the mechanized plant is too great for the home market. Unless there are possibilities for export some compromise must be made. Sometimes the only possible solution is protection, a course that may not be in the best interests of the economy as a whole. There is no universal solution to this dilemma. So far as small-scale industry is concerned, a partial answer is to select products that have a relatively high labour content; that do not require to be made on special-purpose, high-capacity machines; that, in most countries, are made at all industrial levels; and for which there is a healthy local market. In a sense these are alternatives, since it is improbable that an article can be selected that fulfils all criteria. With regard to the means of production, obviously it must be capable of carrying out the intended functions. If a special-purpose machine is essential, there is no alternative. But if the operations may be performed almost as well on a general-purpose machine, it should be chosen.

In certain industries there is no prevalent size of plant. Identical products are manufactured, or services performed, at all industrial levels, the "giants" excepted. In such industries the economies of scale are not of great importance. Provided that there is a still unsatisfied portion of the market, the small undertaking can compete successfully with the large manufacturer, and established small concerns will not find their positions undermined, solely on account of size, by the entry into the field of a large producer. A list of the products of

such industries is given below. An attempt has been made to give indications of the capital investment per employee and number of employees in respect of establishments in Trinidad. The data are mainly from the Industrial Development Corporation of Trinidad and Tobago. Where appropriate data on existing undertakings were unobtainable feasibility studies prepared by various agencies, principally the United States Agency for Industrial Development (AID), have been used.

#### SUGAR CONFECTIONERY

The principal products are boiled sweets and toffees. There is opportunity to use locally obtainable flavours, essences and fruits. The sweets are machine wrapped. Savings in investment can be made by employing hand wrapping. The product has a good local market, but export is difficult in competition with branded goods. The investment per employee is about \$ 3,000 (32 employees).

#### BAKING POWDER

Basically the operation consists of the mixing of refined sodium bicarbonate with sodium pyrophosphate, and packaging. The investment varies from \$ 3,200 to \$ 5,200 per worker, the lowest investment per worker being in the largest undertaking. Employment ranges from four to twenty workers per establishment.

#### BISCUITS

The size of establishments varies enormously. In Great Britain, the prevalent size is large, but in other countries this is not the case. There is no representative size in the United States. In Japan, at least half the national production is from firms employing fewer than 50 persons. Since suitably packed biscuits remain fresh over a long period and are easily transportable, there is no local advantage for small establishments. The principal ingredients are sugar, flavourings, wheaten flour and shortening. Where wheat flour is imported, varying amounts of local flours—soya, arrowroot, cassava—can be incorporated in the dough. The shortening may be obtained by the hydrogenation of locally produced vegetable oils, such as coconut oil. The investment per worker for a plant employing six persons is about \$ 4,500. In a highly mechanized factory it may be as high as \$ 15,000 per employee (14 employees).

#### PASTAS

Such items as macaroni, spaghetti, tagliarini, fanti, noodles and other pastes made from wheat middlings (semolina) are popular foodstuffs in most countries. They have the advantage of keeping fresh almost indefinitely. The investment per worker in a factory with mechanized drying and packing equipment is of the order of \$ 5,000

(25 employees). Some units operate on a very small scale, employing between one and four persons, usually members of the same family. At this level the products are mee, mechoon or egg noodles, which are sold either loose or wrapped. The equipment may consist of an extruder, often improvised, and a dough roller. The investment is not likely to exceed \$500 per worker.

#### EDIBLE OILS

Sunflower seeds, corn, cotton seeds, peanuts, soyabeans, sesame seeds, copra and the fruits of the oil palm are possible sources of edible oil. Broadly speaking, there are two methods of extraction, by solvent extraction, which is usually employed for soyabean and cotton seed oils, and by expelling or expressing. The former is not an operation for a small scale undertaking. Next to cotton seed and soyabean oils, coconut oil is commercially the most important. The process of expelling coconut oil is not labour-intensive. Small producers do not usually refine their oil, and their sales outlets depend on the quality of the oil. Freshly expressed oil may be sold as a cooking oil, but oils with any degree of rancidity must be sold to refiners or to soap manufacturers. The large-scale oil millers usually refine and deodorize the oil and may make it directly into shortenings and soap. The investment per worker in a factory expelling oil and manufacturing soap and shortenings is about \$5,000 (200 employees). In a smaller expelling and refining plant the per-worker investment is \$10,000 (20 employees). Palm oil is rarely, if ever, made on a small scale because of the high cost of equipment to treat the fruit to prevent a rapid rise of the free fatty-acid content. Corn oil, which is used almost exclusively as a salad oil, is made from the hulls by expressing. Chemical treatment with sulphur dioxide is necessary to separate the hulls from the kernels. The basic equipment of a small oil mill is a hammer mill (coconut oil only), a screw press and a filter press. Only two or three persons are employed in the smallest units. In all large mills the percentage yield of oil is higher. The press cake remaining after the expulsion of the oil is a valuable animal feed.

#### LAUNDRY SOAP

Toilet soaps generally are made in large undertakings, but laundry soap is made at all industrial levels. Small enterprises frequently make it by the "semi-boiled" process. The product is inferior to soap made by the "full-boiled" method, but it is more economical to make and very little equipment is needed. The ingredients commonly used are tallow, or tallow mixed with coconut oil, caustic soda, sodium silicate, powdered laundry blue and a soap perfume. The investment per worker varies from \$450 (4 employees) to \$2,000 (8 employees). The major capital cost is the workshed.

## KNITTED COTTONS

The customary procedure is for the firm to use imported yarn to produce knitted fabrics in tube form on a circular knitting machine. The fabric is washed, bleached and, sometimes, dyed on the premises. Units may contain any number of knitting machines, but three is probably the minimum. Very often such garments as tee-shirts, singlets and men's underwear are made up in the knitting mill. The investment per worker in factories engaged in knitting and making up ranges from \$1,400 to \$3,000. For three concerns the figures are \$1,400 (52 employees), \$2,000 (32 employees) and \$3,000 (22 employees).

## APPAREL

Such garments as shirts, pyjamas, bathing suits, trousers, pull-overs, sweaters, and blouses are made from knitted cottons, bleached, dyed or printed, and poplins similarly finished. The minimum level of employment is about ten persons, but some enterprises employ over 400. The majority of firms employ from 20 to 40 workers. The investment is between \$600 and \$2,700 per person. Five firms each employing between 20 and 25 persons had an average investment of just under \$1,000 per worker, and in five units each with 30 to 40 employees the equivalent figure was \$1,250. The maximum investment per employee occurred in firms employing between 50 and 60 workers.

## MATTRESSES (INTERIOR SPRING)

The making of interior spring mattresses is often combined with furniture-making, but there are firms that specialize in this line. The minimum size of unit employs about eighteen persons, the investment per worker being about \$3,000, but in some larger units it may fall to about \$2,000. Mattress makers usually do not manufacture their own springs. Many of the mattresses on the market have patented springing arrangements, but where coiled springs are used, they are sometimes made on the premises. It is not profitable to make springs on a small scale unless the excess output can be sold to other mattress manufacturers, or to upholsterers.

## METAL FURNITURE

Firms may specialize in office furniture—desks, chairs, filing cabinets—or household furniture—chairs, highchairs, stools, occasional tables and dinette sets. For office use, the pedestals for desks, and drawers for filing cabinets and desks are formed by folding and bending sheet steel, and the frames for chairs are made by bending imported square section tube. Seat cushions are of foam, plastic or natural rubber. The backs are of wood, padded and covered with polyvinyl sheet. A domestic chair usually consists of a chrome-plated or oxidized frame of parallel or tapered steel tube supporting a card-

board or particle-board seat on which a foam cushion is fitted. The back-rest is made of three-ply or solid wood, shaped and padded. The material used to cover the seat and back-rest is polyvinyl sheet. Table tops are made of particle board or blockboard covered with a plastic laminate. Some manufacturers purchase the tubes already bent to shape, pierced and plated. Others buy the parallel tube in straight lengths to cut and bend. Plating is carried out by established electroplating firms. The tapered tubes are always bought with the ends drawn down to the desired size. The investment per worker ranges from about \$ 3,100 (34 employees) to around \$ 7,000 (25 employees).

#### WOODEN FURNITURE

In many but not all countries, factories making domestic furniture are found at all industrial levels. The present tendency appears to be for the larger units to produce standard designs and for the lesser units to combine the production of household and institutional furniture with building fixtures. The very small concerns generally make furniture to order. The woodworking machinery employed is not highly specialized. A firm could switch from making furniture to the production of crates for beer or fruit without great difficulty. The average investment per worker taken over five establishments worked out at \$ 3,200 and varied from \$ 1,600 (43 workers) to \$ 6,200 (10 workers).

#### CONVERTED PAPER PRODUCTS

Paper of the requisite quality is purchased for conversion into a wide range of products: toilet tissue, paper napkins, sanitary pads, paper bags (single-wall type), envelopes, exercise books, writing pads, paper plates, drinking cups, food containers, drinking straws and egg cartons (see table 4).

*Table 4. Approximate level of employment and investment per worker*

<i>Product</i>	<i>Employment range (number of workers)</i>	<i>Investment per worker (dollars)</i>	<i>Method</i>
Toilet tissue, paper napkins, sanitary pads, paper bags, envelopes .	10—45	2,600	Cutting, or cutting folding and gumming
Exercise books, writing pads, loose-leaf note- books . . . . .	15—20	12,500	Cutting, ruling, punching and binding
Paper plates, sanitary cups, food containers .	about 10	4,000	Press moulding
Egg cartons . . . . .	7—10	3,000	Press moulding
Drinking straws . . . . .	about 5	1,500	Spiral winding



### PRINTING

In the small-scale sector most printers are jobbers. Some produce almanacs and calendars as regular lines to supplement their jobbing trade, and, if so, the art work is usually purchased from specialist colour printers. The employment may be at any level. The smallest has only a platen press, a guillotine, perhaps a stitcher and three or four employees. The investment per worker is around \$3,000. There is a tendency for investments to increase in this trade as the hand-fed platen press is replaced by the automatically-fed machine.

### TANNING

Tanneries can be divided into two main groups, those that produce only sole leather and those that produce sole and uppers leather. There is a subsidiary group that specializes in tanning goat, sheep and exotic skins. The volume of business is in bovine sole and uppers leather. For the production of sole leather only relatively simple equipment is necessary. The tanning materials, mangrove bark, oak gall nuts, quebracho, can in many instances be obtained locally; and accurate chemical control, while desirable, is not so essential as in the chrome tanning process used for uppers leather. As vegetable tanning may take as long as six months to produce a satisfactory tanned hide, the greater part of the investment, exclusive of cost of building, is in materials in progress. For the tanning and finishing of uppers leather, a wide range of machinery is needed, and there must be accurate and continuous control of the strengths and pH values of the reagents. A tannery producing sole and uppers leathers might employ about 50 workers at an investment of \$6,000 per employee. Sole leather is made in one factory employing eight persons, and the investment is about \$7,000 per employee. The quantity and particularly the quality of locally obtained hides have an important bearing on the success of the operation. If the quantity is deficient it is possible to import salted hides; but if the quality is low because of wounds or badly flayed hides, it will be very difficult to dispose of the leather. Often the first step in improving the quality of local leather should be taken in the local abattoir.

### BURNT CLAY PRODUCTS

The products are plain and glazed roof and floor tiles, bricks, hollow blocks, soil pipes and land drains, and sanitary wares. At cottage industry and slightly higher levels, plain roof and floor tiles and bricks are made by hand-moulding. If any mechanical equipment at all is used it will be a hand press for repressing partially dried green bricks. At more advanced levels tiles are formed by machine-pressing of extruded clots of clay, and bricks, hollow blocks and pipes are produced by extrusion. A vertical extruder is necessary to make pipes. For firing, the Scotch kiln, usually wood-fired is used by

small producers. Larger producers may use the downdraught or tunnel kiln, depending on whether their operations are continuous or by batches. The quality of the available clay will determine the products to be made. All those mentioned above, except sanitary wares, are made from common "red burning" clays. Refractory bricks are made from "buff burning" clays. Clays for whitewares, from soft-glazed earthenware through "china" and stonewares to hard-glazed porcelain require some form of beneficiation. A feasibility study of a project to press roofing tiles in Turkey indicated that an investment of about \$200,000 was needed and that about 80 persons would be employed. The high level of employment was due to the proposal to haul the clay manually to the factory and to transfer and stack the green tiles by hand. The investment per worker in units producing hollow blocks is between \$5,000 and \$7,000. The smallest undertaking would have about 30 workers. Roof and floor tiles could be made with an investment of around \$3,000 per employee, using the minimum of power-driven machinery and employing about 12 persons.

#### GREY-IRON FOUNDRY

To support a foundry there must be a concentration of manufacturing establishments in the surrounding area, because much of the business will be the replacement of worn-out and damaged castings. It is possible, even usual, to combine with jobbing a number of stock lines—cooking pots, charcoal-heated domestic irons, cable junction boxes, lavatory cisterns or special fittings for water mains. Some small foundries make rainwater ware, but this is better left to large units with specialized equipment. Foundries exist at all industrial levels. The smallest known to the writer employs only three persons and consists of a single cupola, improvised from oil drums, with an electrically driven blower, and a few cast iron copes. Medium-sized foundries are usually equipped with two cupolas, blowers, overhead lifting gear, a core oven, screw tilting ladles and, if repetitive work is carried on, one or two plate-moulding machines. More advanced establishments will have in addition sand-treatment plant, knock-out grills and possibly sand-blasting plant. In most jobbing foundries the bottom or "drag" half of the mould is made in the floor sand, the cope or upper half being rammed in a steel or wooden box (flask). Such a foundry might produce about 5 tons of casting each week, and employ ten to fifteen workers. Where continuous casting is carried on, both halves of the flask are mounted on a plate conveyor that carries the mould to the pouring station. For an output of about 80 tons per week about 45 persons would be employed. An AID estimate of the investment per worker for a foundry employing around 30 persons is about \$5,000.

### NON-FERROUS FOUNDRY

There is a large demand for non-ferrous castings, principally in brass and bronze, usually in the forms of valve bodies and lids, faucets, fittings for electrical appliances, gas stoves and cisterns, lock parts and water-pump impellers. Aluminium castings are used for cooking utensils, electrical appliances and machine parts. In a very small foundry the metals are likely to be melted in an oil-fired or coke-fired crucible furnace, and usually the greater part of the charge is scrap. For a foundry casting fairly large numbers of each unit, two tilting furnaces, one or more plate-moulding machines, a core oven, a tumbling barrel and polishing heads would be required. To produce about 300,000 pounds of castings per year the investment would be about \$120,000, or \$7,000 per employee. Foundries with less capital equipment invest about \$5,000 per worker. A side-line that can be combined conveniently with any foundry is the re-metalling of bearing shells; for automobile bearings small centrifugal casting machines are available.

### METAL PRESSINGS

The range of articles made by the cold pressing of such sheet metals as steel, brass and aluminium is enormous both in variety and physical size. It is obviously impossible to list more than a few of the more common items: metal containers, crown tops for bottles, spoons, forks, drawer handles, cooking utensils, sinks, refrigerator bodies, automobile panels, and so on. Establishments making metal pressings are found at all levels. The smallest may have two or three hand presses, while the largest units have batteries of power presses of all sizes up to 1,000 tons capacity. The small undertakings make physically small articles only; the big firms often make only large ones. Irrespective of the size of the establishment, the output in each style must be numerically great. The cost of a die set to make even a small part is considerable, and to form some types of article two or three sets of dies are needed. For example, the cost of the die set to form the metal strip of the clip used to hold papers in a file is about \$1,200, while the clip sells for less than one U.S. cent. Unless long production runs are possible it is impossible to recover the cost of the tools. In the small-scale sector the most likely products are small, shallow, metal containers (for instance, boxes for shoe polish or typewriter ribbon), eyelets for shoes and handbags, file clips, metal buttons, buckles, switch boxes, electrical parts, spoons, forks, ash trays, drawer handles and metal trays. All these can be made on a single-acting eccentric press. Crown tops are used in vast quantities where there are established brewing and aerated water industries. Sometimes this is one of the first articles to be pressed; however, unless lithographed tinplate strip is available it is not suitable for the small-scale undertaking. The invest-

ment per worker for the production of the articles listed immediately above is about \$8,000. An average small press shop would employ about 20 persons.

#### FLUORESCENT LIGHT FITTINGS

These fittings are used in domestic, commercial and public buildings. This form of lighting is becoming increasingly popular. The establishments making these fittings produce the body by cutting, bending (or folding) and welding plain mild steel or galvanized sheet. Small metal parts are made on a nibbler or small power press. The transparent covers are moulded from acrylic sheet. The ballast condenser and lamp sockets are purchased from specialist firms. The basic equipment consists of a folding brake, a plate guillotine, a small press or nibbler, a spot welder, an oven for softening the plastic sheets and an improvised press for moulding them to the desired shape. The moulding dies are made of wood and are inexpensive. The investment per employee is about \$1,500 (20 employees).

#### TELEVISION AND RADIO ASSEMBLY

All the establishments in the television field and most of those in the radio field are engaged in assembling branded products that formerly were imported built-up. The operation is carried out either by a subsidiary of the manufacturer or under licence. The home demand and the possibilities for export to neighbouring territories will determine the scale of production. Specialized equipment is not necessary. Assembly is currently being carried on in establishments employing only eight persons with an output of four sets per day. In larger units signal equipment may be installed to permit more comprehensive testing than can be done on the normal broadcasting channels. There is often a high import duty on imported receivers, which perhaps explains the existence of the very small assembling units. While the assembly of television and radio receivers does reduce the element of imported labour in built-up sets, it may do so at a greater cost. The real advantage of assembly processes to an industrializing country is the opportunity gradually to replace imported components by locally made parts. In this industry there is seldom any saving in freight by importing components, and it is necessary to carry fairly heavy stocks; most manufactures supply knocked-down packs only in multiples of 200 sets. The investment is therefore heavier than one would expect from the simplicity of the operation. In the case of two firms, one employing 16 and the other 70 persons, investments are around \$3,500 per worker.

### STORAGE BATTERIES

There is an increasing demand for accumulators for automobiles. There is a very considerable freight advantage in this industry, provided that the entire battery is made in the country. Frequently this advantage is lost, or greatly reduced, by the necessity to import battery cases. An establishment often graduates into battery-making from battery-repairing. The basic process is casting the lead plate grids and cell connectors, filling the grids with lead oxide paste, joining like plates together to form a cell unit, inserting plate separators, placing the plate assemblies in the cells of the case and charging to "form" the positive and negative plates. Specialized equipment is necessary, and in respect of the plate grids it may be essential to carry a wide range of moulds. The investment per worker is in the range of \$7,000 to \$8,000, and ten to fifteen workers are employed.

### PLASTIC GOODS

During the last twenty years the use of plastic materials has increased almost beyond measure. Not only are the original plastic compounds still being used, but new uses are being found for them; and new plastic materials with specialized properties are becoming available in rapid sequence. In almost every industry some particular plastic has replaced a material formerly used. Plastic compounds and plastic material in sheet form are produced by large-scale industry, but at all industrial levels, with the possible exception of cottage undertakings, plastic compounds are moulded, or plastic sheets worked, into consumer goods. The articles manufactured range from shirt buttons to automobile bodies. The many plastic materials in current use can be classified into three broad groups—thermoplastic, thermosetting and reinforced mouldings. A different production technique is needed for each group. The basic manufacturing methods are:

#### *For thermoplastic materials*

*Injection moulding.* This process is similar to metal die-casting, from which it was derived. The plastic crystals are fed into a heating chamber from which they are injected under pressure into a closed metal mould. Articles produced may vary in weight from a fraction of an ounce to around 40 pounds. Injection moulding machines range from the manually operated type, in which a measured amount of material is inserted into the heating chamber by hand and the injection pressure is applied by means of a lever and toggles, to automatic models that perform the entire cycle of operations and eject the completed articles. The type of goods produced includes bottle stoppers, pill boxes, combs, stop lights for automobiles, bowls, cups,

saucers, spoons, drinking "glasses" and fancy goods generally. The plastic compounds selected will depend on the use to which the article will be put. In most cases the olefine, vinyl and cellulosic plastics will be used.

The moulds are expensive. It is necessary to be assured of reasonably long production runs before embarking on such a project. The capital investment is fairly high: an AID study quotes \$183,000, or \$11,440 per worker for sixteen persons employed.

*Extrusion.* In this process, the thermoplastic material is fed continuously by a rotating spiral that carries it through a heating chamber and forces it through a die. Tube, sheet, film and any continuous profile may be made in this way. It is also used for the covering of wire with insulating material. An operation often carried out on a small scale is the making of polythene bags. An adaptation of the extrusion process is "blow moulding". An extruded tube, while it is still hot and pliable, is placed between two halves of a mould, and compressed air is injected to "blow up" the tube. Hollow containers from a few cubic centimetres to a capacity of 50 gallons can be made. The investment required to make and print polythene bags (in rented premises) is approximately \$35,000, or \$1,750 per worker (about 20 employees).

*Sheet moulding.* There are at least four variants—vacuum moulding, snap-back moulding, plug-assisted moulding and blow-back moulding. In all of these a heated sheet of plastic material is forced to conform to the shape of a mould. Since low moulding pressures are employed, this process has the advantage that inexpensive materials such as wood or plaster may be used to make the moulds. The process is used by small undertakings to produce bottles, containers and the transparent covers for lighting fixtures. In larger establishments linings for refrigerators are made on automatic machines.

*Slush moulding (rotational moulding).* Balls, toys and hollow bodies are made by this technique. A measured quantity of polythene or a polyvinyl chloride (PVC) plastisol is placed in a heated cast-aluminium or electro-formed copper mould. The mould is then rotated in two planes until the inside walls are evenly covered with the plastic compound. The installed cost of a rotational moulding machine capable of producing about 100 pieces per hour is around \$3,600. The moulds are expensive; consequently, long runs are essential.

#### *For thermosetting materials*

*Compression moulding.* A predetermined amount of moulding powder is placed in the heated cavity of a mould. The mould is then closed, and pressure is applied causing the powder to flow within and fill the mould cavity. The plastic compounds principally used are from the

phenolic and amino groups. Among the articles commonly produced are the insulated parts in electrical fittings, cups, saucers, automobile rotors and distributor caps. The presses used are usually completely automatic, performing the whole cycle of operations except loading the powder into the mould. In most instances they are provided with their own hydraulic pumps. They are very costly and likely to be beyond the resources of small-scale industry. However, the writer is aware of electrical fittings (the plastic parts of light and power plugs) that are made by means of a fly-press, the mould being heated, as required, by a blow-lamp.

#### *Reinforced mouldings*

Two methods are used by small producers: (a) "hand lay-up" and (b) "spray lay-up". In the former, fibre glass is built up on a wooden or plaster mould to the required thickness by bonding with epoxy or polyester resins. In the "spray lay-up" process, a mixture of fibre-glass rovings, resins and a catalyst is sprayed on to the mould. Neither method is suitable for making very small objects, but there is virtually no limit to the upper size. Cafeteria stools, safety helmets, lamp shades, surf boards, speed-boat hulls, water tanks, water pipes, kitchen sinks and the like are made. Sometimes the hulls of wooden vessels are completely sheathed by the "spray lay-up" process to prevent marine-worm attack. Very little in the way of equipment is required. Exclusive of a building, the cost of a single spray-gun unit would be about \$12,000. If working capital and inventory of materials are included the investment would be around \$30,000 (8 to 12 employees).

#### *Cellular plastics*

Foamed or expanded plastics can be moulded in various ways. A common method makes use of "book form" moulds. The mould is pre-heated and the resin is poured into it. The resin expands to fill the mould, and after a curing period of a few minutes the mould may be opened and the article removed. If sheet is required, the resin is metered on to a continuous length of release paper supported on a flat conveyor with flanged sides. The resin is allowed to expand freely, forming a continuous slab. Foam mattresses and seat cushions are made by this process using urea plastics. Expanded polythene requires a slightly different technique. The pre-heated beads or crystals are placed in a closed mould and steam is introduced. The beads expand almost immediately. After cooling, the moulding can be removed. Thermally or acoustically insulating materials are made in this way. They may be moulded into such articles as picnic baskets, flower-pots and ice buckets. For the manufacture of flexible foams an investment per worker is about \$13,000 (12 persons) and for rigid expanded materials around \$6,000 (20 employees).

### WAX CANDLES

There are two types of candle, the cast and the dipped. Cast candles are made on a small or medium scale, while dipped candles generally are made by cottage industry. A machine to cast candles costs approximately \$2,500 and can turn out about 500 dozen per eight-hour day. A factory producing about 400,000 pounds of wax candles per year would need about \$60,000 total investment and it would employ about twenty persons. Candles can be cast in a multiple-core mould. In this case the wick has to be threaded through each core in the mould before casting. The cost of a mould is approximately \$100. A small unit might have twelve moulds and employ three persons. Decorative and "giant" candles are cast in individual moulds, which may be improvised from tin-plate. The equipment needed to make dipped candles consists of a dipping frame, costing about \$8.00, and a wax bath. The materials for decorative or lighting candles are paraffin wax and stearic acid. Church candles must contain about 30 per cent beeswax.

### JEWELLERY

Such ornaments as earrings, wedding, engagement and signet rings, lockets and bracelets may be made by one or two craftsmen, using handicraft methods and working on their own behalf, but more often employed by a retail jewellery store. However, a very much greater range of work is produced in factories employing between 20 and 30 persons. In the latter type of establishment there will be facilities for casting, rolling, wire-drawing and stamping gold and silver, and for enamelling. Among the principal products are religious medallions and gold chain. The cost of the varied equipment may amount to \$40,000 and the total investment to \$100,000 (30 persons).

### LUMBER INDUSTRIES

Under this heading may be included all of the separate operations that transform a log into lumber. There are large and small sawmills. Often a sawmill must be small because of the limited offtake of timber permitted in an area. The girth of the available timber may affect the size of the unit. The smaller units tend to be located in the forest areas, and the larger units to be near the centres of population density. In the past, a small sawmill was equipped with only one or two hand-fed circular saws, which were, in fact, re-saws, and suitable for breaking down only small logs. Nowadays they are being replaced by hand-fed band-saws, which, although they allow faster cutting, are not really suitable. Only in the bigger units is the correct equipment to be found—vertical or horizontal band-saws with traversing tables. In



such units it is usual also to produce dimensioned stock. An AID estimate of the investment needed to produce 4 million board feet of rough lumber per year is \$101,000, or \$6,310 per worker (16 employees). A similar investment would be required to turn out 750,000 board feet of planed, dimensioned lumber.

Associated operations are kiln-drying and pressure impregnation of lumber. The former is seldom carried out, although kiln-dried lumber can command a small premium. It can be performed with improvised equipment at very low cost. Pressure impregnation is usually done in or near a lumber depot. The investment in a suitable plant may be about \$90,000, or about \$4,000 per worker (23 employees).

#### MIXING OF ANIMAL AND POULTRY FEEDS

An intensive poultry industry or large-scale animal husbandry is necessary to support this operation, which is carried on at all levels. The investment may vary from \$20,000 (12 employees) to \$600,000 (100 employees). The smaller units usually purchase the trace components already mixed.

#### BLACK NUTS AND BOLTS

Nuts and bolts are usually made by mass-production methods. In countries where oil is produced or refined there may be sufficient demand to make manufacture by small-scale methods possible, provided that the unit can be set up in connexion with an existing machine-shop. It is doubtful if an independent unit would be viable. Bolts and nuts are made of mild and special steels. The type for which the market is likely to be large, and the most suitable for small-scale production, is the "black" mild steel bolt and nut. It is possible to effect economies by using scrap reinforcement rod in their manufacture. A small subsidiary plant would require an investment of about \$30,000, or \$5,000 per worker (6 persons), to produce about 90,000 pounds of black bolts and nuts per year.

The possibility of starting an enterprise to manufacture any of the products listed above will depend on the particular circumstances currently affecting the interrelated factors of production. An operation impossible in a country that freely allows the entry of foreign manufactured goods may be feasible in one where imports are restricted or there is a substantial level of protection. The cost factors are likely to vary from country to country. The estimates given above, therefore, should be regarded as only first approximations.

## INDUSTRIES IN WHICH THE SMALL ENTERPRISE IS PREVALENT

IT HAS BEEN mentioned earlier that the small establishment is well adapted to providing services directly to its customers, to fulfilling the needs of specialized markets, to subcontracting and to the processing of certain agricultural crops. Certainly it does not have a monopoly in the above fields; exceptions will be obvious to everyone. It will also be realized that, except in connexion with the processing of crops, no clear-cut distinction can be made between these fields. Direct servicing, subcontracting and supplying a specialized market can be, and often are, interrelated. For that reason, no attempt is made here to attribute the existence of an enterprise to any one of the four functions given above; a better indication of the opportunities available to the small-scale sector is given by consideration of what is being, or may be, done with the materials likely to be available. In what follows, the activities sometimes described as "service industries"—laundrying, dry-cleaning, catering, personal services, automobile and household repairing, decorating and the like—are omitted.

### METALWORKING

#### *Metal spinning*

This activity, which is virtually absent in many developing countries, can turn out simple or complicated hollow ware in steel, copper, brass and aluminium. Most of the articles produced by this process can also be made by drawing and pressing. The expensive dies necessary in the latter method are not required in spinning; spinning is, therefore, well adapted to short production runs. Specially designed spinning machines are available. However, the operation can be performed satisfactorily on an ordinary lathe. Basins, bowls, vases, indeed any hollow ware of circular or elliptical section can be spun. A profitable line is the making of trophy cups. Small dished ends for pressure vessels are sometimes made. The investment in a plant with spinning lathes, employing four persons, is estimated by AID at about \$ 22,000. The writer is aware of a small unit in Turkey where three ordinary lathes produced three 24-centimetre copper basins every two minutes. The investment per worker was less than \$ 1,000.

#### *Sheet-metal work*

A great variety of goods can be formed from sheet metal by folding and rolling. Small establishments, principally using galvanized steel, produce buckets, pails, rice cookers, dippers, guttering and flashings. All of these can be made without the use of power-operated equipment. The increasing popularity of air-conditioning is creating a

demand for ducting in light-gauge metal, the making of which is a profitable field for the non-specialist sheet-metal shop. Another line is making equipment for the feeding and watering of poultry. A small unit, providing employment for three or four persons, could be started in rented premises with about \$ 3,000 capital.

Specialist sheet-metal shops may produce automobile mufflers (silencers) and radiators. There is a good market for both of these items as replacements. If cars and trucks are assembled in the country, these usually are among the first locally manufactured components to be incorporated. Mufflers can be made for the repair trade with hand-operated tools only. This is not possible, however, if the requirements of the vehicle-assembly industry are to be met. Highly specialized equipment is necessary for manufacturing radiators. Some firms find it pays to undertake only the building up of radiator cores. In such cases the tinned, flat tube elements are imported, and the investment is reduced by the cost of tube-forming and tinning equipment. The investment per worker in a unit to produce mufflers and exhaust pipes, depending on the extent of tooling, may vary from \$ 2,500 (15 persons) to about \$ 9,000 (10 persons). A factory to repair and manufacture radiator cores and tanks will require an investment of about \$ 10,000 (18 persons) per worker. Other common lines in the sheet-metal trade are aluminium advertising signs, numerals and number plates for automobiles, and metal labels.

#### *Tools and dies*

Dies are used by the pressed metal and plastics industries. Some of the large concerns in these fields maintain their own tool and die shops. The usual practice, however, is to purchase their requirements from specialist firms. A survey made in the Caracas area disclosed eighteen such establishments with a total employment of 111 die makers, excluding apprentices; four were one-man concerns, and six employed between nine and thirteen persons. The smaller shops were each equipped with a power hacksaw, a sensitive vertical drill, a lathe, a horizontal shaper and an electric muffle furnace. Larger units had in addition to the foregoing a pantographic milling machine, a filing machine and improvised means of surface grinding. Most of the establishments made jigs and fixtures, although none had facilities for jig-boring.

Tool-and-die-making requires a very high degree of skill. Although it is possible to recruit experienced die-makers, it is not a branch of the metalworking industry that should be considered by entrepreneurs without practical experience. The minimum investment needed to set up a one-man shop is around \$ 8,000, exclusive of premises.

### *Wirework*

Under this heading are included wire nails, fencing of various kinds and other articles made of wire. Wire nails are usually made by medium-sized firms using the same methods as small-scale producers. Unless mild steel wire is produced in the country, it is inadvisable to attempt the manufacture of nails. There is very little freight differential between nails in casks and coiled wire. The investment needed to produce 10 tons of nails per day is approximately \$ 65,000 (20 persons). Weldmesh and chain link fencing do not require a great deal of capital for their manufacture. Often the machinery is locally made. The only unit known to the writer to be manufacturing chain link fencing exclusively employs only two workers and turns out 40 yards per day. Among the articles made from wire that offer opportunities to small-scale industry are paper-clips, bird-cages, rat-traps and hair-pins.

### *Farm tools*

The range of farm tools is too great for all of them to be manufactured by a small enterprise. It is advisable to concentrate on one or two of the most commonly used tools—mattocks, matchets or digging spades. A very small unit, really a blacksmith's shop, could make mattocks and matchets by hand-forging. Both investment and output would be very low. Such units are useful, as they can make use of local scrap material. A larger unit would employ either forging machines and power presses or a hydraulic hammer and power presses. The investment is likely to be about \$ 8,000 per worker, with a minimum of approximately twenty workers.

### *Jobbing machine shop*

This type of enterprise should be one that could repair and build small agricultural and other machines. It should be equipped at least for turning, drilling, shaping and welding. In most cases it would be advisable to have plate-rolling and universal milling equipment. The investment will depend on the extent of the equipment, but will be between \$ 5,000 and \$ 8,000 per worker.

### *Ornamental ironwork*

Workshops engaged in this branch of the trade make window grills, gates, fences, balcony railings and sometimes staircases to customers' orders. In addition, they may produce garden furniture as a standard line. The basic equipment is a set of hand-operated rolls, a tube and bar bender, and welding and cutting appliances. A unit might employ ten persons with an investment of \$ 1,500 per worker. In more sophisticated plants the investment per worker might be as high as \$ 5,000.

## WOODWORKING

### *Mosaic parquetry*

The use of hardwood parquet flooring is increasing. Such flooring possesses excellent wearing, insulating and decorative properties. It is most likely to be found in public buildings and in medium-priced to high-priced housing. There are good prospects for its export. The manufacture of parquetry is a profitable operation where there is a supply of kiln-dried lumber, as the raw material is, in the main, offcuts and scrap that otherwise would be useless except as fuel. The investment in a plant manufacturing 120,000 square metres of parquetry per year would be about \$ 150,000 (15 employees).

### *Crate-making*

In spite of the increasing use of cardboard containers, there is still a very good demand for wooden crates for fruit and beverages. In some cases fruit for export must be shipped in wooden crates. The local deliveries from breweries and aerated water factories are almost always made in wooden boxes. The size of a plant to produce the shooks for fruit crates will depend on the quantity of fruit. In some countries practically all the producers are equipped with only a band-saw on which they break down the logs and cut the boards to size. This represents the minimum size of plant and is not to be recommended, since the boards produced in it are often too rough and fruit may be damaged. A well equipped small unit should contain a re-saw, band-saw and planer. About five men would be employed, and the investment per employee would be about \$ 6,000. For beverage boxes it would be necessary to add a groover, notcher and a hand-hole cutting machine. The investment per worker would be about the same.

### *Wood mouldings*

One of the principal uses of wood mouldings is to cover the joints in ceilings made of insulating board. In any town of over 300,000 inhabitants there is likely to be enough demand to support a small works. The equipment consists of a circular saw, overhand planer, a "French" vertical spindle and a belt sander. Very often bench-type appliances can be used. The cost of equipment should not exceed \$ 1,200. The same plant can be used to make beadings for furniture. A side line might be the production of brush and broom handles, which often can be cut from side flitches that otherwise would be useless. For this a miller and a sanding machine would be required.

### *Wood-turning*

The furniture trade uses large numbers of taper-turned legs for occasional tables. The cotton-spinning industry consumes immense quantities of bobbins, and where weaving is carried out there may be

a demand for wooden shuttles. All that is required to make table legs is a wood-turning lathe, preferably with a taper-turning attachment. This machine would also make bobbins and shuttles, but a small hand press would be needed to form the metal ends of the bobbins, and an end miller to cut out the chases in the shuttles. The smallest unit would probably employ three persons.

#### *Ice-cream spoons etc.*

Articles made from veneers, such as ice-cream spoons, toothpicks and paint-stirrers, may be in demand. To produce them from logs would necessitate equipment to make veneers. It is estimated by AID that a plant to produce these items from the log would require an investment of nearly \$100,000 and employ fourteen persons. Where veneers are cut for the furniture trade, it might be profitable to buy them and to do only the stamping and sanding operations.

#### *Flush doors*

Flush doors may be made by large and medium-sized woodworking plants as one of their standard lines, or by small joiners' shops on a jobbing basis. However, in a populous area where there is an extended rehousing programme, there should be sufficient work to support a small, specialized unit. An outlet for flush doors is also to be found in the shipbuilding industry. Such a unit could operate on an initial investment of \$60,000 and provide employment for ten persons.

#### *Footwear*

Rough wooden slippers consisting of a crudely shaped sole and toestrap of leather or rubber have been made for generations by cottage industry. There is currently a demand for what is basically the same article, but in a highly finished form. The equipment required to make these slippers consists of a band-saw and a sander. If there is a well-established leather footwear industry there will be a demand for boot and shoe lasts. Lasts are now made on specialized copying lathes, which are very expensive machines. The minimum investment in a last plant would be about \$200,000.

### GLASS PRODUCTS

#### *Glass ornaments*

Hand-blown glassware in the form of bowls, vases or *jardinières*, particularly in attractive colours, appears to sell very well, and there may be a good export market. It would be necessary to have supplies of iron-free raw materials—sand, feldspar and limestone. The melting is carried out in small "pot" furnaces, which are usually oil-fired. No equipment other than iron blow pipes and glassblowers' benches are

required to form the articles. It is necessary, however, to provide a means of annealing—a lehr or an oil-fired oven—and a means of grinding the bases. A small unit might consist of six persons and involve an investment of around \$ 36,000.

#### *Glass scientific apparatus*

Using purchased glass tubing, a small undertaking can make scientific apparatus and pharmaceutical appliances including pipettes, burettes, measuring jars and ampoules. A small establishment might consist of six workers. Little equipment is needed—an air compressor, a source of town or bottled gas, some burners and a means of lapping glass cocks. An AID study estimates the required investment at \$ 224,000 (22 workers); however, there must be many concerns operating at an investment per worker of around \$ 3,000.

#### *Laminated safety glass*

Flat laminated safety glass can be manufactured at any industrial level, but it is usually produced by large concerns. The making of the curved, or “wrap round”, automobile windshield, however, is a small-scale operation in countries lacking an automobile industry. The basic process is the joining of two sheets of ordinary plate glass by means of non-brittle plastic film under moderate heat and pressure, with subsequent annealing in an autoclave under pressure. To make the “wrap round” windshield, a skeleton metal frame of the required shape is built, and the sandwich of glass and plastic (film or crystals) is placed on the frame and heated in an oven to such temperature that the glass becomes flexible and conforms to the skeletal shape. On cooling, the sandwich is passed through rubber-covered rollers to press together the layers and then annealed as for flat laminated glass. The investment will be about \$ 40,000 (6 or 8 employees).

#### *Mirrors*

Mirrors are used in every home, and re-silvering facilities are needed. It is customary for a unit catering to this demand to make frameless mirrors and to undertake re-silvering. Mirrors may also be bevelled. An ample supply of water must be available. An establishment in which only silvering and re-silvering is done would require an investment of about \$ 28,000 and employ five persons (AID). A factory that also undertook to grind, polish and bevel the glass might need a capital of \$ 100,000 and give work to fifteen persons.

### LEATHER WORK

Included in this term are artificial leathers (plastics). In natural leather such articles as wallets, pocket-books, spectacle cases, brief cases and school bags are made. The trade is really an extension of saddlery. The only machines involved may be for power stitching and buffing.

To a very great extent such plastic materials as vinyl-coated fabrics have replaced leather for all of the above items and particularly for women's handbags and shoes. There is likely to be sufficient demand to support the manufacture of plastic handbags and women's shoes. A factory turning out some 100 dozen handbags per week using imported frames had an investment of \$85,000 and 20 employees. A shoe factory producing one line of women's flat-heeled shoes at the rate of 300 dozen pairs per month had the same investment and number of employees.

## RUBBER-BASED INDUSTRIES

### *Camelback*

In countries producing rubber it is usual to make camelback from ribbed smoked sheet (RSS). The RSS is passed through a two-roller mill and the compounding chemicals are added. When these are thoroughly mixed and the whole reduced to the correct plasticity, the material is removed from the rollers. It is then fed into an extruder that is provided with a die of the desired dimensions. The ribbon of camelback that emerges is cut into convenient lengths. A plant of this type would cost about \$100,000 (6 persons). In smaller units the extruder is not used. The camelback is milled to the required thickness and is cut in the desired width directly from the rolls. Considerable heat is generated in the milling operation so that it is necessary to water-cool the rolls. In not a few instances the mills are converted crepe rubber macerators. In such a case the investment would not exceed \$12,000 (two set rolls, three employees).

Where rubber is not produced locally and the number of vehicles is not very high, perhaps 30,000, prepared camelback slabs are imported. These are virtually in the same state as they were when removed from the compounding mill. The slabs are fed into an extruder from which camelback of the required section emerges as before.

### *Rubber mouldings*

The manufacture of rubber mouldings is very often combined with the production of camelback. For constant profile mouldings, such as windshield wipers, automobile door and windshield sealings, it is necessary only to change the extruder die. In the oil fields there is a very good demand for soft rubber mouldings for pump glands, pipe joints and the like. These, of course, must be formed in separate moulds, but the moulds are of ordinary mild steel and not particularly expensive. A unit producing camelback from imported slab and soft rubber moulding would require an investment of \$30,000 and employ ten persons.



### *Tire-recapping*

All tire-recapping shops have the following equipment in common: tire spreader, tire-buffing machine, boiler, air compressor, vulcanizers and vulcanizer matrices. The size of the shop depends on the number of vulcanizers. It is doubtful whether a unit would be viable with fewer than three vulcanizers and a range of matrices for truck and automobile treads. A shop to recap some 5,000 automobile and 4,000 truck tires would require an investment of \$51,000 and employ sixteen persons (AID).

### *Rubber slippers*

Rubber-soled footwear consisting of a flat sole and a moulded rubber ankle thong is easily made on much the same equipment as is used to produce camelback on a small scale. In addition to two compounding rolls, a press with steam-heated platens is needed. The plasticized, compounded rubber is placed in the cavities of a shaped mould to produce the thongs, and in a flat mould to produce the vulcanized sheet from which the soles are cut. In very small units the profiles of the soles are cut by hand, but in larger units a clicking press may be used.

### *Dipped rubber goods*

Such articles as rubber kitchen gloves and balloons are made by dipping patterns in latex to which ammonia, colouring materials and extenders have been added. The patterns can be made of wood or aluminium. The wall thickness of the goods being made is controlled by the number of dippings made. A very simple article to make is a toy balloon. The pattern is only a number (24 to 60) of pencil-like sticks projecting vertically from a board. The rest of the equipment consists of three or four dipping tanks, storage racks and, if coloured balloons are made, a small ball mill. One such unit in Indonesia employs 25 persons, mostly young persons, and produces 10,000 balloons per day. The investment, apart from the work shed, is very small indeed.

## CEMENT-BASED INDUSTRIES

### *Ready-mixed concrete*

Ready-mixed concrete is supplied in two forms:

- (a) The cement, sand and aggregate are discharged in the required proportions into a mixing truck where the water is added. The concrete is delivered on site ready for placing. The investment is considerable, as it is necessary to operate a fleet of expensive

mixing trucks. The investment per employee varies with the size, \$4,340 (100 employees), \$5,300 (51 employees) and \$10,800 (32 employees).

- (b) The cement and sand are mixed and bagged. The aggregate and water are added on the site. A much smaller investment is required; a unit, in rented premises, has a capital of \$20,000 and employs eleven persons.

#### *Concrete blocks*

Pre-cast concrete blocks for buildings are made by numerous firms varying in size from 4 to 75 persons. Associated lines are concrete curbs, paving blocks and garden ornaments. The investment per employee is around \$2,200, but sometimes it is as high as \$6,500 (75 employees) and as low as \$1,500 (40 employees).

#### *Concrete tiles*

Flooring tiles made from pressed sand-cement mixtures come in several forms: plain or coloured, polished or unpolished, or with the addition of marble chips (terrazzo). The plain or coloured unpolished tile requires only a manual or hydraulic press, a pair of moulds, and curing racks for its manufacture. A two-man team can make about 400 tiles per day. The cost of a manual press is about \$5,000. To make polished tiles, wet surface grinding equipment is needed. In not a few instances this is improvised. Where terrazzo tiles are made it is usual to undertake the construction of terrazzo floors and wall coverings. An automatic tile press and accessories might cost as much as \$25,000, and twelve to fifteen men might be needed to feed and handle its output.

#### *Pozzolanic concrete*

In some countries there may be supplies of pozzolanic materials—porcellanite, volcanic ash, pumices, tuffs—that are not cementitious in themselves but which become so upon admixture with hydrated lime. These materials, finely ground, are sometimes mixed with Portland cement to improve the quality, particularly if the cement is to be used for mortars. In Indonesia, building blocks are cast using a cement of four parts volcanic ash and one part lime.

#### *Concrete pipes*

Pipes and culverts are best made by spinning, which is usually a medium or large-scale operation. However, there are many small firms making pipes by the hand-ramming of pre-mixed concrete in metal

moulds. The basic equipment is a cement mixer and a series of moulds. In the smaller units pipes are often made in conjunction with the casting of concrete sinks and sanitary fittings.

## AGRICULTURAL PRODUCTS AND BY-PRODUCTS

### *Coconuts*

The principal material obtained from the coconut is edible oil. There are also valuable by-products—coir fibre and kernel meal or flour. The fibres from the coconut husk may be extracted manually or mechanically. The simplest method is to soak the husks in brackish water for four to six months and then to separate the fibres from the corky matter by beating with a wooden club. After drying, the fibres are spun by hand or by a simple hand-operated machine into yarn. This method is practicable only if labour costs are very low. It is improbable that it could be profitable outside of India and Ceylon. The yarn commands the highest price (\$ 390 per ton) of any of the grades of coir. Machines can be obtained to crush retted husks and to separate the fibres; in some models the fibres are sorted into bristle and mattress grades.

Bristle fibre can be extracted from retted husks by a ginning process. Two machines are used, a breaker and a cleaner. These machines require about 10 hp and cost in the neighbourhood of \$ 4,500. Two men could handle about 2,000 husks per eight-hour day. This would result in about 220 pounds of bristle fibre and 450 pounds of mattress fibre. Bristle fetches approximately \$ 280 per ton and mattress fibre \$ 98 per ton.

In larger installations sometimes no attempt is made to separate the grades of fibre. The unretted husks are fed into a hammer mill or rotary beater and through a screen or screens to remove the corky matter (or bass) and pieces of kernel. The fibre is dried, then baled under hydraulic pressure, and sold as mattress fibre. Very little labour is employed in this operation, and the cost of the machinery is high, as is the power to operate (75 to 100 hp and over).

The coir yarn may be spun into ropes, plaited or woven. Coir ropes are decreasing in popularity as synthetic fibres become available. Plaiting may be done by hand or machine and the plaits built up into rugs and mats or carpets. Sacking may be made on hand looms; one weaver can produce about 24 feet of sacking per day. Stair and hall carpets, commonly called coconut matting, are machine woven. Carpets, however, are often handwoven by knotting tufts of coir into cotton warping.

The bristle fibres are used for brushes of various types, including paint brushes. The fibre has a natural "flag", which holds the paint. Very often the fibres are dyed before use, perhaps to simulate hog bristle.

As its name suggests, mattress fibre is used for stuffing mattresses and upholstery. However, nowadays the fibre may be machine-felted into mats or pads that are used to cover the internal springs in mattresses and chairs. A further use is in the making of rubberized coir. The fibre is spun into loose "curls" or ropes, which are coated with latex and vulcanized. The "curl" is thus permanently fixed, and a strong, springy material results. Coir pads and curls are likely to be the most profitable fields where labour costs are high.

The ground kernel of the coconut is used as a filler in the production of certain classes of plastic goods. A recently discovered use is as a component in the filtering media in oil wells.

### *Cassava*

Manioc, or cassava, is grown as a food crop in most Latin American countries and in the Far East. Certain varieties of the tubers may be eaten raw or boiled, sliced and sun-dried, or, and this includes all varieties, converted into flours. In Latin America, they are usually made into "farina", a coarse flour, or into "couac", a bread-like material. Both of these have the advantage of keeping almost indefinitely.

The preparation of farina or couac is a cottage industry. As foods they are declining in popularity, but there appear to be reasonably good prospects for tapioca. It is, however, as a source of starch for human and animal consumption and for industrial purposes that the greatest promise is held for cassava. To produce a refined starch suitable for compounding with cereal flours in the manufacture of biscuits, or for use in the textile and paper industries, the minimum viable size of plant is about 5 tons per 24-hour day. This would involve an investment of around \$400,000 and give employment to about 30 persons. A unit to produce a somewhat less refined flour, suitable as the basis of animal and poultry feeds and for conversion into tapioca, at the rate of one ton per day, would need an investment in the vicinity of \$55,000 to provide work for seven persons.

At cottage industry level there are possibilities of making sauces from the liquid expelled when the grated cassava is pressed, an essential stage in the making of farina. This liquid is in fact the basis of the old West Indian "peppercot" and also "Worcester" sauce.

### *Sorghum (Sorghum vulgare)*

This cereal crop is grown in hot climates all over the world and is known by such varied names as Egyptian corn, millet, koaliang and and cakes are made, or as a poultry feed. Sometimes it is converted into "popcorn". These are commonplace uses. The flowering heads, after the removal of the grain, are sometimes known as broomcorn, which, as its name implies, can be used to make whisk brooms. A plant to manufacture these brooms would require an investment of about \$12,500 and would employ eight to ten persons. The production capacity would be about 9,000 dozen per year.

### *Bananas and plantains*

Both bananas (*Musa paradisiaca*) and plantains (*Musa sapientum*) contain useful fibres in their stems. During the Japanese occupation of Malaya, sacks were made from these fibres. Some experimental work has been done in making sugar sacks in Cuba. In Travancore, India, the fibres are used for cloth and cordage. In Trinidad, in cottage establishments, the fibres are woven into a cloth that is used to make handbags. Fibre from the leaf sheath of *Musa chinensis* can be used to make oil-press cloths. Although fibres from bananas and plantains are petit mil. When ground, it can be used as a meal from which porridges considered to be only slightly inferior to abaca, they are not used to any great extent because of the high cost of extraction. Where bananas are grown on a plantation scale, mechanical decorticators might prove profitable, and the cut stems would certainly provide material for hand-stripping at cottage industry level. Potato crisps are popular snacks in most countries. Similar crisps can be made from green plantains. Some small concerns make these crisps by slicing the plantains on an attachment to a household mincing machine and, after drying, fry them in a cage in deep fat. The equipment to make them on a small commercial scale costs about \$3,200.

### *Lime oil*

Lime oil is used extensively in the manufacture of food products, confectionery, perfumes and toilet preparations. The best quality, known as "eculled oil", is produced by rolling the fresh fruit around in a shallow copper bowl studded with large blunt nails. Various machines—presses, extruders, rasps—have been developed to simulate this process, but all of them require the application of water, which results in an emulsion from which the oil must be separated. The oil may be obtained also by steam distillation of the rinds. The distilled oil commands a substantially lower price than the "eculled oil".

## MISCELLANEOUS FOREST AND VEGETABLE PRODUCTS

The products listed below are, with the exception of pineapple, uncultivated. They are mainly fibre crops, which in most cases are used in handicrafts, since supplies are limited to natural stands and often suitable machinery is not available. Materials that are cultivated on a plantation scale such as sisal, kenaf, sunn hemp, jute and ramie, offer no opportunities for small enterprises.

*Bamboo*

Bamboo is pulped for paper in large plants. In small units making wrapping paper from repulped waste paper, rice straw and other miscellaneous fibres, the addition of bamboo fibre will greatly increase the strength of the product. However, bamboo is likely to be used on a small scale principally for manufacturing souvenirs and other articles from split cane. Baskets, sun blinds, matting and parasol frames can be made from the split cane. Ample supplies of bamboo are usually available to support production on a factory scale. The Japanese have developed a range of suitable machines for splitting, rolling, polishing and weaving bamboo.

*Terite (Ischnosiphon arouma)*

The long slender stems of this plant can be used for making fine basketwork.

*Manac (Euterpe broadwayana)*

From the flower sheath and the leaf stalks of this palm a brush fibre may be obtained that has excellent resistance to water. So far as the writer is aware, no special machinery has been developed to extract the fibre, but it is believed that any decorticating machine with a beating action could be used.

*Cocorite (Maximiliana caribaea)*

This palm flourishes on sandy and gravelly soils and on barren hillsides. A brush fibre is obtained from the leaf stalks.

*Screw pine (Pandanaeae)*

The ribbons obtained from this plant are used in plaited form to make mats, handbags and baskets.

*Vegetable tannins*

The bark of the mangrove (*Avicennia spp.*) and the peds of Divi-divi (*Caesalpinia coriaria*) can be used for tanning sole leathers. The bark is disintegrated by a hammer mill, and the tannin is leached out with hot water. In some cases this is done directly in the tanneries,

but small enterprises are sometimes set up to produce concentrated extracts. The process is one of repeated boiling until a solid material is formed.

*Khus-khus grass (Vetiveria zizanoides)*

This is a coarse grass much used, because of its dense mass of fibrous roots, for binding earthworks. From the roots a perfume can be extracted, and from the blades very attractive floor mats are made.

*Tapia (Sporobolus indicus)*

Sometimes known as wire grass, lizard grass or mulatto plait, it is used for fodder, for stuffing mattresses, and is the principal fibre used in making tapia plastering for houses. It can also be used for making small whisk brooms.

*Pineapple*

In the Philippines and China (Taiwan), the fibre extracted from the leaves of the pineapple is made into a fine cloth (Pina in the Philippines). The leaves are stripped by hand in these countries, but experiments in Kenya suggest that the machinery used to decorticate sisal can be used. There are possibilities of pulping the leaves for use in paper manufacture.

*Rice straw*

A coarse, not particularly strong, wrapping paper can be made from rice straw. The process is very simple. The straw is "cooked" in a solution of lime, washed and passed through a "hollander" or even a domestic meat mincer. The pulp or stock is kept agitated in a vat from which it is discharged in regulated amounts on to the gauze band of an improvised Fourdrinier table. The felt is then passed through rollers on to zinc sheets on which it is dried. The quality of the product could be greatly improved by the admixture of other fibres such as bamboo, sisal, or cotton.

#### MISCELLANEOUS PRODUCTS

The following products do not fit into any of the groups listed earlier in this section.

*Mosquito coils*

The coils are made by extruding a mixture of pyrethrum, potassium nitrate, a bonding agent and a filler. Ground coconut kernel flour can be used as a filler. Sometimes additional insecticides and perfumes are added. The investment per worker is about \$ 2,500 per person (12 to 20 employees).

*Pomades etc.*

Hair creams and similar items are made by the addition of various colouring and aromatic agents to petrolatum waxes and emulsions. The equipment consists of stainless steel tanks and stirrers. A small unit might involve an investment of \$ 30,000. Some toilet preparations in this class are now aerosol-packed, and where this is done an investment of about \$ 70,000 (12 persons) is needed.

*Liquid bleach*

There is a very good demand for liquid bleach for household and laundry use. The usual method of manufacture is to pass chlorine through a solution of caustic soda. The investment in a plant to produce 87,000 gallons per annum is \$ 85,000 (12 persons).

*Zip-fasteners*

Zip-fasteners at one time were used only for women's dresses. Now the use has extended to men's clothing, handbags, suitcases and even footwear. The manufacturing operation requires a fairly heavy investment in machinery—between \$ 50,000 (468,000 dozen fasteners per year) and \$ 64,000 (670,000 dozen per year), the employment varying from 22 to 36 workers. This industry has to face heavy competition from Japan and central European countries in the low-price field.

*Polishes*

Shoe and floor polishes consist basically of a mixture of various types of waxes to which colouring and, in the case of floor polish, perfume are added. Many of the furniture and automobile polishes now contain polythene wax and silicones. Frequently these are aerosol-packed. The investment in a plant producing only shoe and floor polishes might be about \$ 15,000 (10 employees) and in one producing shoe, floor, furniture, automobile and glass polishes about \$ 60,000 would be needed (18 persons).

### CONCLUDING REMARKS

THE MANUFACTURE of the foregoing products may provide opportunities for small-scale enterprises. The list is by no means complete. Indeed, in a paper of this length it would be impossible to include all of them. Valuable information on suitable products and the equipment required to manufacture them can be obtained from the publication of the Central Small Industries Organization in the Ministry of Industry of India. This body publishes about 200 pamphlets on "Model Schemes",



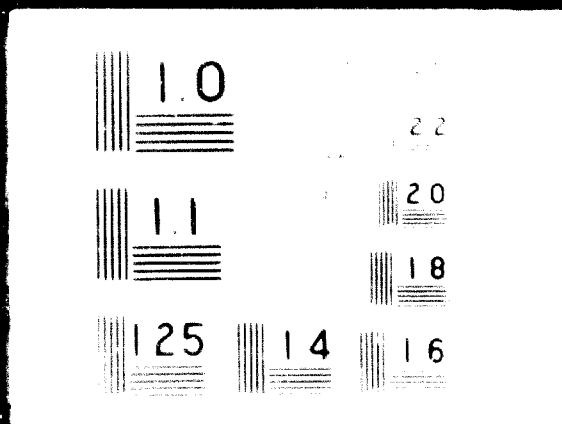


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about 130 "Analysis and Planning Reports", about 200 pamphlets on "Towards Better Technique" and 150 on "Impact Programme Schemes". One example is *Choose Your Small Industry*, published in August 1965.

This paper has attempted to show that the small scale enterprise is a permanent feature of the industrial scene; that it is able to adjust itself to ever changing conditions and to seize opportunities as they arise; that it offers great scope for specialized operations and customer service; that it can and should be "modern".

In an address to a group of large foundry operators in the United States, one of the most efficient large producers of machined castings spoke approximately as follows:

"We boast of our management sophistication in using Professor Juran's 'universals of management', particularly in restricting our major selling efforts and production to those relatively few customers who can provide about 90 per cent of our business, but the real and rather chastening reason why we cannot sell and produce profitably in the shorter-run products is that the small producers can beat us on price, quality and delivery nearly every time. Using a lot of hand labour with readily modified tooling, and serving their customers through their ingenuity rather than through the capital used, they run rings around us with our long change-over times and high overheads."

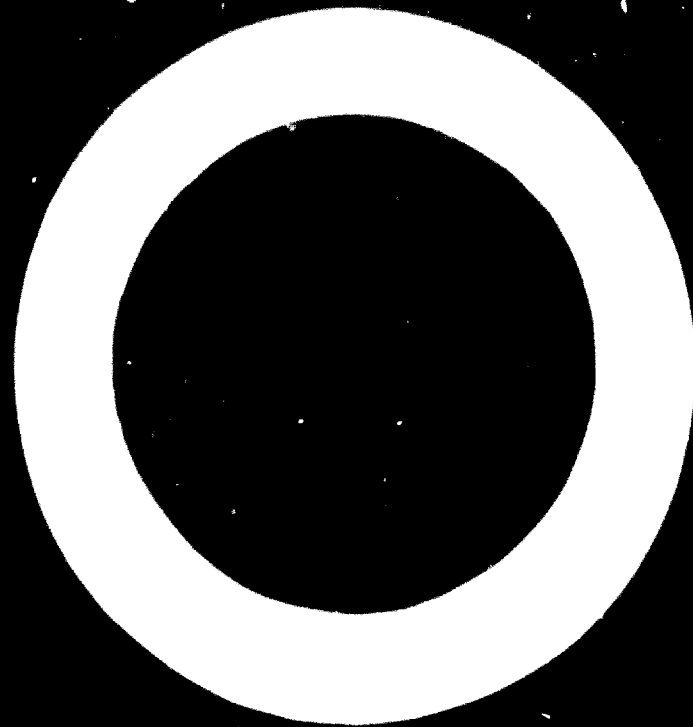
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**PART IV**

***Industrial Estate Plans and Projects  
in Latin American Countries***

**Prepared by the secretariat of the United Nations Centre for Industrial  
Development, now the United Nations Industrial Development  
Organization**



## GENERAL SURVEY

In 1964, the United Nations Secretariat sent a questionnaire on industrial estates to the Governments of those Member and non-member States which, according to available information, had plans or projects in this field. The replies to the questionnaire and information derived from other sources served as a basis for comparative surveys of international and regional scope.<sup>1</sup> One of these surveys is contained in the present report; it reviews industrial estate plans and projects in a number of Latin American countries—Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador, Jamaica, Mexico, Netherlands Antilles, Nicaragua, Panama, Peru, Trinidad and Tobago and Venezuela. Although Puerto Rico is not part of the region of the Economic Commission for Latin America (ECLA), its experience is also discussed in this report, in particular because of its admitted influence on the development of industrial estates and industrial areas in certain countries of the region.

The survey is concerned with different types of industrial clustering which, for the sake of uniformity and consistency, are referred to, as proposed in other United Nations documents, as "industrial estates" and "industrial areas". The main distinction between the two is that "industrial areas" offer only improved sites, while "industrial estates" feature, in addition, standard factory buildings built in advance of demand and a variety of services.

In the group of countries under review, industrial estates with standard factories built in advance of demand have been set up and are in operation in only Jamaica (Kingston), Puerto Rico (thirteen estates in or near San Juan, Mayaguez, Ponce, Caguas and Arecibo) and Venezuela (Valencia and Barquisimeto). In all three countries, industrial estate authorities also offer, usually on the same tracts,

<sup>1</sup> See United Nations (1966) *Industrial Estates: Plans, Plans and Projects: A Comparative Analysis of International Experience* (Sales No. 66.11.B.16); United Nations (1965) *Industrial Estate Plans and Projects in African Countries: An Industrial Estates in Africa* (Sales No. 66.11.B.2); Information on industrial estates in certain countries of Asia and the Far East is contained in United Nations (1962) *Industrial Estates in Asia and the Far East* (Sales No. 62.11.B.5). Information on industrial estates in certain countries of Europe and the Middle East is contained in United Nations Industrial Development Organization (1968) *Industrial Estates in Europe and the Middle East* (Sales No. E.68.11.B.11).



a choice of improved sites, multifactory buildings and special factory buildings erected to meet the needs and specifications of individual enterprises. Sites and factories are also made available outside industrial estates. Most of the industries set up on the estates are of medium to large size.

As will be seen below, in all other Latin American countries, the industrial area is thus far the prevailing form of industrial clustering. In a few countries, however, especially in insular countries where the experience of Puerto Rico has been given close attention, certain facilities similar to those offered on industrial estates are or are being made available. Thus, in the Netherlands Antilles, the sponsoring authority may construct custom built factories for rent to the occupants; in Trinidad and Tobago, as an experiment, a standard factory will be constructed in advance of demand in one of the larger industrial areas, and consideration is being given to setting up also a central maintenance and repair shop.

In a number of countries, industrial estate projects for small-scale industries are at various stages of study or planning. In Argentina, preliminary studies have been made to set up an industrial estate at Córdoba. In Brazil, consideration is being given to establishing a first industrial estate, probably near Recife, as part of the industrialization programme for the north-eastern region. In Chile, studies have been undertaken for setting up industrial estates for small-scale industries at Maipú, near Santiago, and at Osorno. In Colombia, efforts are being made by private groups, with the assistance of a United Nations expert, to set up industrial estates at Cali, Sogamoso and Manizales. Feasibility studies for estates at various locations have been carried out in Costa Rica. In Ecuador, a plan has been drawn up to establish an industrial estate and industrial area at Cuenca. A feasibility study has been made for an industrial estate in the Netherlands Antilles, and a detailed plan has been prepared for an estate near Managua, Nicaragua. In most of these projects, standard factory buildings as well as improved sites are likely to be offered.

Industrial areas for industries of all sizes are in operation in Brazil (Contagem, Santa Luzia, near Belo Horizonte), Mexico (Sahagún, La Laguna, Irapuato, Querétaro), the Netherlands Antilles (Aruba, Bonaire, Curaçao), Panama (Colón), Peru (Arequipa), Trinidad and Tobago (East Dry River, Sea Lots, O'Meara, near Port-of-Spain, Plaisance, near San Fernando, Milford, in Tobago) and Venezuela (Maracaibo, La Vittoria, Cagua, Ciudad Guayana). As already noted, improved sites may be obtained on all industrial estates of Jamaica, Puerto Rico and Venezuela. In Argentina, studies have been made for the establishment of a large industrial complex in the San Nicolás-Santa Fé region, including five industrial areas (Villa Gobernador Gálvez, Villa Constitución, San Lorenzo, Santo Tomé and San Nicolás).

All existing industrial areas offer sites with power, water, sewerage, drainage, internal and access roads and sometimes railway sidings. In some projects combining estate and area, construction of factory buildings is undertaken by the sponsoring authority, but in most other cases it is the responsibility of the occupant and should be carried out by private contractors in accordance with building codes laid down by the sponsor. With a few exceptions, for example in Venezuela, no special financing facilities for construction are made available by the sponsoring authority and/or by closely associated credit institutions, and the occupant has to obtain his financing separately. In most countries, however, there are public and commercial institutions that provide finance to industry, though credit is usually more readily available for large and medium-sized projects than for smaller ones.

In three insular countries—the Netherlands Antilles, Puerto Rico and Trinidad—both sites and factories, standard and custom-built, are offered for lease, which, as abundant experience has shown, is a stronger incentive than sale; in Jamaica, sites are sold but factories are rented, with an option to purchase. In Brazil, improved sites are offered for perpetual lease at nominal rates. In Venezuela, sites and factories are normally for outright sale, but may also be acquired under a hire-purchase system. In Mexico, improved sites are offered only for sale. In Peru, at the time the Arequipa industrial park was planned, consideration was given to building general-purpose factories in advance of demand and to leasing sites and factories; subsequently, most of the demand came from comparatively large firms, and it was found that there was no need for standard factories and no demand for leased land, so that improved sites are offered only for sale.

In all cases, rents or sale prices are low, often subsidized and, in one instance (Puerto Rico), sharply differentiated, the lowest rates applying to estates in the less-developed parts of the country as an inducement to decentralization.

In all countries where industrial estates and areas are set up, the incentive of low-cost sites and factories is combined with tax, customs, and other concessions. Exemptions or considerable reductions (for 5 to 10 years as a rule, and up to 25 years in some exceptional cases) are given on corporate and personal income taxes, real and personal property taxes, municipal levies, and customs duties on imported machinery and materials. In the smaller countries these advantages apply to new industries irrespective of location, but in most of the larger countries regional and/or local tax incentives are available in addition to those applying to the country as a whole.

No common service facilities, such as a maintenance and repair shop, testing laboratory, forge, foundry, tool room, or an industrial extension centre, are provided on any existing industrial estate. In a few cases the sponsoring authority supplies catering or health

facilities on some estates or areas, but as a rule the occupants are responsible for providing such facilities and amenities.

The preceding discussion already gives some indication of the objectives of industrial estate and industrial area programmes in the countries under consideration. The principal objective in all of them is to encourage and facilitate the establishment of industries and to influence and regulate their activities. There are, however, considerable differences in the policies adopted and the measures adopted for their implementation.

As regards the development of industry, no industrial estate project or the nation has been devised exclusively for the promotion of local entrepreneurship through the establishment of small-scale industries. The facilities of the existing estates are used in a flexible way to accommodate industries of all types and sizes either in standard or in custom-built factories, or on improved sites. In all cases, however, the standard factories are appreciably larger than the buildings provided in industrial estates in other regions. In Puerto Rico and Jamaica (but not in Venezuela), the construction of custom built factories for known investors—usually foreign—is a more important activity of the sponsoring authority than the provision of standard factories; the requirements of foreign investors are invariably for buildings larger than those which local small entrepreneurs would be able to occupy. As a result, while some small-scale industries have been able to establish themselves on the estates, most of the occupants are enterprises of medium or large size.

For evident reasons, the offer of improved sites on industrial areas in combination with other incentives has also contributed to attracting principally industries of relatively large size.

As regards location, all the countries under review suffer from industrial and demographic congestion in their main cities and economic stagnation and under-employment in large, predominantly rural areas. All countries have set forth policies aimed at simultaneously decentralizing industry and promoting regional development, in order to relieve social and other pressures in metropolitan centres, achieve a balanced distribution of productive forces, and reduce disparities in standards of living between regions at different levels of development.

Few countries, however, have used the industrial estate and the industrial area principally as an instrument for the industrialization of less-developed regions. Most of the existing estates and areas are located in or near large cities, such as Kingston, San Juan, Curaçao, Port-of-Spain, Colón and Belo Horizonte, or in regions, such as the Caracas-to-Maracaibo region, where industrialization has already reached a certain level. A few industrial estates and areas, however, have also been set up in smaller cities. In Venezuela and Argentina, industrial areas are set up or planned in towns or regions that are to play the role of "development poles" centred on some huge industrial plants

and complexes of interrelated industrial undertakings and attracting around these a variety of manufacturing, service and commercial enterprises of all sizes; this is the case of Ciudad Guayana, a "new town" under development in Venezuela, and of the planned San Nicolás Santa Fe industrial complex in Argentina. While these two projects would have the effect of withdrawing industry from, in one case, the industrial belt extending from Caracas to Maracaibo and, in the other, the city and province of Buenos Aires, they would result in new large scale concentrations of population and industry.

A notable exception to this pattern is found in Mexico, where, for the express purpose of diverting industry from Mexico City and Monterrey, industrial areas have been set up in Ciudad Bernardino de Sahagún, Irapuato and La Laguna, three cities located in and in poorly endowed regions. Despite the physical facilities available in the areas and tax exemptions extending to the extraordinary period of 25 years, only a few industries have been attracted to these towns. This suggests that such incentives are effective only if the industrialists' requirements in regard to supply of raw materials, marketing of products, availability of trained labour and of communications are also satisfied.

On the other hand, an industrial area has been successfully developed in Querétaro, Mexico, a predominantly agricultural centre located, however, in the country's principal region of economic expansion, at the crossroads of main railways and highways. Another exception is Arequipa, Peru, where favourable prospects of industrial development have been enhanced by the availability of improved sites and certain services as well as fiscal and financial incentives.

The role of industrial estates in dispersing industry in Puerto Rico and in the Netherlands Antilles has already been mentioned. A decentralized industrial estate has been set up in Barquisimeto, Venezuela, and industrial areas are in operation near San Fernando, the second largest town of Trinidad, and near Milford, Tobago.

In most countries, estates and areas are sponsored, financed and managed by autonomous government corporations. In some countries the initiative has been taken by state, provincial and municipal governments, and projects have been carried out in co-operation with representative private organizations. With the exception of Colombia, where the establishment of industrial estates is left to private initiative and effort, all plans now under study in other countries of the region would be sponsored and implemented by government agencies. In Brazil and Puerto Rico, a few private, profit motivated industrial estates and areas have been developed in or near large industrial centres (São Paulo, San Juan), where land for industrial use is scarce, where industries are eager to settle and are willing to pay fairly high prices not only for improved land but also for buildings and services provided by the developer.

Table 1 below gives data on the size of industrial estates and industrial areas and of standard factory buildings in a number of Latin American countries.

*Table 1. Size of industrial estates, industrial areas, and standard factory buildings in selected Latin American countries*

Country	Industrial estates (hectares)	Industrial areas (hectares)	Standard factory buildings (m <sup>2</sup> )
Argentina (planned)	—	163, 317, 370, 500, 2,500	—
Costa Rica (planned)	...	—	300, 600, 1,200
Ecuador (planned)	25	16	450
Jamaica	125	—	560 to 1,000
Mexico	—	200, 270, 305	—
Nicaragua (planned)	18	—	200 to 1,000
Panama	—	40	—
Peru	—	52	—
Puerto Rico	19 to 178	—	560, 1,100, 2,100
Trinidad and Tobago	—	2, 10, 15, 18, 95	—
Venezuela	...	7, 81, 84, 131, 700	600, 800

... Not applicable

... Not available

As already noted, standard factory buildings in Latin American industrial estates are in general appreciably larger<sup>2</sup> than those in the developing countries of Africa and Asia, or those prevailing in Great Britain, as may be seen from table 2 below:

*Table 2. Size of standard factory buildings in selected Asian and African countries and Great Britain*

Country	Standard factory buildings (m <sup>2</sup> )
Nigeria	42, 56, 70, 112
Somalia (planned)	186, 418, 825, 1,381
Uganda (planned)	186, 464
United Arab Republic	400
United Republic of Tanzania (planned)	74
Ceylon	232, 464, 697 and 929
India	37, 46, 93, 186, 418, 464 and a few from 557 to 836*
Great Britain	139 and 465 to 4,650

\* Expandable respectively to 93, 186, 279, 557, 697 and 836 to 1,114

<sup>2</sup> In most cases, the covered area of these buildings may be doubled

A number of industrial estates and areas have been set up in ports and offer waterfront facilities, and a few are located near airports. In most cases, estates and areas have been set up in suburban locations.

The experience of the countries under review in the field of industrial estates and industrial areas includes many examples of success and a few of failure. Since the physical facilities of the estates and areas are always offered as part of an incentive programme also featuring tax and customs concessions, it is difficult to single out the respective role of each of these two factors. The failures suggest, however, that neither industrial areas nor tax concessions will suffice to attract industries to localities where the primary requirements of industrialists—for materials, labour or market, as the case may be—will not be satisfactorily met. The importance of techno-economic surveys of the prospects of industrial development in various localities as a prerequisite to planning an industrial estate or an industrial area cannot be overemphasized.

Where favourable prospects do exist, it is probable that the combination of tax incentives, physical facilities and provision of certain services will be an effective means of inducing industrialization. The tax concessions, however, should be over and above those granted for the country as a whole if the locality or region to be developed is at an early stage of industrialization. The same is true for the physical facilities—industrial estates with standard factories and common service facilities will be more effective in promoting industrialization than industrial areas with improved sites at such locations. Suitable locations are not always limited to large towns. The experience under review shows that many smaller cities offer favourable prospects for development and that success may be achieved there, though more slowly than in large urban centres.

Several observers have expressed the view that the success of "Fomento" in Puerto Rico has been primarily due to the tax concession and the lower rate of taxation applying after the expiration of the concessions period, and only secondarily, if at all, to the facilities in the industrial estates. Yet provision of the latter continues to be a major policy of the Puerto Rico Industrial Development Company. While the example of Puerto Rico has been closely studied in many countries of Latin America, particularly in the Caribbean, it should be noted that Puerto Rico's development policy, which is largely focused on attracting industry from the United States mainland and only accessorially on the stimulation of local entrepreneurship, should be viewed in the light of the peculiar political, economic and geographic relationships of the commonwealth with the mainland. Although conditions in other countries are quite different, the efforts made by many of them to attract foreign industries may be enhanced by

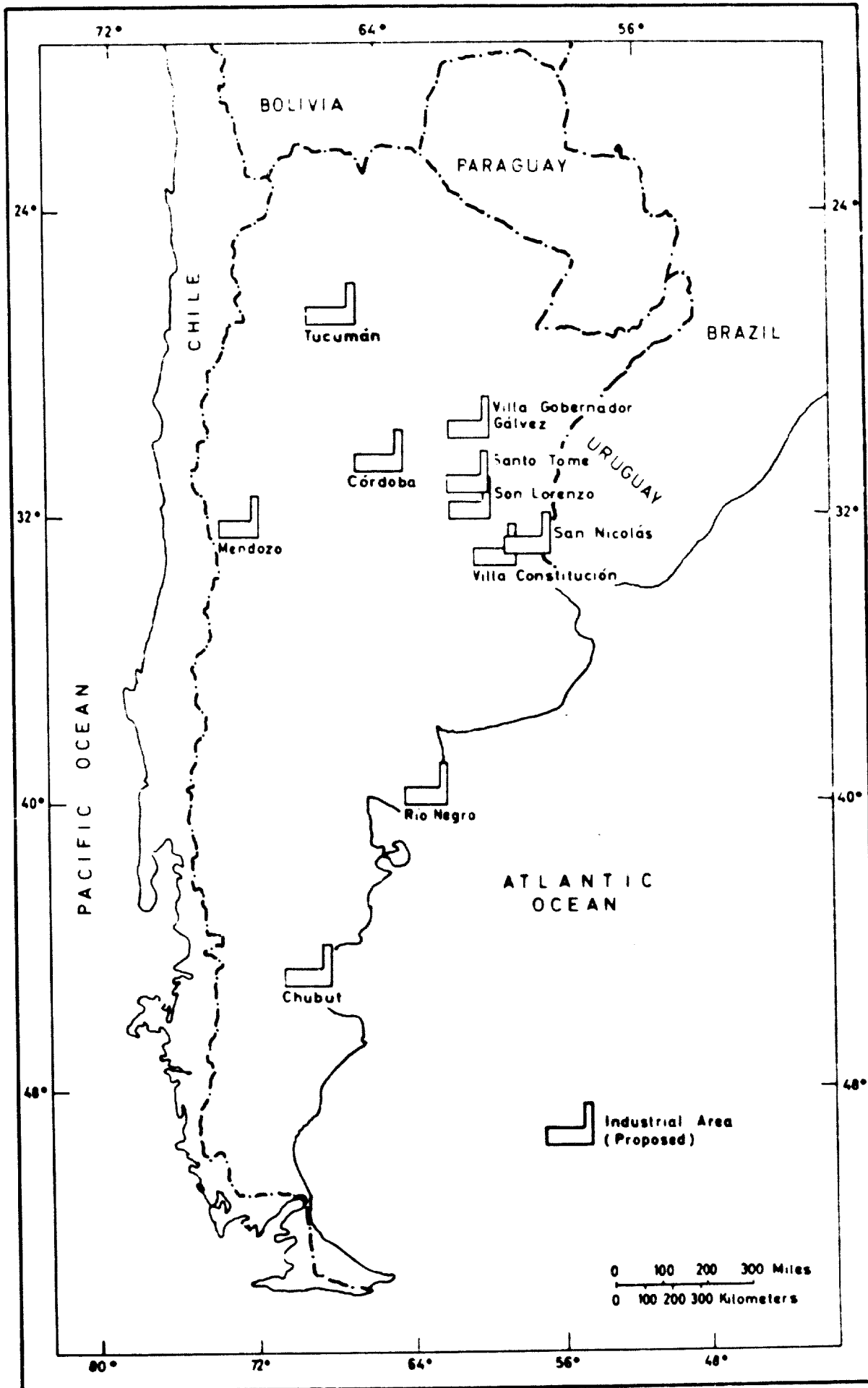
adapting to their own needs some of the organizational, physical planning, servicing and promotional methods evolved in Puerto Rico.

There appears to be much scope in all countries under consideration for establishing industrial estates for small-scale industries and for integrating such projects in comprehensive development programmes for this sector, including complementary measures of development, such as financing, industrial extension, and training. The need for such integration has been stressed in several United Nations documents. Experience throughout the world has shown that if entrepreneurship is not stimulated, if financing is not readily available, and if technical assistance or training is not provided, industrial estates may remain vacant or be occupied only slowly or face other difficulties. The scope of these complementary measures may evidently vary with the degree of development of the country or the region, the educational level of prospective entrepreneurs and the skill of manpower, the extent of private financial resources, and other factors. Provided that assistance is given at all stages of establishment, production and management, the development of small-scale industries may be one of the most effective means of mobilizing private financial resources and skills that otherwise might be diverted towards less productive activities, or might even be wasted. Industrial estates make it possible to integrate most measures of support and assistance and offer maximum inducements to entrepreneurship and to the achievement of high levels of productivity. The growing awareness in Latin American countries of the role of small-scale industries in over-all and regional industrialization programmes and of the need for government support for their promotion will no doubt lead to the development of industrial estates as a major component of such programmes.

## COUNTRY DATA

### ARGENTINA

IN THE PAST few years a certain number of industrial area and industrial estate projects were under study in Argentina. The common objectives of all projects were to contribute to industrial decentralization and to promote regional development, to regulate urban expansion, and to achieve economies in public financing through a concentration of infrastructure works. The industrial estate project would have the additional purpose of stimulating the establishment of new small-scale industries and the achievement of better working conditions, higher productivity and modernization of existing enterprises by relocating these on the estate. While the planned industrial areas would contribute to diverting industries from the city and province of Buenos Aires,





they would be located in one of the most industrialized parts of the country—the San Nicolás-Santa Fé region—and would not therefore contribute to the development of less developed provinces. This would also be true of the industrial estate that would be located at Córdoba, an important industrial and commercial centre.

All projects were planned in co-operation between national agencies—Consejo Nacional de Desarrollo (CONADE) and Consejo Federal de Inversiones. The four areas would be located, respectively, in palities.

A project to create an industrial complex consisting of existing large plants and new industries set up on four industrial areas in the San Nicolás-Santa Fé region was studied in 1963 by the Consejo Federal de Inversiones—and local authorities—provinces and municipalities. The areas were: Villa Gobernador Gálvez, on a 317 hectare site (783 acres), Villa Constitución, on 500 hectares (1,235 acres), San Lorenzo on 370 hectares (914 acres), and Santo Tomé on 163 hectares (393 acres).

The project was based on the "development pole" theory. The complex would extend over a broad geographical region including several large cities where some major industries are already located. A network of complementary industries would be set up in or near smaller towns. At the same time, a rational urban planning programme for the cities involved would be worked out.

Thus, the Villa Gobernador Gálvez industrial area would accommodate expanding industries that either must leave the city of Rosario or are unable to settle there for lack of space and physical facilities. The industrial area of Villa Constitución would be occupied by industries related to the steel and metallurgical concerns being developed from San Nicolás to Arroyo Seco. At San Lorenzo, the industries would be related to the petrochemical, chemical and metallurgical complex extending from Rosario to Puerto San Martín. The industries in these three areas would be largely complementary to the large existing plants as well as to each other. At Santo Tomé, industries would be complementary to the metallurgical centre of Santa Fé-Sauce Viejo, while others would process local agricultural and animal resources. In addition, an industrial area would be set up on 2,500 hectares (6,175 acres) of land at San Nicolás, near a large steel mill and other metallurgical plants.

The industrial estate was being studied as a pilot project for the city of Córdoba, where a large number of small-scale industries are established and good prospects exist for the creation of new ones. A development programme was being worked out by the municipality and provincial authorities, and a long-term loan from the Government was being negotiated to finance construction of the industrial estate. Consideration was also being given to setting up industrial areas at

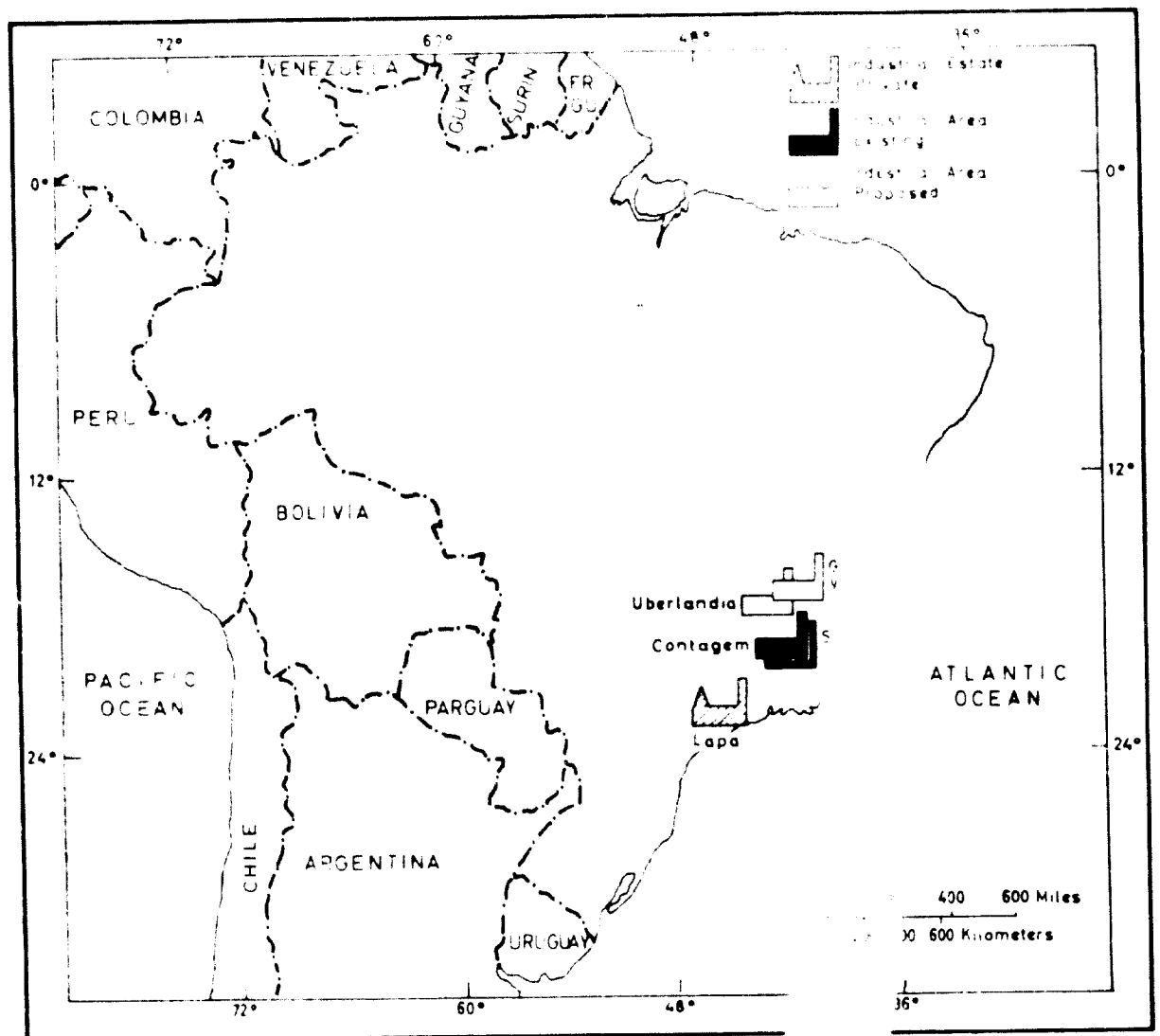
Mendoza, Rio Negro (Viedma), Chubut (Comodoro Rivadavia) and Tucumán.

At the request of the Government, a United Nations expert reviewed, in 1964, the industrial area programmes. In his judgement, if a decentralization policy aimed at developing relatively less-developed areas were to be carried out, it would be necessary, on the one hand, to place restrictions on the establishment of industries in already industrialized centres, similar to those adopted in Great Britain; and, on the other hand, to complement an industrial area programme—which he felt, would not be sufficient to induce industry to move to relatively less-developed regions and to stimulate local entrepreneurship—by granting tax and tariff concessions, long-term financing, reduced rates of utilities, and other special incentives; the inducements might be differentiated according to the level of development of the regions towards which industry would be steered. The expert also recommended that, in addition to industrial areas for large and medium-sized industries, industrial estates for small-scale industries be set up, in order to diversify industrial production and open up opportunities for investment by local entrepreneurs. He also advised on priorities in developing in the industrial areas included in the existing programme, admission policies, rent and sales policies, management and methods of financing.

#### BRAZIL

Two "industrial cities" have been established in the vicinity of Belo Horizonte, capital of the state of Minas Gerais. These cities—Contagem, founded in 1941, and Santa Luzia, founded in the 1950s—have been set up with a view to attracting industry to a region whose economy is mainly based on mining and agriculture. Other objectives were to provide employment and stop migration towards the industrial centres—Rio de Janeiro and São Paulo—and to decongest the urban area of Belo Horizonte.

Both projects were financed by the state and are under state management. In the industrial areas, improved sites are offered to industrialists for perpetual lease at nominal rates. Water is supplied free of charge and ample electric power is available. Both areas are zoned for heavy and light industries. In Contagem, some heavy industries have been promoted in the form of joint ventures between state and private groups; they include steel mills, the manufacture and assembly of motor cars, tractors, railway cars and machinery, the manufacture of oil products, cement and other building materials. Light industries include dairy and food-processing plants making use of the state's livestock resources, pharmaceutical products, electrical appliances, paper products and others. Common services include catering, health facilities and a vocational school.



Santa Luzia was set up after it had become apparent that Contagem would soon be fully occupied, while demand for industrial sites continued to be strong. A few years ago plans were made for the establishment of industrial areas in two other cities in the state of Minas Gerais—Governador Valadares and Uberlandia—and in the state of Bahia.

A privately owned industrial estate has been in operation since 1952 in the Lapa suburb of São Paulo. Its management sells improved sites and builds factories for sale or lease with option to purchase.

Within the framework of the development of the north-east of Brazil, sponsored by SUDENE (Superintendencia do Desenvolvimento de Nordeste), projects for the establishment of industrial estates, to be sponsored by the governments of the north-eastern states, have been under study. At the request of the Government, the United Nations provided in 1967—1968, under its Development Programme, the services of an industrial estate expert to assist SUDENE in carrying out this programme.

## CHILE

The development of small-scale and medium-sized industries in Chile is the responsibility of the Technical Co-operation Service (Servicio de Cooperación Técnica (SCT)), an autonomous corporation set up by the Development Corporation (Corporación de Fomento (CORFO)). The Governing Council of SCT is composed of representatives of CORFO, the Ministry of Labour and Commerce, universities, and representatives of industry. SCT is organized into three operational departments responsible, respectively, for technical assistance, professional training, and small-scale industries.

The department of small-scale industries of SCT has a comprehensive development programme, including technical assistance, feasibility studies, promotion of co-operatives and associations of small producers, which is expected to be strengthened and expanded in the period 1967—1971 with assistance from the United Nations Development Programme (Special Fund). The establishment of industrial estates will be part of this programme. Preliminary studies have been undertaken for the establishment of an industrial estate in the commune of Maipú, near Santiago, and in Osorno. The Government requested UNDP to provide, in 1967, the services of an industrial estate expert under the technical assistance component of the programme.

## COLOMBIA

In Colombia, the initiative in setting up industrial areas and industrial estates has been taken by private associations of small-scale and medium-sized industries.

In Cali, Department of Valle, the Colombian Popular Association of Industries (Asociación Colombiana Popular de Industrias (ACOPI)) and the Federation of Colombian Small-Scale Industries (Federación de Pequeñas Industrias Colombianas (FEPICOL)) have acquired land for an industrial area. Individual plots are sold to industrialists who are to put up their own buildings. About 125 entrepreneurs have already paid part of the purchase price of their lots. The project would be managed by a co-operative association of occupants. The co-operative would arrange for the supply of power, water and drainage and might serve as an agent for bulk purchases of raw materials and bulk sales of manufactured goods; it might also assist in the purchase of machinery and provide services in accounting, law and architectural design. The project appears to face some financial and organizational difficulties.

In Sogamoso, department of Boyacá, a private enterprise and a group of local businessmen are planning to purchase 50 hectares (124 acres) of land to be developed as an industrial area. A similar

scheme at Manizales, department of Caldas, is being considered by a private financing corporation. These projects also appear to be hampered by financial and other difficulties.

As a result of consultations held in 1964 by a technical adviser of the United Nations Centre for Industrial Development with government and other authorities, the services of an industrial estate expert were provided, towards the end of 1965, by the United Nations to the Institute for Technological Research (Instituto de Investigaciones Tecnológicas (IIT)), a Special-Fund-assisted centre that has evolved a programme of assistance to small-scale industries. In view of the difficulties faced by private groups in setting up industrial estates and areas, in particular in attempting to organize them as profit-motivated ventures, the expert has recommended that the Government take a more active part in the promotion of small-scale industries and the establishment of industrial estates, in particular as regards financing of construction.

#### COSTA RICA

In the past few years various authorities and agencies have made a number of proposals for establishing industrial estates and industrial areas in various locations in Costa Rica. Feasibility studies have been carried out by the National Institute for Housing and Urbanization (Instituto Nacional de Vivienda y Urbanismo (INVU)) for the Central American Bank for Economic Integration (Banco Centroamericano de Integración Económica), and by private consultant organizations for the Presidency of the Republic. A municipality, a railroad institute and a private real estate corporation have submitted plans or proposals in this field. The sites proposed by these various agencies are in or near San José, Puntarenas, Heredia, Cartago, Liberia, Limón and Alajuela.

The purposes of the projects studies by or for government agencies are to stimulate industrialization, by both national entrepreneurs and foreign investors, to ensure better use of land in towns, and to achieve a measure of industrial decentralization. The recent eruption of the Irazú volcano, which covered a wide area with ashes and disrupted economic activity, gave further impetus to the idea of planned location of industries at a distance from the volcano and the capital.

At the Government's request, the United Nations provided, in 1965, under its Development Programme, the services of an expert who reviewed the various area and estate projects and formulated recommendations for a programme of immediate action. As a beginning, he recommended setting up one industrial estate for small-scale industries, with standard factory buildings erected in advance of demand (with areas of 1,200, 600 and 300 square metres), custom-built

factories, improved sites, an administrative building, a common maintenance and repair shop, a training centre (to be provided by the National Apprenticeship Institute), a machine lease shop, and a testing laboratory. The expert made recommendations on the location, size of the estate, schedule of development, admission policies, incentives to prospective occupants, and estimated the costs of the project.

#### ECUADOR

At the request of the Government of Ecuador, a team of two officials of the Centre for Industrial Development of the United Nations visited the country in 1964 and made recommendations for a policy and programme of development of small-scale industries, including the establishment of industrial estates. With further assistance from UNDP and the Centre for Industrial Development, the Government formulated, in 1965, a project for a demonstration industrial estate for small-scale industries and an industrial area for industries of all sizes at Cuenca, capital of the province of Azuay.

Cuenca was selected after alternative locations, including Quito and Guayaquil, had been considered. It was felt that the project should contribute to the decentralization of industry—up to now concentrated in the latter two cities—by promoting its establishment and growth in a less-developed region with good prospects of industrial development.

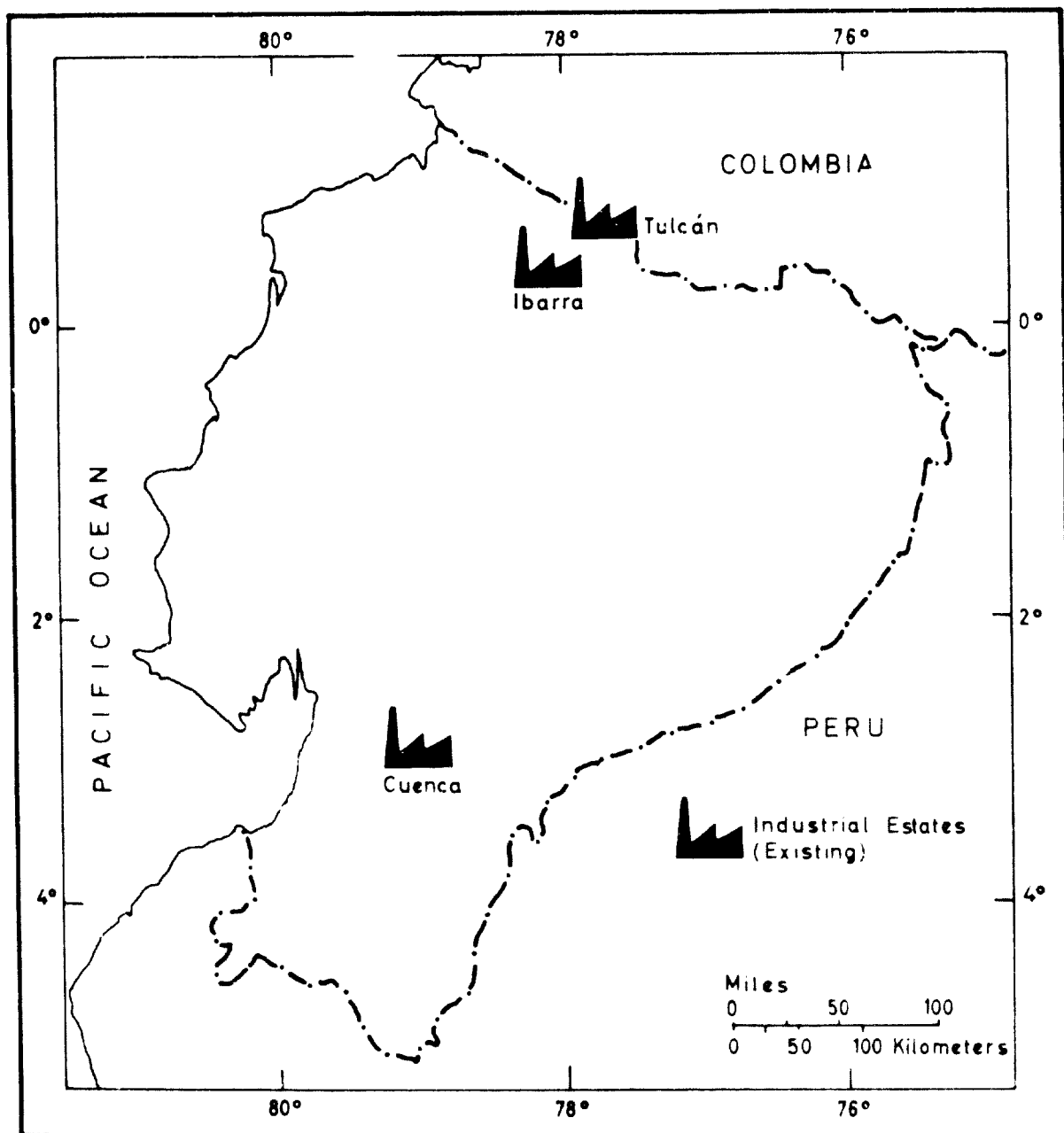
Cuenca (population 80,000) is the economic centre of the provinces of Azuay, Cañar and Morona Santiago. The region has abundant raw materials, including mineral, agricultural and forestry resources. To stimulate the economic development of the three provinces, the Government created, in 1958, the Centre for Economic Rehabilitation of Azuay, Cañar and Morona Santiago (CREA), and promulgated special tax incentive laws for new industries settling in the region. With the help of the Government, CREA undertook programmes for the construction of roads, water, sewers and expansion of electric power, and stimulated the establishment, in the period 1962—1966, of some 50 industries, including a cement plant, a tire factory and a variety of metalworking, woodworking, and other industries. Feasibility studies carried out by CREA and the Development Centre (CENDES) have revealed good prospects for some 40 new industries, most of which are suitable for small-scale operation.

The industrial estate and industrial area would be developed on a site, 41 hectares in area (101 acres), already purchased by CREA. In the five-year period of the project, the programme provides for the development of 10 hectares (25 acres) of land for the industrial estate and the construction of 30 standard factories of 450 square metres

each (4,835 square feet). In the same period, 6 hectares (15 acres) would be developed in the industrial area.

The common service facilities on the estate would include an administrative and technical building, an industrial extension centre, a maintenance and repair shop, a testing laboratory, common procurement services for raw materials, and marketing facilities for finished goods. A canteen, fire station, dispensary and first-aid station would also be provided. Banking facilities would be set up by credit institutions.

The industrial estate and area would be owned by a private corporation, the members of which would be CREA, CENDES (representing the Government), and the Chamber of Industries of Cuenca. The corporation would be responsible for the construction, organization and administration of the estate and area, including



common service facilities. The project would be financed for the most part by the Government through CENDES. The factory buildings would be sold or rented to the prospective entrepreneurs.

Small industrial estates are being set up in Tuleca and Ibarra. Eventually industrial estates will be set up in other locations.

The industrial estate programme of the Government is fully integrated in the country's programme for promoting small scale industries, which includes incentive legislation (industrial development law of December 1964, law for the development of artisans and small-scale industries of January 1965); the Law of the National Development Bank of December 1964, which sets up a fund amounting to 20 per cent of the bank's authorized capital for loans to small industries; the Law for the National Security Commission - National Financial Corporation, of August 1964, establishing a special development and guarantee fund for small scale industries; and technical and managerial assistance for the establishment, expansion and modernization of small industries, feasibility and pre-investment studies, supervised credit schemes, etc., provided by CENDES.

#### JAMAICA

In Jamaica, the Jamaica Industrial Development Corporation (JIDC), a statutory body set up by the Government in 1952, makes factories and sites on an industrial estate available and assists in establishing factories on individual sites as part of its general programme of industrialization. Incentive legislation provides for tax concessions and other benefits to prospective investors. One of the laws—the Industrial Incentives Law of 1956—is currently being amended to extend the tax-free period from the present seven years to a maximum of fifteen years, depending on the location of the plant. The maximum may be obtained by industries set up in locations designated by the Government as “depressed areas”.

An industrial estate, established in 1952, is located about two miles from Kingston, on government land sold to JIDC at the nominal cost of £1 per acre. Its area is about 310 acres (125 hectares) of which, by the middle of 1964, over 50 per cent had been developed for the use of 44 industrial enterprises and 19 service firms.

The estate offers improved sites for sale and factories built by JIDC for lease or rent. The corporation also assists entrepreneurs by building factories for lease with an option to purchase at any time during the lease. Rental is usually at the rate of approximately 10 per cent of cost of land and building, the lessee bearing costs such as taxes, insurance and water rates. JIDC is the sole agency responsible for construction of factories on the estate. However, the construction is frequently given out on contract to private building firms. Some sites



are available in close proximity to the railroad and are linked by spurs to the main tracks.

There are no restrictions on the types of industry that can be established on the estate, except "obnoxious" ones. As a broad policy, industries with a high labour content are given preference. By the middle of 1964, the 44 industrial tenants included metal product plants, cosmetic, pharmaceutical, paint, apparel, footwear, glass container, foodstuff and other industries. The 19 service industries included petrol stations, a cold storage plant, hardware and printing shops, warehouses, a laboratory, transport companies, etc. Total employment exceeded 3,000 persons.

The size of plots occupied by manufacturing industries varies from 22,000 to 435,000 square feet (2,150 to 41,400 square metres), with many in the range of 30,000 to 100,000 square feet—twelve plots have areas of over 100,000 square feet. Factory areas range from 6,000 to 65,000 square feet (557 to 6,038 square metres), many of them in the range of 10,000 to 20,000 square feet. Employment varies from 6 to 576 persons per enterprise; 22 companies employ fewer than 50 workers; average employment per enterprise is 80.

Since 1962, ten acres of land (four hectares) have been earmarked for an industrial area by the Parish Council—a local government authority—of St. James, in the north of Jamaica. The project, called Bogue Industrial Estate, offers improved sites for lease to industrialists. An "industrial park" is planned as part of a \$30 million project at Montego Bay, including harbour, hotel, residential and transport facilities, to be developed over ten years, beginning in 1966.

In its reply to the United Nations questionnaire on industrial estates, the Jamaican Government stated that it was unlikely that it would develop other industrial estates in other locations. Its policy, which is to promote the development of industries of all sections of the island, especially in rural areas, will be carried out by purchasing land on an *ad hoc* basis in areas where entrepreneurs agree to set up their factories. As mentioned earlier, differential incentives are being devised for that purpose.

The Government also stated that:

"Experience has taught us that the provision of basic requirements, such as improved land sites and general services (power, water, etc.) does not guarantee that factories will be located in such areas. Reasons given by prospective investors for not locating in such areas are:

- (1) Distance from source of raw materials and principal market.
- (2) Problem of maintenance. It is claimed that rural areas do not provide adequate repair facilities.

- (3) The shortage of skilled and technical personnel in such areas.
- (4) The lack of adequate housing and social facilities for plant employees.

"It is believed that the planned amendments to existing incentive laws whereby tax holiday periods will be extended in the case where the manufacturer locates in a 'depressed' area will offset these difficulties and provide the inducement for rural industrialization.

"On the positive side, our experience suggests that the following are pertinent considerations in the establishment of industrial estates:

- (a) Industrialists appear to prefer freehold occupancy rather than leasehold occupancy.
- (b) The estates should be laid out in such a manner as to permit great flexibility in sizes of sites in order to meet the varying demands of industry.
- (c) Adequate supplies of water and power are of vital importance."

#### MEXICO

For the past fifteen years, the provision of improved sites in industrial areas has been one of the instruments used by government agencies to influence industrial location by checking further concentration of industry in the Federal District of Mexico and, at the same time, promoting industrialization in less-developed regions, particularly in rural areas.

The experiment began in Ciudad Sahagún (town of Irolo, state of Hidalgo), located in an arid and poorly endowed rural area where three large industrial establishments were set up between 1951 and 1956 in an effort to develop the region's economy: Diesel Nacional, S.A., originally planned for the assembly of heavy lorries and now manufacturing compact cars; Constructora Nacional de Carros de Ferrocarril, which produces railway equipment; and Siderúrgica Nacional, S.A. (formerly Toyoda de México), which produces castings and machined parts. All three were set up as private enterprises, but eventually the local branches of Nacional Financiera subscribed and paid up their capital and guaranteed their loans. Today, Nacional Financiera lays down the economic policy of this group of industries, whose operations are complementary, and manages the complex.

After the three plants were built, industrial sites with power, water, drainage and internal roads linked with main highways were developed in order to attract other industries. Despite federal and state tax concessions granted for 15 to 25 years and other inducements, no other industries have thus far been established at Ciudad Sahagún. Yet

the three large factories have contributed to transforming a number of under-employed rural labourers into industrial workers with various skills and to raising living standards in a particularly poor region.

Two other industrial area projects were sponsored by the Federal Electricity Commission (Comisión Federal de Electricidad) at, respectively, La Laguna (town of Gómez Palacio, state of Durango) and Irapuato (state of Guanajuato), with the same objectives. Both towns are located in rural areas. The size of the La Laguna project is 305 hectares (740 acres), of which 130 are developed and available for sale; undeveloped sites are offered for sale on 116 hectares.

The Irapuato area occupies 270 hectares (667 acres), with developed sites for sale on 111 hectares and undeveloped sites for sale on 116 hectares.

Despite favourable purchase and occupancy terms for sites—30 pesos (\$ 2.50) per square metre for developed sites and 5 pesos (\$ 0.40) per square metre for undeveloped sites at La Laguna, 25 and 5 pesos (\$ 2.00 and \$ 0.40) respectively at Irapuato—and tax incentives similar to those applying in Sahagún, only a few industries have been set up in these areas.

While the inducements of industrial sites and tax concessions have been ineffective in these poorly endowed and relatively remote rural areas, they have been quite successful at Querétaro, a state capital located 115 miles north-west of Mexico City, in the middle of the country's main region, which contains 43 per cent of Mexico's population, 62 per cent of its industry and accounts for 69 per cent of its total industrial production. Querétaro, lying at the crossroads of major highways and railroads, is an important communications centre.

Despite this potentially favourable location, the town remained a small (60,000 inhabitants), predominantly agricultural centre in a semi-arid region until 1961. In that year, the governor of the state invited a United States business consultant firm to make a study of the city's industrial possibilities. At the same time, a committee on economic development was set up, in which state government, business and labour were represented. It was decided to develop an industrial area and to provide various incentives to attract industry.

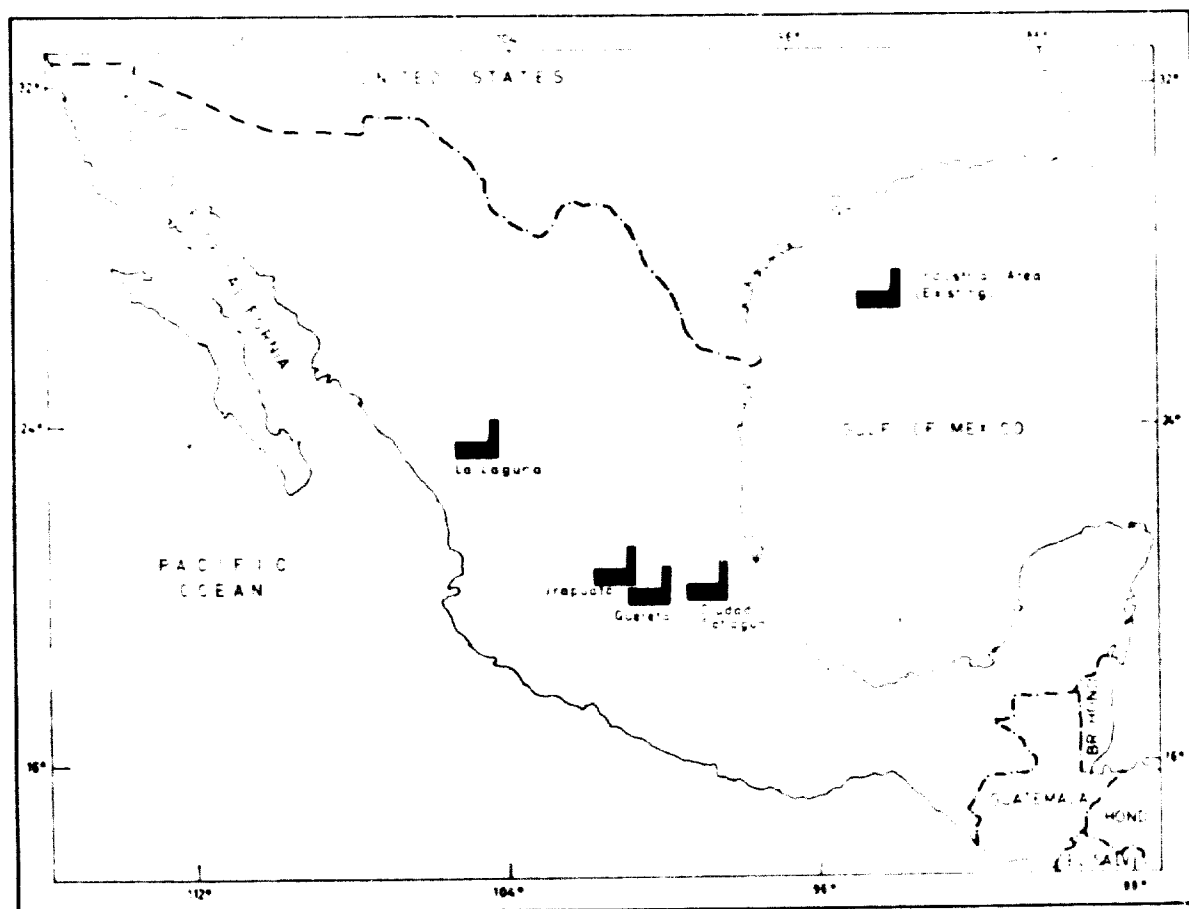
The state set aside an industrial and residential zone so located that prevailing winds blow smoke and fumes away from the city. The zone has been developed by a private enterprise, Inmuebles de Querétaro S.A. Its total size is 530 hectares (1,430 acres), of which 200 hectares have been developed as an industrial area, 19 as a commercial area and 79 as a residential area (500, 50 and 175 acres, respectively). In the industrial area, the lot sizes currently range from 5,000 to 300,000 square metres (one and a quarter to 74 acres). The lots are

provided with power, water, natural gas and drainage, and many of them with railway sidings, the railroad running directly through the area.

The prices of lots vary depending on size and services required. To avoid excessive price speculation on the still available industrial land, Inmuebles de Querétaro has established a system of land price discounts up to 50 per cent, depending on the date of actual new plant construction and completion. Median land prices are 26 pesos per square metre of improved land with services (about \$ 2.00).

In addition to the federal tax concessions for the promotion of industry, exemptions from state taxes for up to ten years are offered to the occupants. The state has set up an office in Mexico City to promote occupancy and to help entrepreneurs in fulfilling formalities.

The result of these measures is that industry has come to Querétaro. Since 1962, total investment in new plants has been about \$ 40 million. United States and other foreign companies have figured prominently in this development, often in conjunction with Mexican capital. Industries include a large plant making automobile and truck transmissions, a sewing machine factory, tractor factories, tool factories, food-processing and other plants. Three technical training centres are operating. The population of Querétaro rose from 65,000 in 1962 to 100,000 in 1966 and industrial employment from 4,000 to 8,000.



## NETHERLANDS ANTILLES

To broaden the economic base of the islands and, in particular, to encourage the establishment of industrial enterprises, the Government of the Netherlands Antilles is providing tax and tariff concessions and physical facilities for industries. The National Ordinance for the Promotion of Industrial Establishments and Hotel Construction, 1953, provides tax and import duty exemptions for a minimum period of ten years (maximum eleven years) to enterprises with an investment of 100,000 NA guilders (\$53,000) in Aruba and Curaçao (50,000 NA guilders in the other islands), or to those that create additional employment for at least ten Antillian labourers (five on the other islands), or set up an industry or branch of industry that did not exist in the Antilles on 1 January 1948.

Physical facilities and additional tax and import and export duty concessions are offered to industries, especially export industries, that set up factories in the "free zones" of Aruba, Bonaire and Curaçao. Within each zone, space is reserved for light and heavy industries and warehouses and infrastructure facilities—power, water, drainage, etc.—are provided. Factories and warehouses may be built by the Government for known occupants, and leased. Thus, the industrial zoning scheme is not merely a regulatory device to control the location of industry. The free zones are, in effect, industrial areas with some of the facilities offered elsewhere on industrial estates, in particular, the provision of factories for rent.

A feasibility study for the establishment of an industrial estate for small-scale industries has recently been carried out.

## NICARAGUA

In 1961, a detailed feasibility study and a plan for an industrial estate in the Managua area were prepared by the National Urban Planning Office, Ministry of Development and Public Works with the assistance of an expert provided by the United States Agency for International Development (AID). The project was to be part of an over-all programme of industrial development, including tax incentives, establishment of an Industrial Productivity Centre, financial assistance from the National Development Institute (INFOMAC), technical assistance, training and other measures. The project called for the improvement of sites and the building of factories for sale to entrepreneurs setting up light manufacturing enterprises. It was estimated that 20 to 40 industries could be set up over a ten-year period; total employment of 40 plants would be about 1,500 persons.

The total land requirement would be 9.5 hectares (22 acres) for the minimum of 20 plants, and 18.5 hectares (46 acres) for 40 plants.

For a 1,000 square metre factory (10,765 square feet) covering initially 30 per cent of a plot, and extendable eventually to 50 per cent, the average lot size was estimated at 3,000 square metres (32,300 square feet). The industrial plots would cover about 65 per cent of the total area; common facilities, including administrative building, common workshops, petrol station, cafeteria, dispensary and post office, 10 per cent; streets and parking space, 15 per cent; and landscaping, 10 per cent.

Factory units of 200 to 400 square metres (2,153 to 4,306 square feet) each, would be offered for rent to the smaller industries. The units would be partitioned in a common building. Technical assistance would be provided as part of the project.

The industrial estate would be administered by a non-profit, autonomous corporation.

### PANAMA

In an effort to alleviate unemployment and promote industrial development, the Government of Panama established in 1953 a "free trade zone" at Colón, at the Atlantic entrance of the Panama Canal. The zone is administered by an autonomous body created by the Government. It occupies 40 hectares (99 acres) and is subdivided into industrial, warehouse and distribution areas.

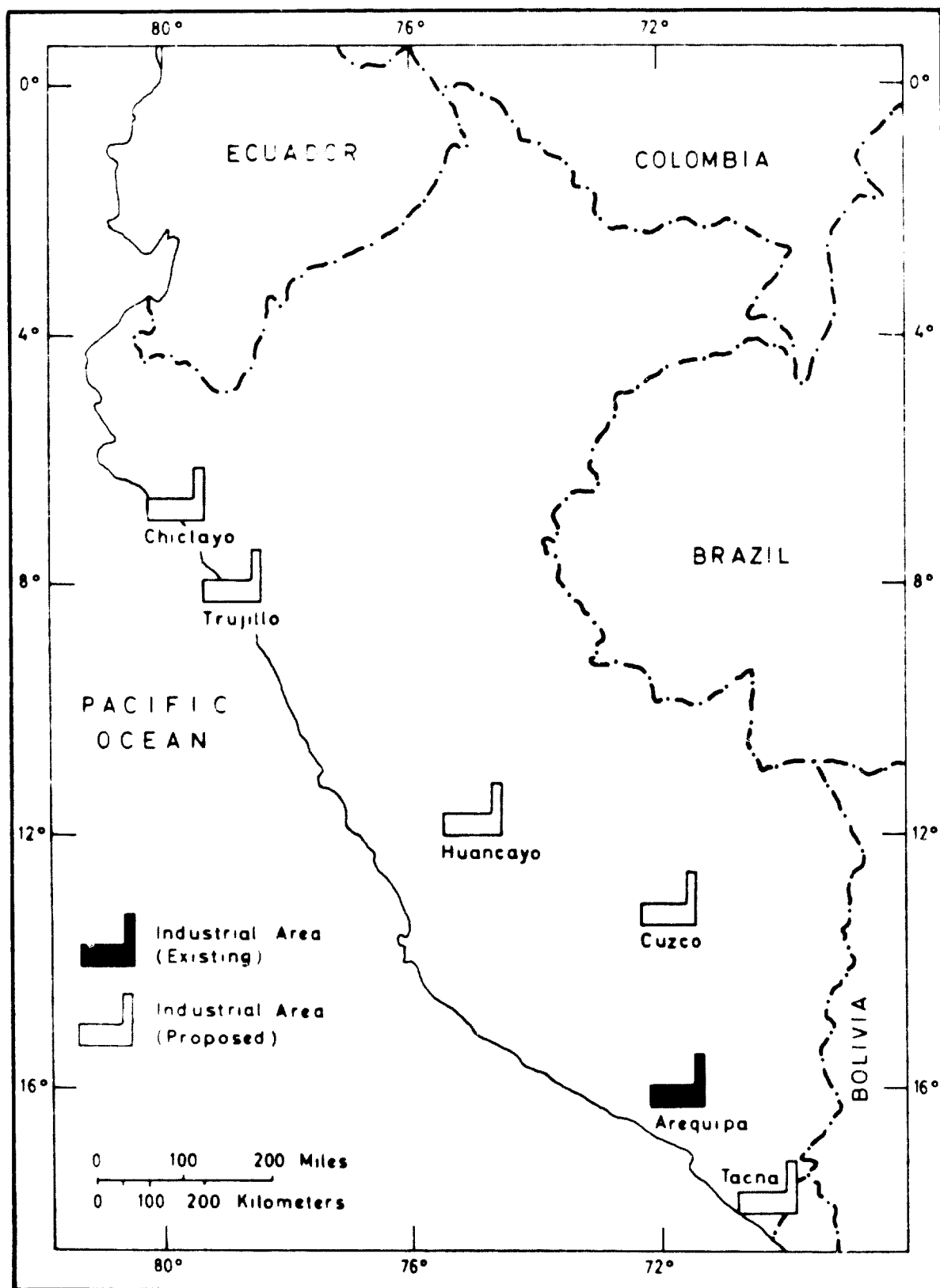
The location and facilities of the zone and tax incentives have attracted a number of industries, in particular United States companies, whose products are channelled not only to Central and South America but to Europe and Asia as well. In 1964, the zone provided direct employment to 1,500 persons and indirect employment to 3,500.

### PERU

In Arequipa (population about 200,000), capital of southern Peru, construction of an "industrial park" (area) of 52 hectares (about 128 acres), is nearing completion. The park is sponsored by the Junta de Rehabilitación y Desarrollo de Arequipa, a semi-autonomous, government-financed development corporation responsible for all aspects of development in the department of Arequipa. One of the functions of the Junta is industrial development through promotion of large-scale, medium-sized and small-scale industries, and handicrafts.

Of the 52 hectares of the industrial park, 42 hectares (about 105 acres) are earmarked for industrial plots; the remaining area is to be used for roads, service areas and a vocational school. Originally the park had been conceived as an instrument for relocating existing local industries by providing them more favourable conditions for growth and expansion. Consideration had also been given to building general-

purpose factories ahead of demand. However, subsequently most of the demand has come from comparatively large new firms, both Peruvian and foreign, and it was found that there was no need for standard factories. It was also found that there was no demand for leased land, so improved sites are offered only for sale. The average lot size amounts to 7,000 to 8,000 square metres (about 75,000 to 86,000 square feet),



and out of 18 new industries being located in the industrial park, only six require lots of under 2,000 square metres (about 21,500 square feet). It is expected that the industries established in the park will provide direct employment to about 1,500 persons. Total investment will amount to about \$1.3 million.

The park offers improved sites with water, sewerage, electricity, telephone service, streets and street lighting, railroad access and landscaping. In addition, a police station, petrol station, restaurant and a vocational school will be located in the park area.

The admission and occupancy policies follow closely those of the Puerto Rico Industrial Development Company (PRIDCO). Obnoxious industries are restricted from entering the park. New industries receive generous tax concessions, the reductions amounting to about 80 per cent, an incentive that influences somewhat the industrial composition of the park. Preference of admission is given to those industries that will add most to the employment of the region, create investment opportunities for other industrial enterprises, process raw materials of the region or provide exceptional training facilities for workers, technicians or managers. Lower priority is given to existing enterprises seeking to relocate in the park.

Land is sold at the equivalent of \$ 3.75 per square metre. Fifteen per cent of the price has to be paid when signing the contract; for the remaining 85 per cent, terms of up to ten years can be granted by the Junta.

According to the Junta:

"The Arequipa Industrial Park has proved to be a most successful venture. Practically all the available land has already been sold or committed even though the construction of the park is only about to be completed. It is the first industrial park in Peru, and other Peruvian cities such as Cuzco, Tacna, Huancayo, Trujillo and Chiclayo are also starting to make studies for industrial parks in their areas. It is becoming apparent that industrial parks combined with tax incentives and efforts to study and promote the industrial investment opportunities of a region represent effective tools for attracting industries to locations outside of Lima and thus to contribute to a decentralization of Peru's future industrial structure."

#### PUERTO RICO

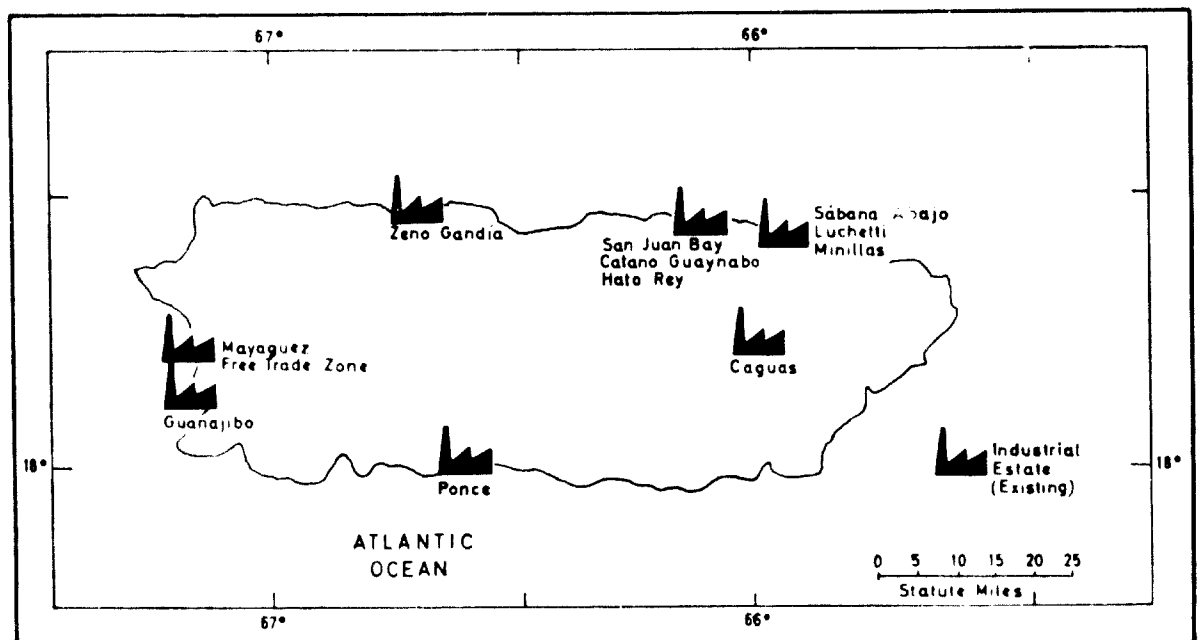
The provision of improved sites, factories for rent, and a variety of services is part of a comprehensive development programme carried out in Puerto Rico since 1950. This programme ("Fomento") is directed and supervised by a government agency, the Economic



Development Administration (EDA), through a number of operational units, the most important of which, in the field under consideration, is the Puerto Rico Industrial Development Company (PRIDCO), a public corporation engaged in real estate, construction and financing.

The over-all industrial development programme combines tax exemptions for periods of five to ten years (and low rates of taxation after expiration of the exemption period, the corporate and personal federal income taxes being inapplicable in the commonwealth), with locational incentives and various services and measures of assistance. The programme is largely geared towards attracting capital and entrepreneurship from the United States mainland. However, no assistance is given to firms that propose to close down a plant in the United States and to relocate in Puerto Rico. Thus, United States industries benefiting from the "Fomento" programme must be new or expanding companies. In recent years increasing encouragement has been given to the establishment of Puerto Rican enterprises and joint ventures through special incentive and lending policies.

In 1966, there were thirteen industrial estates (called "industrial subdivisions") in various localities. These estates, which were established between 1953 and 1961, include six in or near San Juan, three near Mayagüez, two near Ponce, one at Caguas and one near Arecibo. On the basis of their location, the estates may thus be classified as metropolitan, urban and attached to ports; PRIDCO is planning to establish several estates near the principal airports.



In each estate, PRIDCO offers a choice of improved sites, standard factories built in advance of demand, multi-factory buildings and

special factory buildings, according to the needs and specifications of each industrial establishment.

PRIDCO does not sell but only leases industrial land and/or buildings. The lease is for a fixed period of ten years at an annual rent, to be paid in advance in monthly instalments. In addition, the tenant has to pay a real estate tax and charges for water, sewerage, gas, electricity and other services. The tenant has also to take out risk insurance protecting the landlord against fire, hurricanes, earthquakes, boiler (if any) and general accidents. The lease is renewable for fixed terms of ten years. In order to disperse industry and thereby promote a regionally balanced development, differential rental rates apply in five geographical zones. The lower rates, which are subsidized, apply to the less-developed areas of the island.

The construction of industrial estates is carried out by private contractors under the supervision of PRIDCO. PRIDCO does not exercise any control over the management of individual tenant companies.

Zoning regulations set forth restrictions on admission and occupancy of industries in the estates. The buildings must be used exclusively for manufacturing, assembling or processing purposes. The estates are classified as "heavy", "light" or "heavy and light". Special commercial uses may be allowed in certain designated lots.

The land coverage of any building may not exceed 50 per cent of the lot area, so that proper ventilation, space for parking and circulation can be provided. The minimum sizes of yards are: front yard, 6 metres (about 20 feet); side yards, 3 metres (about 10 feet); rear yard, 10 per cent of lot's depth. The height of each building is limited to two stories so that the floor area of the building will not exceed an area equal to that of the lot; however, where it is necessary to exceed this height the lot coverage is reduced so that the total floor space of building does not exceed the area of the lot. The floor area may not be under 929 square metres (10,000 square feet), except in cases where the lot size is considerably larger than 4,000 square metres (one acre); then the minimum size of the building may be increased up to a size to be determined by PRIDCO. In any case, expansion up to 1,858 square metres (20,000 square feet), is provided for. There are three types of standard one-storey factories, respectively 557, 1,068 and 2,137 square metres (6,000, 11,500 and 23,000 square feet) in area.

PRIDCO constructs its industrial estates out of its own funds obtained from government appropriations and from the sale of general revenue bonds. PRIDCO and the Puerto Rico Development Bank may finance the acquisition of industrial facilities by private firms.

Table 3. Puerto Rico: industrial estates and occupancy as of the middle of 1964

Location and name of estate	Date of opening for occupancy	Total acreage	Acres occupied	Average lot size (acres)	Type of industry permitted <sup>a</sup>	Estimated employment	Estimated capital investment (millions of dollars)
<i>San Juan</i>							
Cataño Guaynabo waterfront . . . . .	1958	19	15	2.0	H	258	2.0 <sup>b</sup>
Hato Rey . . . . .	1958	136	98	1.4	L and H	2,400	6.0 <sup>c</sup>
Lucchetti . . . . .	1953	93	46	3.0	H	1,520	2.5
Minillas . . . . .	1953	178	63	1.8	L and H	1,920	5.0
Sábana Abajo . . . . .	1960	31	18	1.0	L	—	0.75
San Juan Bay waterfront . . . . .	under constr.	100	—	—	H	—	1.8
<i>Mayagüez</i>							
Free trade zone . . . . .	1960	33	8	1.2	L and H	400	0.5
Guanajibo . . . . .	1960	39	15	1.6	L and H	640	0.75
Mayagüez waterfront . . . . .	1960	64	24	2.4	H	1,450	4.0 <sup>d</sup>
<i>Ponce</i>							
Ponce waterfront . . . . .	under constr.	105	—	—	H	—	1.5
Ponce west . . . . .	1961	69	10	1.7	L and H	480	1.0
<i>Caguas</i>							
Caguas north . . . . .	1955	44	38	2.0	L and H	1,360	2.5
<i>Arecibo</i>							
Zeno Gandía . . . . .	1957	46	18	1.6	L	640	1.0
<b>Total</b>		<b>957</b>	<b>353</b>	<b>1.8</b>		<b>11,068</b>	<b>29.3</b>

<sup>a</sup> H = heavy industry; L = light industry.<sup>b</sup> Plus \$ 4.0 million private.<sup>c</sup> Plus \$ 3.0 million private.<sup>d</sup> Plus \$ 5.0 million private.

Power is supplied by the Puerto Rico Water Resources Authority, water and sewerage by the Puerto Rico Aqueduct and Sewer Authority, fire protection by the Commonwealth Government. PRIDCO provides assistance, such as engineering and economic research and help in recruiting and training labour. Services such as canteen, medical care, watch and ward, sprinkler system, etc., are arranged by the occupant firms.

Table 3 gives data on industrial estates and occupancy as of the middle of 1964.

Between 1950 and 1965, the number of industrial plants set up in Puerto Rico in the industrial estates and outside rose from 82 to 1,126 and total employment in industry from 6,265 to 78,000.

Beginning in 1958, after the first PRIDCO industrial estates were established, private investors have been developing several estates near the metropolitan area of San Juan, where there is considerable demand for industrial land. These are profit-motivated, commercial ventures.

Several observers have expressed the view that tax exemption and subsequent low taxation have been the most important single factors influencing the establishment of industries in Puerto Rico. (See, for example, Stead, 1958; Barton, Jr., 1959.) Some of them acknowledge, however, that the inducement value of tax exemption, on the one hand, and low taxation, on the other, varies from one type of industry to another, and that other factors have also influenced decisions to locate in Puerto Rico. On balance, the effectiveness of the Puerto Rican programme may be attributed to a well-balanced and skilfully publicized set of measures combining tax and other inducements with assistance in all phases of planning, construction and operation of industry (United Nations, 1961, p. 26).

#### TRINIDAD AND TOBAGO

In Trinidad and Tobago, the establishment of industrial areas and industrial estates is part of a comprehensive system of measures aimed at promoting industrial development. The other principal measures include tax exemption on profits of newly established "pioneer" industries during the early years, reduction in costs of production of both old and new industries through remission of import duties on plant, machinery and raw materials, and accelerated depreciation allowances. The programme, including construction and management of industrial areas and estates, is implemented by the Industrial Development Corporation (IDC), a government agency.

The objectives in providing physical facilities to prospective industries are: to attract industries from abroad; to promote the develop-

ment of large-scale, medium-sized and small-scale industries; to influence industrial location with a view to decentralization; to develop rural areas and regions with a concentration of under-employed labour; and to facilitate expansion and resettlement of existing industries.

Five industrial areas are being developed by IDC on lands granted by the Government in urban and suburban locations in various parts of the country. The establishment of estates or areas in rural regions is being planned.

The areas offer fully developed sites with water, electricity, railway sidings, roads, sewerage, fire protection, telephone and postal services, and when completed will offer banking facilities, canteens and recreational centres. Central maintenance and repair shops are planned for the larger areas. Sales depots are provided by the tenants; on the larger areas, IDC has allocated sites to persons providing warehousing facilities to the tenants.

Table 4 shows the location, size and progress of development of the five industrial areas as of the middle of 1964.

Parts of certain areas will be developed as industrial estates offering factory space and factory units for rent to small-scale and medium-sized industries. As an experiment, one standard factory will be built in advance of demand on one of the larger industrial areas.

The industrial areas now developed are non-specialized; they are intended primarily for manufacturing and assembly industries, excepting those prohibited by law or which present obnoxious features that cannot be satisfactorily controlled. The available supply of power and

*Table 4. Trinidad and Tobago:*

<i>Area</i>	<i>Size (acres)</i>	<i>Area occupied (acres)</i>	<i>No. of factories</i>
East Dry River . . . . .	36	3.9	3
Sea Lots . . . . .	25.5	0.7	1
O'Meara . . . . .	234	27.0	9
Plaisance . . . . .	45	1.0	1
Milford, Tobago . . . . .	5.2	—	—

water may restrict accommodation of industries that are large consumers of these utilities, though special arrangements may sometimes be made.

Although the development plan of an area provides for division into factory sites of varying dimensions, no special restriction is placed on enterprises according to their size; if necessary, IDC is prepared to join several sites to accommodate an enterprise.

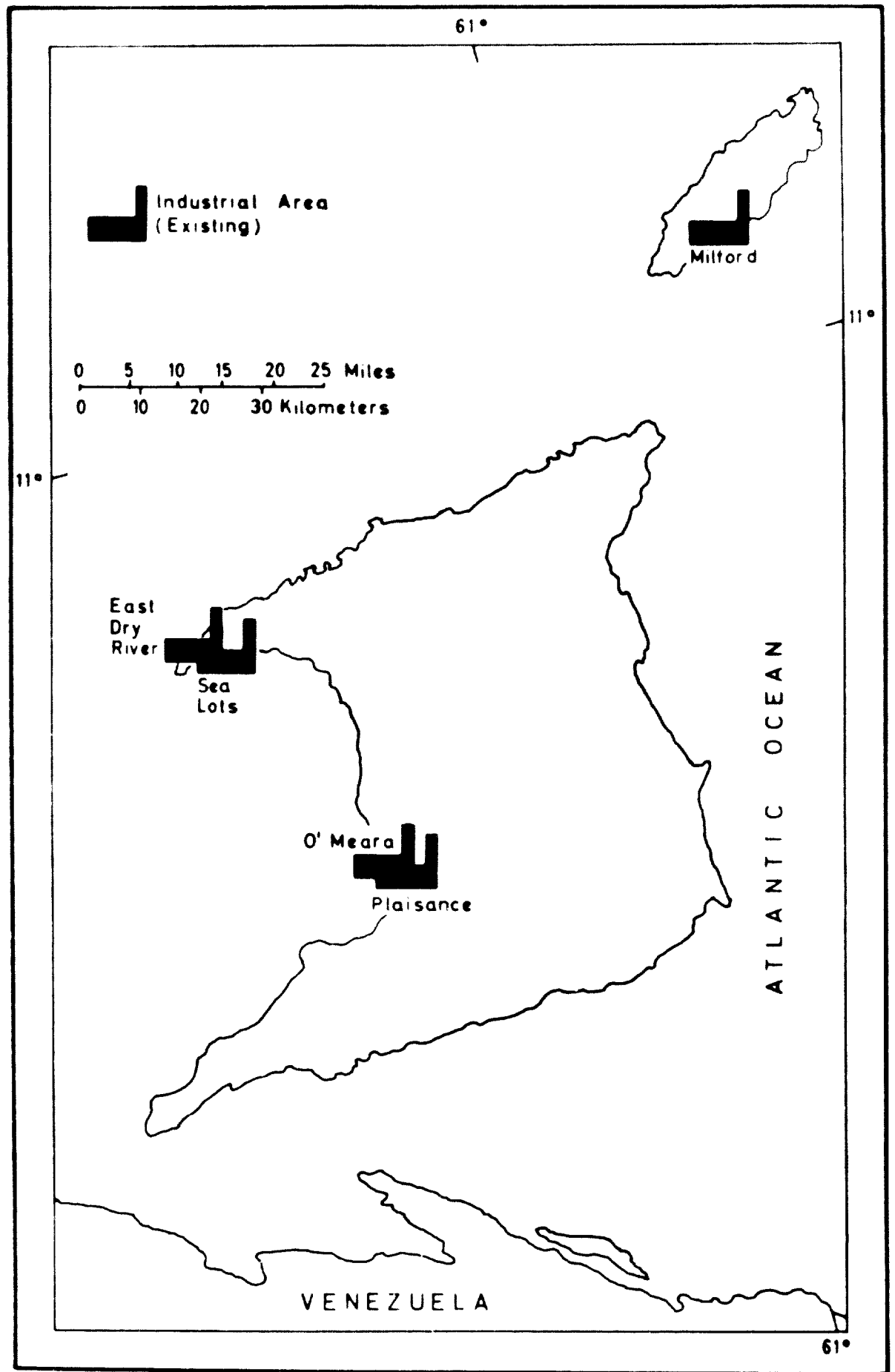
While IDC prefers to encourage newly created enterprises on the industrial areas, there are no restrictions on existing enterprises wishing to relocate on the areas because of need to expand or inadequacy of existing accommodation. The areas are managed by the Industrial Estates Unit of IDC, which is responsible for development of the areas, control of the types of buildings erected thereon, including provision of welfare facilities for employees. Occupants have no voice in the management of the areas.

For the time being, the corporation only leases the plots on the estate; the term of lease is for 30 years with an option for renewal for another 30 years. Rent is at 4 per cent of the market value of the land, and a premium of 20 per cent of the market value of the land is required on the granting of the lease. However, in special cases the premium is waived and rent is charged on a graduated scale. The factories are built by the occupants through private contractors; construction must comply with a code drawn up by IDC.

A United Nations expert is currently assisting IDC in formulating a comprehensive programme for small-scale industries, including provision of industrial estates, common service facilities, industrial extension and information services.

*industrial areas as of mid-1964*

<i>Average factory size (square feet)</i>	<i>Average plot size (acres)</i>	<i>Employment</i>	<i>Capital investment (dollars)</i>
17,888	1.3	118	960,224
9,840	0.7	12	760,071
12,704	3.0	464	1,548,790
—	1.0	38	299,736
—	—	—	47,649



## VENEZUELA

In Venezuela, industrial estates and industrial areas are set up by national, regional and local authorities, often in co-operation with each other.

Two national financing and development agencies have been active in this field. The National Commission for Industrial Financing has, through one of its regional commissions, set up an industrial estate at Valencia. The National Commission is a financial institution established in 1959 to provide credit to small-scale and medium-sized industries defined, respectively, as industrial enterprises with a capital investment of less than 100,000 bolívares, and between 100,000 and 1 million bolívares (\$ 22,220 and \$ 22,220—\$ 222,200). The credit policy of the commission is largely oriented towards inducing entrepreneurs to move to the industrial estate; the granting of loans is usually linked to the purchase of an estate factory.

When completed, the Valencia industrial estate will have 122 standard factory buildings. Those already constructed are of two sizes: 600 square metres, on plots of 1,250 square metres (6,458 and 13,500 square feet), and 800 square metres, on plots of 1,650 square metres (8,610 and 17,800 square feet). The smaller factories may be purchased on ten-year terms for 60,000 bolívares with monthly payments of 777 bolívares (\$ 13,300 and \$ 173) and the larger ones for 85,000 bolívares with monthly payments of 944 bolívares (\$ 19,000) and \$ 210. In 1965, 30 standard factories were occupied.

Credit is also made available by the commission for procurement of new materials and working capital. The agency plans to develop a technical assistance programme linked to its financial and industrial estate operations.

The Corporación Venezolana de Fomento (CVF), with the co-operation of the National Commission, has set up an industrial estate at Barquisimeto. The development of small and medium industry is part of the activities of the corporation, a state agency set up by the Ministry of Development to promote economic development in general. The corporation extends technical and financial assistance to small-scale and medium-sized industries; in particular, it may provide long-term loans, up to fifteen years, to enterprises able to offer adequate mortgages or guarantees. A form of hire-purchase system for equipment and buildings is also in effect.

A local agency — the Maracaibo Industrial Development Company (CONDIMA) has set up an industrial area in Maracaibo and plans to provide on it a number of common service facilities.

Over 700 hectares (1,730 acres) of land have been reserved by CONDIMA for development as an industrial zone; in a first phase, 150 hectares (370 acres) are being developed into 185 plots varying



in size from 3,000 to 16,000 square metres (0.75 to 3.95 acres). Water, natural gas, electricity, sewerage and drainage, telephone and communications are available.

Improved plots are offered for sale at a price, including all services, of 10 bolívares per square metre (\$2.20). Purchasers pay 28 per cent of the cost as a first instalment and the balance of 72 per cent in 36 monthly instalments, with interest on the unpaid balance at 7 per cent *per annum*. CONDIMA is prepared to consider other methods of payment, in particular a system of rental of fixed assets with purchase option. Under this scheme, the occupant pays a monthly rental of 1 per cent of the initial value of the land on the basis of a ten-year lease. At the end of the contract period, the property may be acquired at the original valuation less that portion of the rental that CONDIMA has credited towards the capital cost. Normally this means that the asset can be acquired by the occupant on payment of 42.65 per cent of the original cost.

A similar plan can be applied to plant and installation costs. In this case the term is eight years, the rental is 12.3 bolívares (\$2.73) per month per 1,000 bolívares advanced. By the end of the contract period 90 per cent of the costs have been paid and the entrepreneur obtains a clear title to the plant on payment of the balance.

Enterprises on the area are exempted from industrial and commercial taxes during the first ten years. They are also entitled to concessions on construction taxes and water rates.

On an 18-hectare tract of the industrial area, CONDIMA plans to set up an industrial centre including quality control, material testing and food technology laboratories, a productivity institute and a central mechanical workshop. Administrative buildings, banks, cafeterias, libraries, insurance companies, shops, etc., will also be set up. Feasibility studies of the types of industries suitable for establishment have been carried out by two United Nations advisers, in particular to assess the need for, and type of, common service facilities.

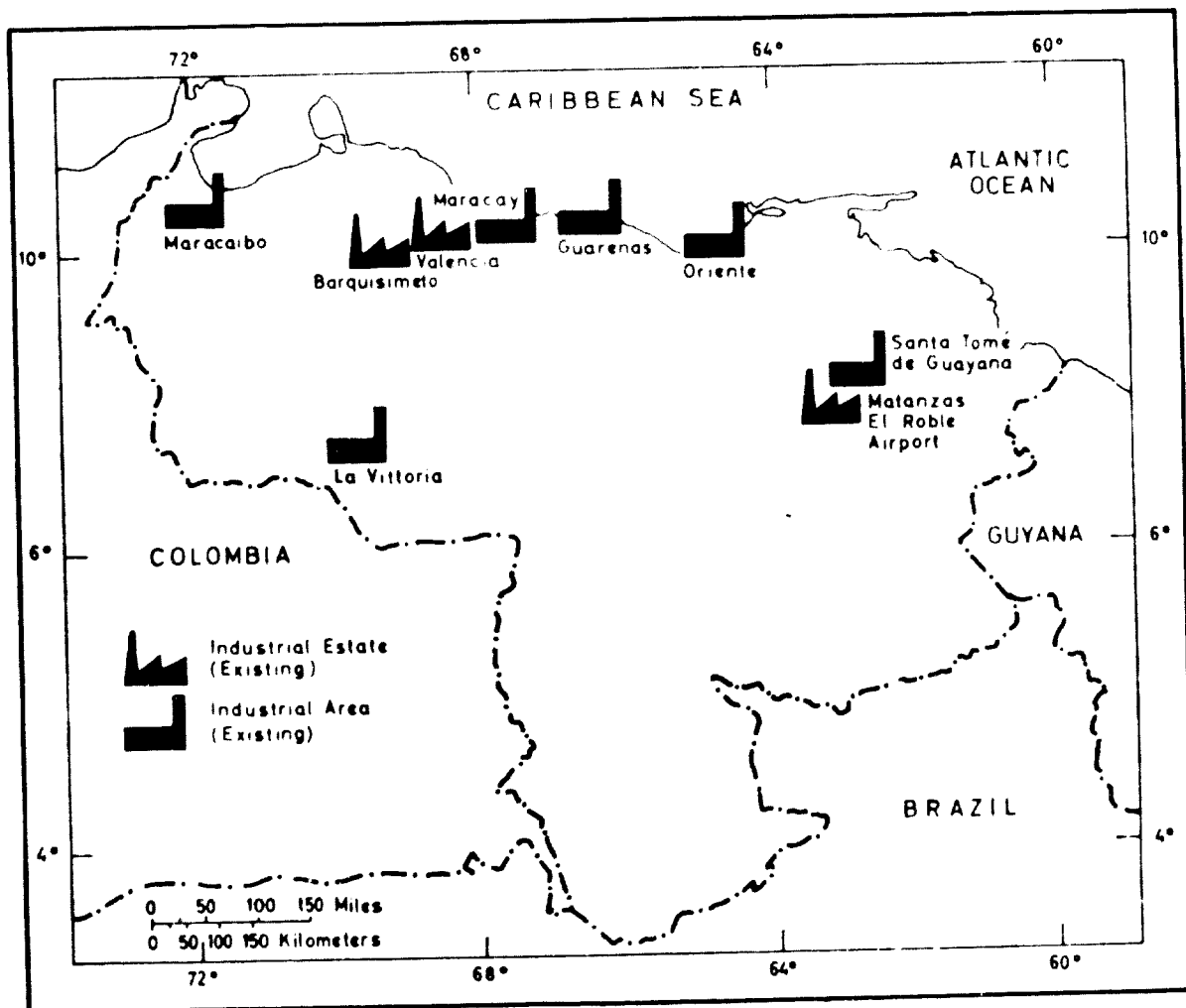
Industrial areas have also been established in La Vittoria and Cagua. At Santo Tomé de Guayana, a new town being developed at the confluence of the Orinoco and Ceroní rivers in south-eastern Venezuela by the Corporación Venezolana de Guayana (CVG), an autonomous public agency created by the Government in December 1960, several areas zoned for heavy and for light industries have been set up. The city is rapidly developing around several large industries—its population rose from 4,000 in 1950 to 42,000 in 1961 and to 70,000 in 1964, and is expected to reach 100,000 in 1966 and 400,000 by 1975.

The heavy industry area includes a large, fully integrated steel plant, foundries and forges; chemical industries; an aluminium plant; construction materials industries; and heavy machinery industries.

Three "industrial parks" have been set up for light manufacturing industries and for truck, storage and wholesale facilities: Matanzas, with 84 hectares (207 acres) and 47 plots; El Roble, with 7.4 hectares (18 acres) and 81 plots; and Airport, with 131 hectares (324 acres) and 33 plots. Additional industrial and commercial parks are being planned.

CVG is providing improved sites for sale or lease, help in the preparation of feasibility and market studies and help in obtaining investment capital. The Corporación Venezolana de Fomento provides financial assistance: it may purchase a site, build a factory, and lease it to an industrialist with an option to buy; it may also provide equipment on hire-purchase. CVG may participate in joint ventures, though it prefers private enterprise to take the full initiative. CVG is establishing elementary, secondary and technical training schools, may assist in organizing specialized worker training programmes, and considers the creation of a technological institute. In certain cases, the Ministry of Development may grant customs duties exemptions for imports of equipment and materials not available domestically. Reduced rates on power may sometimes be granted by CVG to large-scale consumers.

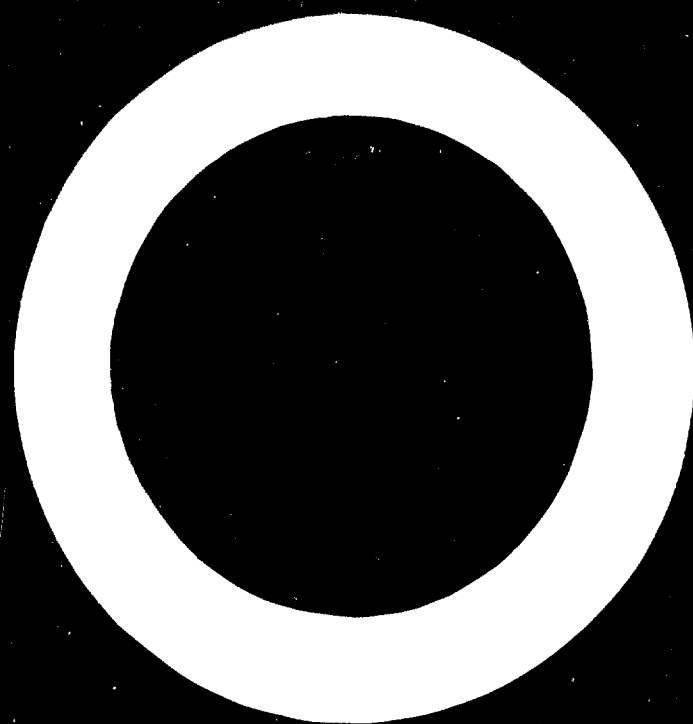
Among the small-scale industries already established in Ciudad Guayana, a certain number are producing materials or parts for the



large machinery and construction industries; they include sawmills; plants manufacturing clay products, cement products, brick and other building materials; machinery construction, assembly and repair shops; and electrical component manufacturing. Most of these enterprises employ ten to twenty workers each; some of them employ 25 to 45 workers. With the expected increase in population, opportunities exist in food, footwear, clothing, furniture, household chemical and many other consumer industries.

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**PART V**

*Evaluation of a Programme of Assistance to  
Small-Scale Industry: The Case of Chile*

Prepared by the Technical Co-operation Service of the Development  
Corporation of Chile



## INTRODUCTION

THE PURPOSE of this report is to evaluate the work carried out by the Technical Co-operation Service (Servicio de Cooperación Técnica (SCT)) for Small-Scale Industry and the Handicraft Trades<sup>1</sup> in Chile from its inauguration at the beginning of 1963 through 30 April 1966. In addition, the importance of its contribution to the national economy will be evaluated as objectively as possible.

In 1951, the Government approved a Basic Technical Co-operation Convention between Chile and the United States which laid the basis for SCT. The Convention provided for co-operation in the exchange of technical know-how for the purpose of developing the economic resources and productive capacity of Chile. In 1952, a co-operative agreement for technical assistance between the Development Corporation (Corporación de Fomento de la Producción (CORFO)) and the Institute of Inter-American Affairs was signed, under which SCT was set up. In 1960, SCT became an autonomous subsidiary of CORFO. Since then it has been in regular contact with the technical assistance services of the United Nations and other international organizations and governments. In 1963, a special department for assistance to small-scale industry and the handicraft trades was organized in SCT. The work of this department is evaluated in this paper.

## WORK ACCOMPLISHED BY THE TECHNICAL CO-OPERATION SERVICE

The Technical Co-operation Service began its work for small-scale industry in 1963. At present four of its programmes are devoted exclusively to encouraging the development of small-scale industry in Chile. These include:

- (a) Management and technological assistance;
- (b) Financial assistance;
- (c) Studies and projects;
- (d) Information and co-operation.

<sup>1</sup> "Small-scale industry" and "handicraft trades" are not defined by Chilean law. For the purposes of this paper "small-scale industry" is defined as those establishments employing between 10 and 30 persons, with fixed investments in machinery, equipment and tools valued at 10 to 50 "Santiago minimum annual wages", and with annual sales varying between 20 and 200 "Santiago minimum annual wages". "Handicraft trades" is defined as those establishments employing between 1 and 10 persons, with fixed investments in machinery, equipment and tools valued up to 10 "Santiago minimum annual wages". In 1965 the "Santiago minimum annual wage" was 2,495 escudos, the bank rate of exchange was 3.13 escudos = \$1.00 and the average open-market rate 3.76 escudos = \$1.00.



### MANAGEMENT AND TECHNOLOGICAL ASSISTANCE

This programme began in 1963 with the provision of management advice. Early in 1965, technological assistance for small-scale industries was added to the programme.

Management assistance is mainly concerned with production planning and control, costs, materials, layout of premises and equipment, methods and so on. Technological assistance is provided through three specialized groups. The first group (machinery) deals with product design, correct use of cutting tools, design of jigs, heat treatment and so on. The second group (chemicals) deals with the food industries, product finishes (paint, chrome and nickel) and chemical problems in general. Lastly, the third group (metallurgy) is concerned with moulding processes, correct use of foundry sand, smelting processes, design, estimates for building furnaces and hearths for the non-ferrous and ferrous metallurgical industries and so on.

Recommendations for assistance are submitted to the appropriate group in the form of reports on the enterprises. Table 1 shows that under this programme, through 30 April 1966, management assistance was given in 341 cases and technological assistance in 128 cases, a total of 469. In addition, 50 projects were being processed at that time. Approximately 70 per cent of these cases were located in Santiago and the remainder distributed throughout the rest of the country.

Table 2 classifies the same projects according to industry. Most of the management assistance falls within the classifications "manufacture and repair of metal articles", "wood products", and "textiles and clothing". Technological assistance was primarily given in "manufacture and repair of metal articles", and "foundry-work".

### FINANCIAL ASSISTANCE

The programme of financial assistance was begun in 1963. SCT passes on to CORFO applications for credit from the handicraft trades and small-scale industry. Credit is advanced and recovered by CORFO, but SCT supervises the use made of it. At the beginning of the programme, credit was given only to the handicraft trades; but since the end of 1965, credit has also been extended to small-scale industry.

Credit for the handicraft trades is in the form of non-readjustable loans, granted for a term of five years for financing fixed investments, or for a maximum of two years for increasing working capital. The interest charged amounts to between 70 to 100 per cent of the current bank rate during the first year and subsequently reaches the normal bank rate. This bank rate averaged 15.58 per cent in 1965 (variations were limited to less than 1 per cent).

Credit for small-scale industry is awarded under similar conditions if the term of the loan does not exceed five years. Loans for longer periods are made readjustable and carry an interest rate of

Table 1. Chile: SCT projects under the management and technological assistance programme through 30 April 1966, classified by province

Province	Management		Projects completed		Total		Projects in process		Total
	Number	%	Number	%	Number	%	Management	Technological	
Tarapacá	15	4.4	—	—	15	3.2	—	—	—
Antofagasta	2	0.6	—	—	2	0.4	—	1	—
Atacama	—	—	1	0.8	1	0.2	1	—	1
Coquimbo	—	—	—	—	—	—	1	—	1
Aconcagua	30	8.8	8	6.2	38	8.1	8	3	11
Valparaiso	238	69.7	93	72.7	331	70.6	11	21	32
Santiago	1	0.3	1	0.8	2	0.4	—	—	—
O'Higgins	—	—	—	—	—	—	—	—	—
Colchagua	3	0.9	3	2.3	6	1.3	—	—	—
Curicó	3	0.9	5	3.9	8	1.7	—	—	—
Talca	—	—	—	—	—	—	—	—	—
Linares	—	—	—	—	—	—	—	—	—
Maule	1	0.3	1	0.8	2	0.4	—	—	—
Nuble	20	5.8	2	1.6	22	4.7	1	—	1
Concepcion	—	—	—	—	—	—	—	—	—
Arauco	1	0.3	—	—	1	0.2	1	—	1
Bío-Bío	—	—	—	—	—	—	—	—	—
Malleco	11	3.2	8	6.2	19	4.1	—	—	—
Cautín	6	1.8	1	0.8	7	1.5	—	—	—
Valdivia	6	1.8	2	1.6	8	1.7	2	—	2
Osorno	4	1.2	3	2.3	7	1.5	—	—	—
Llanquihue	—	—	—	—	—	—	—	—	—
Total	341	100.0	128	100.0	469	100.0	25	25	50

Table 2. Chile: SCT projects under the management and technological assistance programme through 30 April 1966, classified by industry

Province	Management		Projects completed		Total		Projects in process		Total
	Number	%	Number	%	Number	%	Management	Technological	
Food products . . . . .	9	2.6	11	8.6	20	4.3	—	1	1
Textiles and clothing . . . . .	43	12.6	2	1.6	45	9.6	7	—	7
Chemical products . . . . .	21	6.1	10	7.8	31	6.7	1	3	4
Hides and leather products . . . . .	23	6.8	1	0.8	24	5.1	2	—	2
Paper and cardboard articles . . . . .	9	2.6	—	—	9	1.9	1	—	1
Wood products . . . . .	43	12.6	2	1.6	45	9.6	3	—	3
Printing . . . . .	4	1.2	—	—	4	0.9	1	—	1
Manufacture and repair of metal articles	117	34.3	44	34.3	161	34.2	7	12	19
Manufacture and repair of electrical items	16	4.7	—	—	16	3.4	—	1	1
Building materials . . . . .	7	2.1	2	1.6	9	1.9	1	—	1
Foundry-work . . . . .	34	10.0	52	40.5	86	18.4	1	5	6
Motor vehicle repair . . . . .	8	2.3	1	0.8	9	1.9	1	—	1
Laundries and dye works . . . . .	7	2.1	2	1.6	9	1.9	—	—	—
Footwear repair . . . . .	—	—	—	—	—	—	—	—	—
Rubber vulcanization . . . . .	—	—	—	—	—	—	—	—	—
Miscellaneous . . . . .	—	—	1	0.8	1	0.2	—	3	3
<b>Total</b>	<b>341</b>	<b>100.0</b>	<b>128</b>	<b>100.0</b>	<b>469</b>	<b>100.0</b>	<b>25</b>	<b>25</b>	<b>50</b>

Table 3. Chile: loans reported by SCT through 30 April 1966

	Total loans reported		Reports rejected		Reports approved		% <sup>a</sup>
	Number	Value (escudos)	Number	Value (escudos)	Number	Value (escudos)	
Loans to handicraft trades <sup>b</sup>	1,392	7,280,953	467	3,044,076	925	4,236,877	58.2
Loans to small-scale industries <sup>c</sup>	84	4,139,177	17	794,500	67	3,344,677	80.8
Total	1,476	11,420,130	484	3,838,576	992	7,581,554	66.4

<sup>a</sup> Percentage of the total of loans reported.

<sup>b</sup> The original values have been totalled directly in escudos for each year. These relate to the period between the end of 1963 and April 1966, during which the index of consumer prices rose by 43 per cent. The average rate of exchange in the period was 2.88 escudos = \$1.00 (bank rate of exchange).

<sup>c</sup> The original values have been totalled directly in escudos for each year. These relate to the period between the second half of 1965 and April 1966. The average rate of exchange was estimated at 3.51 escudos = \$1.00 (bank rate of exchange in January 1966).

Table 4. Chile: Loans approved and advanced by CORFO through 30 April 1966

	Loans approved		Loans advanced		Average value of loan advanced	
	Number	Value (escudos)	Number	Value (escudos)	%	(escudos)
Loans to handicraft trades <sup>b</sup>	875	3,976,756	520	2,124,771	50.1	4,086
Loans to small-scale industries <sup>c</sup>	51	2,496,288	18	655,045	19.6	36,389
Total	926	6,473,044	538	2,779,816	36.7	—

<sup>a</sup> Percentage of the total of loans approved by SCT.

<sup>b</sup> The original values have been totalled directly in escudos for each year. These relate to the period between the end of 1963 and April 1966, during which the index of consumer prices rose by 43 per cent. The average rate of exchange in the period was 2.88 escudos = \$1.00 (bank rate of exchange).

<sup>c</sup> The original values have been totalled directly in escudos for each year. These relate to the period between the second half of 1965 and April 1966. The average rate of exchange was estimated at 3.51 escudos = \$1.00 (bank rate of exchange in January 1966).

6 per cent a year. Readjustment is made according to the wholesale price index for domestic industrial products. The term of loans for working capital is twelve months and up to eight years for fixed capital investments.

Tables 3 and 4 show the over-all figures for credit reported by SCT and approved and paid by CORFO, together with the percentages for each. The information is classified into two parts: loans to handicraft trades and loans to small-scale industry. Data are not available for the classification of credit request reports by province or industry. A more detailed analysis follows.

#### *Loans for the handicraft trades*

Tables 5 and 6 show the collected statistics for loans to the handicraft trades through 30 April 1966. Eight hundred and seventy-five loans had been approved, totalling 3,976,756 escudos (approximately \$ 1,380,818),<sup>2</sup> of which 520, representing 2,124,771 escudos (approximately \$ 737,767), had actually been advanced at that date. The average value of loans advanced was 4,086 escudos (approximately \$ 1,148).

Table 5 classifies loans to the handicraft trades according to the province in which the establishment is located. Santiago accounted for 32 per cent of the number and 38 per cent of the value of the loans approved; these figures rose to 39 per cent and 46 per cent respectively of the loans actually advanced.

Table 6 groups loans by industry. Most assistance was given in the fields classified as "manufacture and repair of metal articles", "wood products", and "motor vehicle repair".

#### *Loans for small-scale industry*

Tables 7 and 8 give details on the loans for small-scale industry through 30 April 1966. Fifty-one loans, totalling 2,496,288 escudos (approximately \$ 711,193), had been approved, of which 18, representing 655,045 escudos (approximately \$ 186,622), had been paid. The average value of loans advanced was 36,389 escudos (approximately \$ 10,367). Loans of this type were first granted in 1965.

The tables also show that Santiago (province) accounted for approximately 70 per cent of the loans to small-scale industry and that most assistance was given for "manufacture and repair of metal articles" and "textiles and clothing". The figure for loans advanced for "hides and leather articles" is particularly high.

<sup>2</sup> The original values have been totalled directly in escudos for each year. These relate to the period between the end of 1963 and April 1966, during which the index of consumer prices rose by 43 per cent. The average rate of exchange in the period was 2.88 escudos = \$ 1.00 (bank rate of exchange).

Table 5. Chile: loans to handicraft trades approved and advanced by CORFO through 30 April 1966, classified by province

Province	Loans approved			Loans advanced		
	Number	%	Value <sup>a</sup> (escudos)	Number	%	Value <sup>a</sup> (escudos)
Tarapacá	—	—	—	—	—	—
Antofagasta	—	—	—	—	—	—
Atacama	25	2.9	95,600	6	1.2	14,860
Coquimbo	40	4.6	161,240	16	3.1	39,934
Aconcagua	57	6.5	204,290	22	4.2	59,147
Valparaíso	92	10.5	507,090	67	12.9	363,135
Santiago	280	32.0	1,520,644	201	38.6	986,370
O'Higgins	22	2.5	86,180	14	2.7	41,819
Coldhagua	19	2.2	45,400	6	1.2	7,595
Curicó	15	1.7	60,700	13	2.5	43,500
Talca	22	2.5	86,500	15	2.9	55,790
Linares	14	1.6	75,800	4	0.8	10,543
Maule	15	1.7	43,900	12	2.3	27,102
Nuble	9	1.0	47,500	2	0.4	7,214
Concepción	38	4.4	145,450	21	4.0	50,191
Arauco	8	0.9	32,600	2	0.4	4,178
Bío-Bío	19	2.2	73,350	8	1.5	33,829
Malleco	19	2.2	73,500	8	1.5	23,620
Cautín	34	3.9	154,000	18	3.4	89,779
Valdivia	8	0.9	21,600	4	0.8	11,493
Osorno	29	3.3	117,400	20	3.8	73,859
Llanquihue	24	2.7	109,312	13	2.5	43,348
Chiloé	16	1.8	60,500	6	1.2	22,100
Aysén	25	2.9	93,900	14	2.7	47,763
Magallanes	45	5.1	155,300	28	5.4	67,602
Total	875	100.0	3,976,756	520	100.0	2,124,771

<sup>a</sup> The original values have been totalled directly in escudos for each year. These relate to the period between the end of 1963 and April 1966, during which the index of consumer prices rose by 43 per cent. The average rate of exchange over the period was 2.88 escudos = \$ 1.00 (bank rate of exchange).

Table 6. Chile: loans to handicraft trades approved and advanced by CORFO through 30 April 1966, classified by industry

Industry	Loans approved		Loans advanced	
	Number	Value <sup>a</sup> (escudos)	Number	Value <sup>a</sup> (escudos)
Food products . . . . .	34	205,520	23	116,117
Textiles and clothing . . . . .	39	148,300	13	74,163
Chemical products . . . . .	19	125,200	14	76,299
Hides and leather products . . . . .	45	165,050	34	118,095
Paper and cardboard articles . . . . .	3	21,150	3	7,350
Wood products . . . . .	229	875,800	142	512,909
Printing . . . . .	47	185,240	31	125,810
Manufacture and repair of metal articles	235	1,260,586	149	644,825
Manufacture and repair of electrical items	42	123,250	20	57,269
Building materials . . . . .	21	86,160	10	46,882
Foundry-work . . . . .	—	—	—	—
Motor vehicle repair . . . . .	93	480,330	44	178,097
Laundries and dye works . . . . .	—	—	—	—
Footwear repair . . . . .	13	48,300	8	29,027
Rubber vulcanization . . . . .	18	97,850	7	40,679
Miscellaneous . . . . .	37	154,020	22	97,248
<b>Total</b>	<b>875</b>	<b>3,976,756</b>	<b>520</b>	<b>2,124,771</b>
		<b>100.0</b>		<b>100.0</b>
				<b>100.0</b>

<sup>a</sup> The original values have been totalled directly in escudos for each year. These relate to the period between the end of 1963 and April 1966, during which the index of consumer prices rose by 43 per cent. The average rate of exchange over the period was 2.88 escudos = \$ 1.00 (bank rate of exchange).

*Table 7. Chile: loans to small-scale industry approved and advanced by CORFO through 30 April 1966, classified by province*

Province	Loans approved			Loans advanced		
	Number	%	Value <sup>a</sup> (escudos)	Number	%	Value <sup>a</sup> (escudos)
Valparaíso . . . . .	5	9.8	339,221	3	16.7	157,230
Santiago . . . . .	37	72.5	1,791,675	12	66.7	376,615
Concepción . . . . .	4	7.8	108,565	1	5.5	21,200
Cautín . . . . .	1	2.0	60,000	1	5.5	60,000
Valdivia . . . . .	1	2.0	75,000	1	5.5	40,000
Osorno . . . . .	2	3.9	90,972	—	—	—
Chiloé . . . . .	1	2.0	30,855	—	—	—
Total	51	100.0	2,496,288	18	100.0	655,045

<sup>a</sup> The original values have been totalled directly in escudos for each year. These relate to the period between the second half of 1965 and April 1966. The average rate of exchange was estimated at 3.51 escudos = \$ 1.00 (bank rate of exchange in January 1966).



Table 8. Chile: loans to small-scale industry approved and advanced by CORFO through 30 April 1966, classified by industry

Industry	Loans advanced		Loans approved	
	Number	Value <sup>a</sup> (escudos)	Number	Value <sup>a</sup> (escudos)
Food products . . . . .	1	73,800	1	73,788
Textiles and clothing . . . . .	8	430,247	2	88,500
Chemical products . . . . .	2	94,700	2	45,943
Hides and leather products . . . . .	—	—	—	—
Paper and cardboard articles . . . . .	3	158,090	3	142,614
Wood products . . . . .	3	85,184	1	22,744
Printing . . . . .	—	—	—	—
Manufacture and repair of metal articles	21	1,034,770	4	145,200
Manufacture and repair of electrical items	2	44,973	1	11,295
Building materials . . . . .	—	—	—	—
Foundry-work . . . . .	1	20,700	1	20,700
Motor vehicle repair . . . . .	4	240,972	1	40,000
Laundries and dye works . . . . .	2	75,000	2	64,261
Footwear repair . . . . .	—	—	—	—
Rubber vulcanization . . . . .	—	—	—	—
Miscellaneous . . . . .	4	237,852	—	—
<b>Total</b>	<b>51</b>	<b>2,496,288</b>	<b>18</b>	<b>665,045</b>
		<b>100.0</b>		<b>100.0</b>
				<b>100.0</b>

<sup>a</sup> The original values have been totalled directly in escudos for each year. These relate to the period between the second half of 1965 and April 1966. The average rate of exchange was estimated at 3.51 escudos = \$1.00 (bank rate of exchange in January 1966).

## STUDIES AND PROJECTS

The SCT programme of studies and projects, organized in 1963, is concentrated primarily on carrying out studies and projects of a general nature and drawing up specific feasibility projects.

### *General projects*

Studies dealing with the background and general aspects of the operations of small-scale industry necessary for planning sectoral development fall within this category. Projects designed to benefit the whole sector or a group of small-scale enterprises are also included.

The programme can be divided into: (a) background studies, (b) projects and (c) direct action.

### *Feasibility studies*

Feasibility studies are carried out to ascertain the opportunities for setting up new enterprises in Chile. They include a market survey containing a report on the demand for the article and an industrial-technical report on the size of the proposed establishment and the equipment needed.

The projects may be (a) initiated by SCT; these may be projects suggested by the needs determined in the course of studies carried out within the service. Projects may also be (b) initiated by a third party; entrepreneurs who are not in a position to establish their own projects submit to SCT an idea for an item they consider feasible and profitable to produce. The study is begun after preliminary assessment.

The two groups of projects are further subdivided according to the locality where an industry may be established. Projects can be rejected if they are found to be: (a) inopportune after preliminary discussions; (b) inexpedient after a preliminary study; (c) not economically feasible after completion of the study; or if (d) the initial study has been transferred to some other body.

## INFORMATION AND CO-OPERATION

The information and co-operation programme was begun in March 1964 by the studies and projects section, and in January 1965 it was established as a separate programme for the purpose of improving the means at the disposal of small-scale enterprises for dealing with internal or external problems, promoting the reorganization of small-scale industries into associations and co-operatives, and preparing the establishment of a self-help organization for obtaining supplies of raw materials and for marketing products.

The current work of the information and co-operation programme is distributed into various areas: (a) collection and distribution of

information, (b) training courses, (c) organization of associations and co-operatives, (d) assistance in marketing, (e) product design, and (f) technical reports. Details of each of these activities are given below.

#### *Collection and distribution of information*

As of 30 April 1966, a total of 2,731 consultations had taken place in Chile (1,780, or 65 per cent, in Santiago, and 951, or 35 per cent, in other provinces). These consultations are concerned with studies on technical assistance, loans, training, suppliers, etc. carried out by SCT.

Pamphlets on various topics, e.g., legal matters, seminars and the SCT programmes, have been distributed throughout Chile (4,484 in Santiago and 5,976 in other provinces, for a total of 10,460 up to 30 April 1966).

#### *Training courses*

The programme has included courses on the management of small-scale enterprises and co-operatives, seminars on costing and finance, legislation in force, technical matters, etc. For a time, this activity was transferred to the vocational training department but has been taken over again by the information and co-operation programme. Relevant data are shown in table 9 below.

*Table 9. Chile: training courses held through 10 June 1966, classified by province*

<i>Province</i>	<i>Number of training courses</i>	<i>Number of participants</i>
Valparaíso . . . . .	14	230
Santiago . . . . .	17	280
Talca . . . . .	3	76
Concepción . . . . .	6	84
Cautín . . . . .	4	74
Valdivia . . . . .	1	16
Osorno . . . . .	2	46
Magallanes . . . . .	3	36
Total	50	842

#### *Formation of associations and co-operatives*

This activity deals with the formation of associations for a particular type of industry or group, of service co-operatives for small-scale industrialists and handicraft traders, and of groups of enterprises for specific activities or projects.

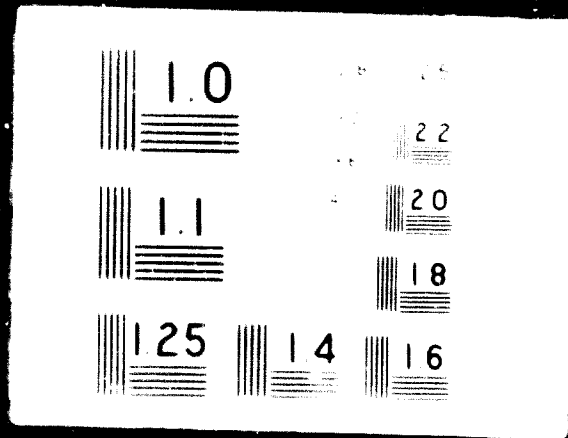


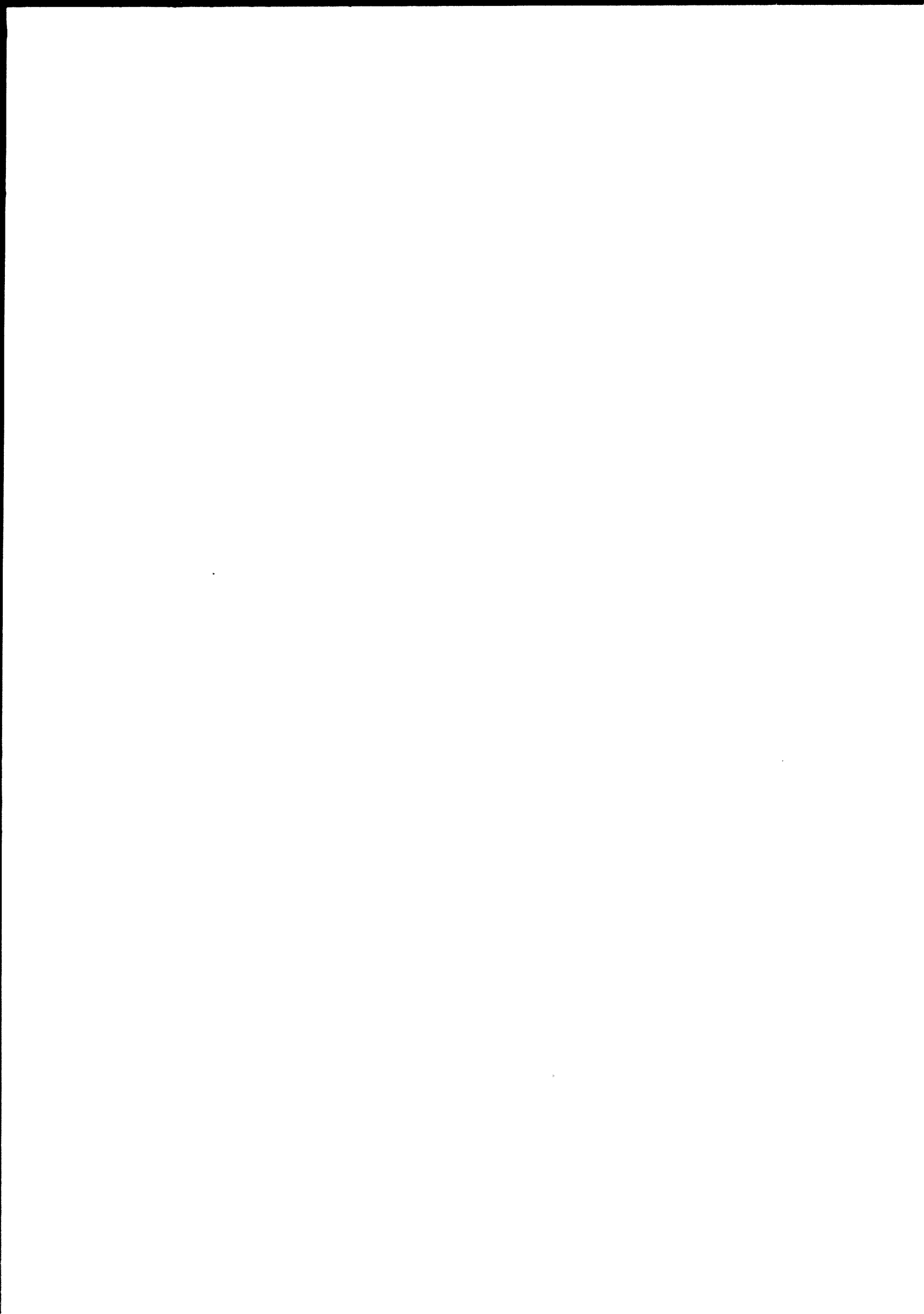
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*Associations.* Thirty six associations and co-operatives, with a membership of 1,400 small firms, employing about 17,250 workers, have been formed with direct assistance provided under this programme. The associations set up an executive committee of six representatives to organize a national confederation during 1966. Under the information and co-operation programme, advice is given to the problems with which it has to deal, the presentation of its reports to the authorities, and its relations with the representatives of other sectors of the economy.

*Co-operatives.* Apart from their intrinsic importance, the co-operatives organized under this programme are to form a basis for a self-help organization with financial support from CORFO and SCT.

#### *Assistance in marketing*

Groups of firms are advised on how to carry out operations common to all of them, e.g., purchases of raw materials, special types of marketing (tenders, subcontracting), combined exhibits at fairs, and applications for bank credit for such operations. In addition, about 30 small firms have received individual advice.

A number of large enterprises have subcontracted work to small-scale firms. The larger firms include: Empresa de Transportes Colectivos del Estado (FTC), Empresa Nacional de Electricidad S.A. (ENDESA), Ministerio de Obras Públicas (MOP), Empresa Nacional de Petróleo (ENAP), Fabrica de Vestuario del Ejército (FAVEE), and Municipalidad de Valparaíso.

The record of tenders and subcontracts obtained is: tenders, 847,816 escudos;<sup>3</sup> subcontracts, 163,649 escudos.

#### *Product design*

Under this programme co-operatives and small-scale firms had been assisted in the preparation of new designs for their products before the responsibility was transferred to the management and technological assistance programme in May 1966. The extent of this assistance has not been quantitatively verified.

#### *Technical advice*

Under this programme a number of advisory projects have been carried out that were not dealt with under the management and technological assistance programme because they fell outside its specific sphere of action.

<sup>3</sup> The average rate of exchange was estimated at 351 escudos = \$1.00 (bank rate of exchange in January 1966). This is considered a reasonable average as work under the programme began in 1965.

## EVALUATION OF THE VARIOUS PROGRAMMES OF THE TECHNICAL CO-OPERATION SERVICE

Although SCT has been operating for only a short time, the work accomplished can be evaluated for the purpose of orienting future activity. The evaluation of a programme of this kind, with its great variety of activities, the results of which are sometimes difficult to quantify or even to visualize, presents serious difficulties. It is hoped, however, that this first attempt will help to bring into clearer focus the methods that should be adopted for future evaluations.

### LIMITATIONS OF THIS EVALUATION

Evaluating the work carried out by SCT for small-scale industry is a complicated task and is subject to certain limitations, the most important of which are listed below.

#### *Lack of statistical background*

To evaluate the work of SCT, it is necessary to compare the development of the assisted firms with what may be considered a "normal" trend of development. The general increase in Chilean industrial production is taken as the normal pattern, but statistics in this case can serve only as a background, since they refer to the over-all growth of industrial manufacturing, including large-scale industry.

It would be preferable to use as a measure of comparison the situation of the assisted firms over a period of two or three years prior to their receiving assistance in order to ascertain their growth potential. It may well be that it is the somewhat less successful or below-average firms that ask for advice, although this does mean that the same would be true of those firms that apply for loans.

#### *Long-term nature of the results of assistance*

It is impossible to measure all the results of an activity on a short-term basis because changes take place gradually over a period of several years. At the present time it is hardly possible to estimate the changes or to measure the results obtained. This would especially be the case of technical assistance compared with financial assistance.

It takes even longer to obtain the results of the studies and projects programme because legal transactions, building, purchase of machinery, etc. can be begun only when the studies have been completed. Results cannot be assessed on the production of the first year but only on that of a normal year.



### *Difficulty in evaluating other results*

The results of some of the assistance provided to small scale industry are difficult to assess. The surveys carried out by the studies and projects programme and the information and co-operation programme perform tasks of a general nature such as the provision of training courses for managerial staff, publication of pamphlets, formation of associations and advice on marketing, and the effectiveness of such general work is difficult to determine.

Similarly, it is difficult to measure the benefits derived from services provided under technical assistance projects for raising the quality of the product, obtaining better information on costs, improving working methods and so on.

### *Difficulty in measuring the multiplier effect*

The provision of assistance to a small scale firm usually means an increase in its production and in the capacity of its staff, which in some measure has repercussions on other economic activities within the country (multiplier effect). In practice, it is impossible to measure the over-all impact of the assistance on the country's economy.

## EVALUATION OF THE VARIOUS PROGRAMMES OF SCT

### *Evaluation of the management and technological assistance programme*

As technological assistance was begun only early in 1965, it has not yet been possible to assess any of its benefits. Therefore, the evaluation will be limited to the management assistance given.

The evaluation is based on a sample of 52 inspected enterprises out of a total of 354. The firms inspected were not chosen at random; they were the first to receive management assistance. It may reasonably be expected that the enterprises visited more recently would produce better results, owing to the greater experience of the programme staff.

In this evaluation it has been assumed that the increase in sales is a result exclusively of the action taken by SCT, although there may be other factors about which information is lacking. The most important of these would be an increase in capital.

Table 10 shows the results of management assistance in relation to two criteria: actual increase in sales and increase in the labour force in the assisted enterprise. The time interval is that between the date of delivery of the report and the date of the inspection. Figures relating to the increase in sales may be compared with the increase in production recorded for the manufacturing industry in general over the same period (7.3 per cent for 1964 and 7.5 per cent for 1965, according to

data collected by the Statistical and Census Office). The official figures should not be relied on for more than background reference because the calculations are based solely on large-scale industry, and because the small firms dealt with are those that had asked for assistance, i.e., those firms doing badly or at any rate below average.

It should also be mentioned that the small industrialists were not able to put the recommended methods into practice immediately after completion of the reports but often required a period of more than two years.

Table 10 shows the firms evaluated under three headings according to type of industry. In the field of wood products, ten firms are evaluated. The sales went up 28.9 per cent, while the number of employees declined by 8.2 per cent, so that labour productivity rose 40.4 per cent over an average period of 21.5 months.

In the metal articles industry, labour productivity increased 8.0 per cent in a sample of 14 enterprises over a period of 19.5 months; in the group of 28 inspected firms under the heading "other", productivity rose 13.5 per cent in 19.1 months.

Totals for the 52 inspected enterprises show a 17.4 per cent rise in sales and a 1.5 per cent rise in the number of employees, giving an increase in productivity of 15.7 per cent over an average period of 19.7 months. For all industry in general, the Statistical and Census Office indicates an increase in production of 14.8 per cent over 24 months (1964 and 1965).

Table 10 also shows that the proportion of recommendations put into effect by the assisted firms was 49.5 per cent and that of recommendations to be implemented in the near future was 37.8 per cent of the total.

#### *Evaluation of the financial assistance programme*

The evaluation will be limited to the loans advanced to the handicraft trades; it is too early to analyse the results of loans to small-scale industry, as this form of credit began operating under normal conditions only at the end of 1965.

The results of the evaluation are partially based on the fact that the handicraft traders and small-scale industrialists had more funds at their disposal. SCT contributes to these results by selecting the appropriate recipients from among those seeking loans.

Table 11 shows the results of financial assistance in terms of the actual increase in sales and employees in the assisted enterprises. The figures in this table may be compared (for background reference only) with the increase recorded for the entire manufacturing industry in the two years 1964—1965 (14.8 per cent).

Table 10. Chile: evaluation of management assistance programme

Industry	Number of firms evaluated	Actual sales <sup>a</sup> and employees at time of first follow-up		Percentage variation between R and I	Months between R and I	Percentage of recommendation	
		Repos. R	Follow-up			Applied	To be implemented
Wood products	10				21.5	38.9	48.5
Sales (escudos)		133,791	172,399	28.9			
Employees		195	19	-82			
Labour productivity (escudos) <sup>b</sup>		686	963	40.4			
Metal articles	14				19.5	43.0	43.4
Sales (escudos)		400,699	410,494	2.4			
Employees		329	313	-4.9			
Labour productivity (escudos) <sup>b</sup>		1,218	1,312	8.0			
Other	28				19.1	58.4	31.2
Sales (escudos)		533,167	670,767	25.8			
Employees		423	469	10.9			
Labour productivity (escudos) <sup>b</sup>		1,260	1,430	13.5			
Total	52				19.7	49.5	37.8
Sales (escudos)		1,067,658	1,253,660	17.4			
Employees		947	961	1.5			
Labour productivity (escudos) <sup>b</sup>		1,127	1,305	15.7			

<sup>a</sup> The figures in these columns refer to actual monthly sales in terms of 1961 average rate of exchange (100 escudos = \$1.00)

<sup>b</sup> Labour productivity in sales in escudos/employee

<sup>c</sup> The percentages refer to a period of 19.7 months. The increase in sales corresponding to 12 months was 10.7 per cent.

Table 11. Evaluation of financial assistance programmes for handicraft trades in Santiago, Chile between September 1963 and December 1964

a. Status of handicraft trades

Industry and area in which loan was granted	Number of enterprises receiving loans	At date of loan		At first inspection (one year from loan)		At second inspection (two years from loan)	
		(Pesudos) Employees	Labour (Pesudos) Employees	(Pesudos) Employees	Labour (Pesudos) Employees	(Pesudos) Employees	Labour (Pesudos) Employees
<b>Wood products</b>							
Machinery . . . . .	7	20,555	25,748	36,926			
Raw materials . . . . .	2	2,113	2,170	3,048			
Machinery and raw materials	5	9,273	14,845	20,610			
Sub-total	14	31,942	42,765	60,585	78	776.73	
<b>Metal articles</b>							
Machinery . . . . .	27	80,554	111,801	193,876			
Raw materials . . . . .	6	39,445	47,779	51,804			
Machinery and raw materials	5	10,647	25,349	25,634			
Sub-total	38	130,647	184,929	271,314	224	1,211.22	
<b>Other</b>							
Machinery . . . . .	16	46,050	46,032	50,707			
Raw materials . . . . .	11	35,456	47,479	68,170			
Machinery and raw materials	11	20,476	21,682	25,658			
Sub-total	38	101,981	115,194	144,535	180	802.97	
<b>Grand Total</b>							
Machinery . . . . .	50	147,159	183,582	281,509			
Raw materials . . . . .	19	77,014	97,430	123,023			
Machinery and raw materials	21	40,396	61,876	71,902			
Sub-total	90	264,570	342,888	476,434	482	988.45	

## b. Percentage increase

Industry and area in which loan was granted	Number of enterprises receiving loans	From loan to first inspection (one year)		From first to second inspection (one year)		From loan to second inspection (two years)	
		Sales	Labour productivity <sup>a</sup>	Sales	Employees productivity <sup>b</sup>	Sales	Employees productivity <sup>b</sup>
<b>Wood products</b>							
Machinery . . . . .	7	25.2		43.4		79.6	
Raw materials . . . . .	2	2.7		40.5		44.2	
Machinery and raw materials	5	60.0		38.8		122.3	
Sub-total	14	33.9	(-1.2)	41.7	(-7.8)	89.7	12.6
<b>Metal articles</b>							
Machinery . . . . .	27	38.8		73.4		140.6	
Raw materials . . . . .	6	21.1		8.4		31.3	
Machinery and raw materials	5	138.0		1.1		140.8	
Sub-total	38	41.5	18.5	46.7	20.4	107.7	42.7
<b>Other</b>							
Machinery . . . . .	16	(-0.01)		10.2		10.1	
Raw materials . . . . .	11	33.9		43.5		92.2	
Machinery and raw materials	11	5.9		18.3		25.3	
Sub-total	38	13.0	4.1	25.5	17.6	41.7	22.5
<b>Grand Total</b>							
Machinery . . . . .	50	24.8		53.3		91.2	
Raw materials . . . . .	19	26.5		26.3		59.7	
Machinery and raw materials	21	53.2		16.2		78.0	
Sub-total	90	29.6	15.6	38.9	13.9	80.0	31.7

<sup>a</sup> Figures are given in 1965 average rate of exchange 3.13 escudos = \$1.00

<sup>b</sup> Labour productivity =  $\frac{\text{Sales}}{\text{employees}}$  in escudos/employee

The evaluation of financial assistance, like that of management assistance, is based on a sample. This sample covers 90 loans to handicraft trades out of a total of 520 advances made by CORFO up to 30 April 1966; all the cases refer to loans advanced in the capital, Santiago, as data from the provinces were not available at time of writing.

The enterprises evaluated are classified in table 11 by type of industry. In the area of wood products, where loans were advanced for machinery and raw materials, there was an increase in sales of 122.3 per cent over two years. The general increase in labour productivity was 52.8 per cent. In the metal articles industry, the loans that produced the greatest increase in sales over the two years were those advanced for machinery and raw materials. The general increase in labour productivity was 45.6 per cent, the sales increased by 107.7 per cent, and the number of employees rose 42.7 per cent. Under the heading "other", the loans advanced for raw materials produced the greatest increase in sales, contrary to what was observed in the two previous groups. The increase in labour productivity was only 15.7 per cent.

For all groups the increase in sales resulting from loans for raw materials was greater during the first year, whereas the increase in sales resulting from loans for machinery was greater in the second year.

The results for all groups combined show a total increase of 80 per cent in sales over the two years, an increase of 31.7 per cent in the number of employees, and an increase of 36.7 per cent in labour productivity.

The results obtained from the financial assistance programme cannot be compared with those produced by management assistance. The chief reason is that the two programmes of assistance are complementary rather than alternative. A loan to a small-scale enterprise may be insufficient if not coupled with management assistance.

It is to be expected, therefore, that the results obtained from loans granted after a management survey of the enterprise will be better than the results of financial assistance that merely reorganizes the available resources of a small-scale industrialist.

#### *Evaluation of the studies and projects programme*

The principal task of this programme consists in drawing up industrial projects, some on the initiative of SCT and others suggested by individuals seeking to put their ideas into practice. To achieve results under this programme, the necessary capital must be available for implementing the project.

Consequently, the data evaluated are as much a result of the availability of financial resources for investment as they are of the activity of SCT. As one cannot be separated from the other, the evaluation below refers to the overall result.

The evaluation of the programme is presented in table 12 below. Projects are classified according to the year in which they were to go into operation. The table shows that between 1966 and 1968, 33 new industries should generate sales amounting to 23,048,789 escudos and should employ 473 persons.

In addition, the following have been prepared under the programme:

- (a) Thirty-eight projects of a general nature, not evaluated quantitatively because their purpose is to benefit the entire small-scale industry sector (e.g. the United Nations Development Programme (UNDP) Special Fund project, already approved), and because some of them are derived from the development work of the information and co-operation programme, the results of which are mentioned in the evaluation of that programme;
- (b) Rejection after preliminary study of 40 proposals for the establishment of new enterprises;
- (c) Nineteen projects in the final stage of elaboration with very good prospects of leading to the establishment of new enterprises; it is estimated that the sales of these 19 enterprises would amount to about 7,600,000 escudos a year (1965 value);
- (d) Eighteen proposals at a preliminary stage of examination.

#### *Evaluation of the information and co-operation programme*

Because of the nature of the programme's objectives, fiscal and economic benefits cannot be evaluated over a short period of time (two years). In addition, considering the close interrelationship between the small-scale industry programmes of SCT, it is impossible to derive valid results by studying any one isolated programme. However, some preliminary results and conclusions may be noted below:

- (a) Throughout the public sector there is increasing readiness to attach greater importance to the development of small-scale industry in economic plans. In the private sector the special features of this category of industry are being recognized and given sufficient attention.

Table 12. Chile: SCT projects to be completed, 1966—1968, showing estimated annual sales and number of employees

Project	Estimated annual sales* pesucdos			Estimated number of employees		
	1966	1967	1968	1966	1967	1968
COMPIA	—	—	—	—	29	29
Hosiery dyeworks	194,400	388,800	388,800	15	15	15
Dispensing and batching apparatus	428,800	636,000	636,000	9	12	12
Bacon slicers	212,600	216,000	216,000	3	5	5
CIME workshops, San Felipe	124,500	124,500	124,500	7	7	7
Domestic fittings workshops Wrenches etc.	—	156,564	313,128	—	10	21
Mechanical screws	132,000	132,000	264,000	6	9	9
Lawn mowers	816,624	598,857	688,685	27	30	30
Calcium carbonate	52,000	325,000	325,000	6	13	13
CIME workshop, Chillan	77,500	310,000	310,000	22	22	22
CIME workshop, Talca	—	124,500	124,500	—	7	7
CIME workshop, Santa Cruz	—	124,500	124,500	—	7	7
Rebuilt engine workshop	—	660,000	660,000	—	11	11
Cutting tools for lathes	282,000	282,000	282,000	4	4	4
Sawmill, Palena	—	120,000	120,000	—	5	5
Flour mill, Palena	—	207,000	207,000	—	2	2
CIME workshop, Curico	—	—	124,500	—	—	7
CIME workshop, Parral	—	—	124,500	—	—	7
Pressed bricks factory	—	—	1,000,000	—	—	29
Electric drills	—	—	400,000	—	—	14
Brewery, Lota	—	—	900,000	—	—	24
Magnesium hydroxide	—	—	265,875	—	—	12
Syringes	—	—	540,270	—	—	14
Promotion of common workshops	—	—	270,000	—	—	15
Taps, dies, bits	—	—	4,000,000	—	—	35
Grills, gratings	—	—	337,000	—	—	12
Oxalic acid	—	—	210,000	—	—	12
Meat processing, Puerto Montt	—	—	2,417,386	—	—	64
Dried fish, Tenglo	—	—	700,000	—	—	22
Total	2 320,424	4,530,221	16,198,144	99	195	473

\* Figures are based on the average price of the year 1960. Source: SCT, Santiago, 1968, p. 120.

- (b) Small-scale industrialists are now in a better position, through their organizations, to encourage this favourable trend.
- (c) Study of the legislative measures for encouraging small-scale industrial enterprises is practically completed.



- (d) There are no over-all figures for the volume of business handled in the small-scale sector, but assistance was given under this programme for commercial transactions relating to supplies, sales, subcontracting and services, involving more than 1,700,000 escudos. Another indication of increased activity is the constant flow of information from suppliers of machinery and raw materials.
- (e) Operations are being carried out in Santiago, Valparaíso, Talca, Concepción and Temuco, and a special project is being undertaken in Llanquihue. It has not been possible to deal with repeated requests for assistance from the other twelve provinces.
- (f) Once the initial structure of small-scale industry associations and co-operatives has been set up, these institutions encourage a growing demand for extended assistance.

The attempt will be made as far as possible to evaluate each specific activity under this programme, corresponding to the details of the activities listed earlier.

#### *Collection and distribution of information*

It is impossible to evaluate, in terms of economic benefits, the service provided by SCT in collecting and distributing information. Although such services are a normal feature of government and private productivity programmes in Europe, the information programme of SCT is the only one of its kind in Chile.

#### *Training courses*

As a result of the training courses, it would appear that there has been an increase of between 5 and 10 per cent in the productivity of the enterprises involved. At present there is no possibility of measuring the increase in sales, because records were not kept during the time that staff members attended the training courses.

#### *Formation of associations and co-operatives*

One way of evaluating the work accomplished in this field is to examine the resources available to these co-operatives, which show the additional capitalization of small industry. Table 13 below includes this data.

Table 13. Chile: estimated capital resources for industrial co-operatives through 1967

(Escudos)

	Authorized capital	Paid-up capital
COOPIAM . . . . .	36,000	14,400
COOPECAL . . . . .	9,100	1,820
COOPICEM . . . . .	15,000	3,000
STO. DOMINGO LA LIQUA . . . . .	20,000	4,000
VALLE HERMOSA . . . . .	3,840	500
FRATERNIDAD LTDA . . . . .	120,000	4,000
SOCOMADE . . . . .	20,000	12,022
COOP. LLANQUIHUE . . . . .	600,000	35,800
EL ESFUERZO . . . . .	2,000	2,000
COOPREVEN . . . . .	5,000	1,000
COOP. GARANTIA VALPARAÍSO . . . . .	15,000	2,800
COOP. GARANTIA CONCEPCIÓN . . . . .	15,000	—
COOPIAMADE . . . . .	10,000	10,000
Total through 30 June 1966	<u>870,940</u>	<u>91,342</u>
<i>Estimate for 31 December 1966</i>		
Paid-up at this date . . . . .	—	180,000
COMPIA . . . . .	890,000	180,000
BOLSA SUBCONTRATACIÓN . . . . .	100,000	20,000
Cumulative total through 31 December 1966 . . . . .	<u>1,860,940</u>	<u>471,342</u>
<i>Estimate for 31 December 1967</i>		
Paid-up at this date (equalling authorized capital) . . . . .	—	1,389,598
COOPERATIVA CAUTIN . . . . .	100,000	20,000
COOPERATIVA METALÚRGICA . . . . .	200,000	40,000
Cumulative total through 31 December 1967 . . . . .	<u>2,160,940</u>	<u>1,920,940</u>
<i>Estimate for 31 December 1968</i>		
Paid-up at this date (equalling authorized capital) . . . . .	—	240,000
Cumulative total through 31 December 1968 . . . . .	<u>2,160,940</u>	<u>2,160,940<sup>a</sup></u>

<sup>a</sup> Approximately 8 700 000

At the time of writing three co-operatives had begun purchasing operations. The others will do so as shown in table 14 below.

Table 14. Chile: estimated purchasing operations by industrial co-operatives through 1967

(Escudos)

Co-operatives in operation	Estimated purchasing operations		
	Through 30 June 1966	From 30 June 1966 to 31 Dec. 1966	From 1 Jan. 1967 to 31 Dec. 1967
COOPIAM . . . . .	180,000	80,000	200,000
LIGUA . . . . .	41,000	30,000	120,000
SOCOMADE . . . . .	550,000	200,000	500,000
<i>Projected co-operatives</i>			
COOPECAL . . . . .	—	30,000	60,000
COOPICEM . . . . .	—	10,000	50,000
COOPIAMADE . . . . .	—	30,000	80,000
COMPIA . . . . .	—	450,000	1,800,000
COOPERATIVA CAUTÍN . . . . .	—	100,000	400,000
Total	771,000	930,000	3,210,000
Net savings <sup>a</sup>	230,000	280,000	960,000

<sup>a</sup> Net savings are the additional discounts obtained by small industrialists through group buying, representing approximately 30 per cent of total transaction.

#### Assistance in marketing and technical advice

The figures in table 15 below refer exclusively to net increases in sales resulting from direct assistance under this programme, including direct sales by the co-operatives, subcontracting, submissions for public and private tenders, exhibitions and fairs. Increases in sales resulting from direct assistance to individual firms and later sales by exhibitors at the fairs are not included.

Table 15. Chile: forecast of various transactions by industrial co-operatives through 1967

(Escudos)

	Estimated transactions		
	Through 30 June 1966	From 30 June 1966 to 31 Dec. 1966	From 1 Jan. 1967 to 31 Dec. 1967
Sales by co-operatives etc. . . . .	237,000	500,000	1,800,000
Subcontracting . . . . .	154,000	—	—
Bolsa subcontratación (sub- contracting exchange) . . . . .	—	250,000	1,200,000
Tenders . . . . .	366,000	—	—
Sales at fairs . . . . .	200,000	—	—
COMPIA . . . . .	—	100,000	6,000,000
Total <sup>a</sup>	957,000	850,000	9,000,000

<sup>a</sup> Figures are based on 1965 average rate of exchange: 3.13 escudos = \$1.00 (bank rate of exchange).

The marketing assistance programme has covered the following fields: promotion of subcontracting by small-scale industry for large undertakings, estimation of market demand, volume and specification

of supply, contracts between subcontracting parties, surveys of costs, and price lists.

At the time of writing, a project was being drawn up for a subcontracting exchange (bolsa subcontratacion), to be established in the second half of 1966.

The technical advice given has not been evaluated.

## COSTS AND BENEFITS OF ASSISTANCE PROVIDED

THIS CHAPTER gives details of the costs of the SCT programme of aid for small-scale industry from its inception and evaluates its effectiveness in terms of benefits to the country.

Although the essential object of SCT is to raise productivity in small-scale industry and the handicraft trades and not to produce financial benefits for the Government, it is interesting, by way of illustration, to present the calculation in the form of monetary benefits and compare them with the cost of assistance. This section amplifies the evaluation of the programme given earlier.

The first aspect to be examined concerns the over-all and specific costs of each assistance programme for small-scale industry. Next, the benefits of activities undertaken under the management and technological assistance and financial assistance programmes are listed. Benefits under the studies and projects programme and the information and co-operation programme are assessed separately because their results are of a long-term nature and must be measured in a manner different from those of the other programmes.

### COST OF SCT ASSISTANCE PROGRAMMES FOR SMALL-SCALE INDUSTRY

The costs of SCT assistance to small-scale industry are shown in tables 16, 17 and 18 below. Table 16 shows the expenses incurred in each programme classified under salaries and operating expenses. Costs are shown in terms of the escudo at its actual value in the year in which assistance was granted and in 1965 escudos. The final cost for the SCT programmes amounted to 4,000,298 escudos in current value, or 4,736,137 escudos in 1965 value, roughly equal to \$1,513,143.

Table 17 shows the over-all cost for each programme of assistance classified according to whether the activity is capable or not of being evaluated. Evaluating certain types of activity is often impossible because in some cases the benefits in monetary terms are not known and in other cases, the actual benefits cannot be measured.

Table 18 shows only the unit costs of the programmes evaluated in table 17.

### BENEFITS OF THE MANAGEMENT ASSISTANCE AND FINANCIAL ASSISTANCE PROGRAMMES

The benefits of these assistance programmes for small-scale industry are analysed in tables 19 and 20 below. Table 19 shows the annual monetary benefits in the form of larger receipts from the sales tax and profits tax. It is assumed that the sales tax averages 6 per cent; the profits tax averages 20 per cent and represents 1 per cent of sales (assuming that the industrialist's profit before tax amounts to 5 per cent of sales). Table 19 therefore shows that the Government obtained 1,548,836 escudos in estimated additional receipts from the sales tax and 258,139 escudos from the profits tax. The increase in sales over a year is considered in relation to the calendar year immediately preceding.

Table 19 also shows an increase in sales of 25,820,957 escudos. It is not known what direct and indirect impact this and the increase in personnel may have had on the national income. Assistance also leads to a more effective utilization of the available machinery and greater productivity in general, the benefits of which are not known.

The results of some of the activities can be evaluated only on a long-term basis. This means that the management and technological assistance programme has not yet achieved the full planned results because the recommendations have to be applied over a period of two to four years.

Direct annual benefits from 1966 on will amount to 1,919,603 escudos (8 637,892). This does not take into account a favourable cumulative carryover that began in 1964. When this figure is compared with the cost to SCT of evaluated studies, it is evident that the Government suffers a loss of 599,474 escudos through the management and technological assistance programme, but gains a surplus of 184,009 escudos under the financial assistance programme, excluding the indirect benefits referred to which have not been measured in escudos.

The benefits are calculated on the assumption that these enterprises would not have shown any growth if they had not received assistance from SCT. Although this might not be true, it is compensated for in that indirect benefits produced by SCT assistance have not been taken into account because they cannot be measured in escudos. The enterprises that seek assistance are those that have below-average growth rates.

Table 20 below shows the annual increase in personnel (1,288) as a direct result of SCT assistance; this means an increase in income tax receipts of 189,603 escudos (5.9 per cent). The increase in staff is based on the entire period between the date of delivery of the survey or financial assistance and the final inspection. This is because it may be assumed that the enterprises will in the future at least retain the number of employees they had at the date of inspection. The same applies to sales.

Table 16. Chile: total cost of assistance programmes for

	1963 <sup>a</sup>		1964	
	Current escudos	1965 escudos <sup>b</sup>	Current escudos	1965 escudos <sup>b</sup>
Management and technological assistance				
Salaries . . . . .	115,267	315,487	255,641	329,343
Operating expenses .	—	—	22,921	29,529
Financial assistance				
Salaries . . . . .	145,199	397,409	223,067	287,377
Operating expenses .	—	—	36,400	46,894
Studies and projects				
Salaries . . . . .	100,325	274,589	198,649	255,919
Operating expenses .	—	—	89,490	115,290
Information and co-operation				
Salaries . . . . .	—	—	—	—
Operating expenses .	—	—	—	—
Total				
Salaries . . . . .	360,791	987,485	677,357	872,640
Operating expenses .	—	—	148,810	191,714
Grand total	360,791	987,485	826,168	1,064,353

<sup>a</sup> Expenses incurred for salaries etc. and operating expenses are shown together; individual proportion of each is not known.

<sup>b</sup> To express current value in 1965 escudos, the index of consumer prices (IPC) was used; figures are based on 1965 average bank rates of exchange, 3.13 escudos = \$ 1.00.

Table 17. Chile: cost of assistance programmes for small-scale industry,  
30 April

Programme	Number of cases	Total cost <sup>b</sup>	
		Current escudos	1965 escudos
Management and technological assistance <sup>c</sup> . . . .	494	1,543,487	1,768,114
Financial assistance <sup>d</sup> . . . . .	1,059 <sup>e</sup>	1,007,221	1,310,886
Studies and projects <sup>f</sup> . . . . .	148	962,258	1,194,381
Information and co-operation <sup>g</sup> . . . . .	—	487,333	462,756
Total		4,000,299	4,736,137

<sup>a</sup> Expenditure refers to salaries and operating expenses; investments are not included.

<sup>b</sup> Figures from table 16.

<sup>c</sup> Number of cases obtained from table 1: made up of 469 completed projects plus 25 estimated completed out of the 50 in progress. The figure 354 for evaluated projects refers to 341 management assistance projects plus 13 estimated completed out of 25 in progress.

*small-scale industry, from inception in 1963 to 30 April 1966*

1965 <sup>a</sup> 1965 escudos	1966 <sup>b</sup> Current escudos	1965 <sup>c</sup> escudos <sup>b</sup>	Total Current escudos	1965 <sup>d</sup> escudos <sup>b</sup>
694,510	355,555	285,222	1,400,973	1,624,561
82,467	37,126	31,557	142,514	143,553
384,796	143,153	121,680	896,215	1,191,262
62,097	12,509	10,633	111,006	119,624
312,122	151,713	128,956	762,808	971,586
93,591	16,369	13,914	199,450	222,795
278,600	140,020	119,017	418,620	397,617
44,886	23,827	20,253	68,713	65,139
1,670,028	770,440	654,874	3,478,616	4,185,026
283,040	89,831	76,357	521,682	551,110
1,953,068	860,272	731,231	4,000,298	4,736,137

<sup>a</sup> Investments in 1965 amounted to 121,735 escudos (all programmed), but these are not included in the table.

<sup>b</sup> Up to 30 April 1966, investments in 1966 amounted to 7,945 escudos (all programmed), but these are not included in the table.

*classified according to whether or not evaluated, from inception in 1963 to 1966<sup>a</sup>*

Number of cases	Cost of evaluated studies		Number of cases	Cost of non-evaluated studies	
	Current escudos	1965 escudos		Current escudos	1965 escudos
354	1,106,061	1,267,029	140	437,426	501,085
925	879,773	1,145,014	134	127,448	165,872
110	715,192	887,716	38	247,066	306,665
—	—	—	—	487,333	462,756
—	2,701,026	3,299,759	—	1,299,273	1,436,378

<sup>a</sup> The 1,059 reported loans includes the 925 loans to handicraft trades approved by SCT and the 67 loans to small-scale industry also approved. The loans to small-scale industry involve twice as much work and are therefore equivalent to 134.

<sup>b</sup> Approvals only; excludes the 484 reported on unfavourably.

<sup>c</sup> The figure 148 includes 38 general projects for the benefit of the entire small-scale industry sector, the results of which are difficult to evaluate. The cost of projects is divided proportionately between the 110 evaluated and the 38 non-evaluated ones.

<sup>d</sup> This expenditure is classified as a non-evaluated project as it is for the benefit of small-scale industry in general.

Table 18. Chile: unit cost per study in the assistance programmes for small-scale industry from inception, in 1963 to 30 April 1966

Programme	Number of evaluated studies <sup>a</sup>	Expenditure on evaluated studies <sup>a</sup>		Unit cost per study	
		Current escudos	1965 escudos	Current escudos	1965
Management and technological assistance . . .	354	1,106,061	1,267,029	3,124	3,579
Financial assistance <sup>b</sup> . . .	925	879,773	1,145,014	951	1,238
Studies and projects . . .	110	715,192	887,716	6,502	8,070

<sup>a</sup> Data from table 17.

<sup>b</sup> Not including the reports unfavourably evaluated.

Table 19. Chile: annual increase in Government receipts from sales tax and profits tax (1965 escudos)

	Number of evaluated studies <sup>a</sup>	Monthly sales per enterprise before study <sup>b</sup>	Total annual sales <sup>b</sup>	Increase in sales <sup>c</sup>	Increase in receipts from sales tax <sup>d</sup>	profits tax <sup>e</sup>
Management and technological assistance . . .	354	20,532 <sup>f</sup>	82,219,936	9,339,533	559,951	93,325
Financial assistance . . .	925	3,810 <sup>g</sup>	42,368,700	16,481,424	988,885	164,814
Total	1,279	24,342	129,588,636	25,820,957	1,548,836	258,139

<sup>a</sup> Data from table 18.

<sup>b</sup> Calculated by multiplying average sales per enterprise assisted for twelve months.

<sup>c</sup> Calculated from the total of annual sales plus the percentage increases calculated from tables 10 and 11 (i.e. 10.7 and 38.9 per cent).

<sup>d</sup> Calculated as 6 per cent of the increase in sales.

<sup>e</sup> Calculated as 22 per cent of the increase in profits, which is estimated as 5 per cent of the increase in sales.

<sup>f</sup> Calculated from figures in table 10.

<sup>g</sup> Calculated from figures in table 11.

Table 20. Chile: annual increase in Government receipts from income tax

	Staff members per enterprise before study	Number of studies	Total staff before study <sup>a</sup>	Increase in staff members <sup>b</sup>	Increase in remuneration <sup>c</sup> (1965 escudos)	Tax on wages <sup>d</sup> (1965 escudos)
Management and technological assistance . . .	18.2 <sup>e</sup>	354	6,443	97	242,019	14,279
Financial assistance . . .	4.06 <sup>f</sup>	925	3,756	1,191	2,971,593	175,324
Total		1,279	10,199	1,288	3,213,612	189,603

<sup>a</sup> Calculated by multiplying staff per enterprise by number of studies.

<sup>b</sup> Calculated by adding the percentage increases calculated in tables 10 and 11 (i.e., 1.5 and 31.7 per cent) to staff total.

<sup>c</sup> Assuming an individual remuneration of 2,495 escudos (1965 annual living wage).

<sup>d</sup> Calculated as 5.9 per cent of the increase in remuneration (2.4 per cent direct tax (housing and reconstruction of educational establishments plan) and 3.5 per cent income tax).

<sup>e</sup> Calculated from figures in table 10.

<sup>f</sup> Calculated from figures in table 11.



Table 21 below compares the costs and benefits of the programmes as they were described in previous pages and tables.

The total expenses incurred by SCT for small-scale industry through the management and technological assistance and financial assistance programmes, from 1963 to 30 April 1966 amounted to 2,412,043 escudos (1965 value). The annual benefits derived from the assistance given amounted to 1,996,578 escudos (1965 value). It is obvious that each year the country will receive the benefits shown in table 21. On the other hand, the costs will not continue to accumulate, since new expenditures will benefit other enterprises and projects.

#### COSTS AND BENEFITS OF THE STUDIES AND PROJECTS PROGRAMME

According to table 17, the total cost of this programme up to 30 April 1966 was 887,716 escudos (1965 value). This figure does not include 306,665 escudos representing the cost of 38 projects of a general character, which were not evaluated quantitatively, but did benefit the small-scale industry sector as a whole.

The financial benefits to the Government in the form of higher returns from taxes are shown in table 22 below. From 1968 (considered "normal") on, actual receipts will be approximately 1,148,484 escudos (1965 value) a year (approximately \$ 366,928). Apart from the financial benefits, it should be realized that this programme will make a real contribution to national development by promoting investment in non-industrialized regions and providing new opportunities for productive employment.

In addition to the benefits mentioned in the preceding paragraphs, the implementation of ten industrial projects for the northern zone and nine for the central and southern zones was being studied under the programme as of 30 April 1966.<sup>4</sup> The northern zone projects were initiated early in 1966 and at the time of writing had excellent prospects of being put into operation. It is estimated that the future annual income from these nineteen projects would be approximately 7,600,000 escudos calculated in 1965 escudos (\$ 2,428,150). Direct benefits to the Government from the nineteen projects are estimated at 500,000 escudos (1965 value) a year. Part of the cost has already been included in the figure of total costs for the programme up to 30 April 1966.

<sup>4</sup> The projects under consideration in the northern zone include: concentrated foods, poultry incubators, dried fish, diatomite, engine-rebuilding, machine parts salvage, salt-refining, castor oil, corned beef manufacture, copper leaching. Projects under consideration in the central and southern zones include: paper-making machinery, activated clay, spare parts for agricultural machinery, mouldings for boats, hand saws, band-saws, scissors and shears, wood panelling, apple by-products.

Table 21. Chile: comparison of costs and benefits of the management and technological assistance and financial assistance programmes  
(1965 escudos)

Programme	Costs from 1963 to 30 April 1966 <sup>a</sup>	Annual benefits			Total benefits	Difference between costs and benefits <sup>d</sup>
		From sales tax <sup>b</sup>	From profit tax <sup>b</sup>	From income tax <sup>c</sup>		
Management and technological assistance . . . .	1,267,029	559,951	93,325	14,279	667,555	-599,474
Financial assistance . . . . .	1,145,014	988,885	164,814	175,324	1,329,023	+184,009
Total	<u>2,412,043</u>	<u>1,548,836</u>	<u>258,139</u>	<u>189,603</u>	<u>1,996,578</u>	<u>-415,465</u>

<sup>a</sup> Data from table 17.

<sup>b</sup> Data from table 19.

<sup>c</sup> Data from table 20.

<sup>d</sup> Annual benefits minus costs.

*Table 22. Chile: comparison of estimated costs and benefits of the studies and projects programme*

(1965 escudos)

	1966 (May--December)	1967	1968 normal year	Total through 1968
Sales . . . . .	2,320,424	4,530,221	16,198,144	23,048,789
Number of persons employed . . . . .	99	195	473	473
Wages and salaries paid <sup>a</sup> . . . . .	161,345.92	486,532.80	1,180,153.92	1,828,32.63
Number of projects <sup>b</sup> . . . . .	9	19	33	33
Direct benefits to the Government				
From sales tax <sup>c</sup> . . . . .	131,345	256,428	916,875	1,304,648
From profits tax <sup>d</sup> . . . . .	23,204	45,302	161,981	230,487
From income tax <sup>e</sup> . . . . .	<u>9,519</u>	<u>28,705</u>	<u>69,628</u>	<u>107,852</u>
Total Government receipts . . . . .	164,068	330,435	1,148,484	1,642,987
Total evaluated costs from inception in 1963 to 30 April 1966 <sup>f</sup> . . . . .				<u>887,716</u>
Balance in favour of the Government . . . . .				755,271

<sup>a</sup> Calculated at the rate of 2,495.04 escudos (1965 "Santiago minimum living wage" - the managerial staff of the enterprises would undoubtedly receive higher salaries.

<sup>b</sup> Details of these projects are shown in table 12.

<sup>c</sup> Calculated as 6 per cent of sales.

<sup>d</sup> Assuming a gross profit of 5 per cent of sales, to which the general rate of tax at 20 per cent is applied, the result being 1 per cent of sales.

<sup>e</sup> Calculated as 5.9 per cent of income.

<sup>f</sup> Data from table 17.

#### BENEFITS FROM THE INFORMATION AND CO-OPERATION PROGRAMME

In the light of the programme's objectives, evaluated elsewhere in this report, it is difficult to determine what part of the small-scale industry sales may be directly attributed to provision of training courses, establishment of co-operative groups, associations, etc. Such assistance to small-scale industry cannot be evaluated in terms of direct economic benefits. It is, however, an important means for modifying the background or external factors affecting the enterprises and projects.

The only direct benefits that can be calculated are indicated in table 23 below, which shows a total of 324,420 escudos accumulated by 1968. The benefits for 1966 correspond to the 6 per cent sales tax on a sales volume of 1,807,000 escudos directly due to co-operatives, subcontracting, tenders and sales at fairs.

**Table 23. Chile: estimated benefits of the information and co-operation programme**

(1965 escudos)

	1966 (May—December)	1967	1968 (normal year)	Total through 1968
Larger direct sales	1,807,000	1,800,000	1,800,000	5,407,000
Discounts on purchases made by small-scale industrialists	510,000	960,000	960,000	2,430,000
Direct benefits to the Government (Sales tax)*	108,420	108,000	108,000	324,420

\* Calculated as 6 per cent of the larger sales.

#### TOTAL COSTS AND BENEFITS OF THE ASSISTANCE PROGRAMMES FOR SMALL-SCALE INDUSTRY

The costs and benefits of the four programmes of assistance to small-scale industries may be considered together, since their work is closely related in many areas and they are all concerned with one broad subject.

Table 24 gives the benefits derived from the various assistance programmes. It shows the direct benefits accruing to the Government from taxes, which from 1968 on will amount to 3,253,062 escudos annually (1965 value), or about \$1,039,317.

The table demonstrates that by the end of 1968 the Government will have realized net receipts of 3,221,004 escudos (\$1,029,075) after total expenditures have been deducted. In 1969 annual receipts will amount to at least 3,253,062 escudos, and this does not take into account the indirect benefits of the SCT assistance programmes.

*Table 24. Chile: comparison of estimated costs and benefits of assistance programmes for small-scale industry*

(1965 escudos)

	1966 (May--December)	1967	1968 (normal year)	Total through 1968
<b>Direct benefits to the Government from taxes from:</b>				
Management and technological assistance programme	667,555 <sup>a</sup>	667,555	667,555	2,002,665
Financial assistance programme	1,329,023 <sup>a</sup>	1,329,023	1,329,023	3,987,069
Studies and projects programme <sup>b</sup>	164,068	330,435	1,148,484	1,642,987
Information and co-operation programme <sup>c</sup>	108,420	108,000	108,000	324,420
<b>Total in 1965 escudos</b>	<b>2,269,066</b>	<b>2,435,013</b>	<b>3,253,062</b>	<b>7,957,141</b>
<b>Total costs from inception of programme in 1963 to 30 April 1966<sup>d</sup></b>	<b>4,736,137</b>	—	—	<b>4,736,137</b>
<b>Net profit for the Government<sup>e</sup></b>	<b>—2,467,071</b>	<b>—32,058</b>	<b>3,221,004</b>	<b>3,221,004</b>

<sup>a</sup> Data from table 21

<sup>b</sup> Data from table 22

<sup>c</sup> Data from table 23

<sup>d</sup> Data from table 17

<sup>e</sup> From 1968 on a direct annual profit of 3,253,062 escudos will accrue to the Government.

## PLANS FOR THE FUTURE

### PRIORITIES

THE TERM "small-scale industry" embraces any of the following economic functions: complementing large industry (subcontracting), producing on demand or in small quantities, producing high-quality or specialized goods, and absorbing surplus manpower in rural areas.

This broad definition covers a much larger number of enterprises than SCT, with the limited funds at its disposal, can assist all at once. For this reason, enterprises to be assisted, whether through advisory services or loans or by feasibility studies for the manufacture of some

new product, must be selected in the light of predetermined criteria, which are based on the most urgent needs of the country and aimed at speeding up its economic development.

Criteria for selecting enterprises to be assisted should be sufficiently well-defined so that a clear and rapid choice can be made, yet flexible enough to allow SCT to operate within the broad confines of this complicated area of industry. Thus, for an enterprise to qualify for SCT advisory services of financial assistance, it must meet certain requirements for selection besides falling within the definition of small-scale industry given above.

Such requirements might be based on the following factors: the weighted percentage of a product or service in the consumer-price index, manufacturing and servicing of machinery, location of an enterprise in a regional development area, savings or earnings of foreign currency, and the high ratio of labour to capital.

Each of these factors is analysed below.

#### *Weighted percentage of product or service in the consumer-price index*

One way of determining which products figure most prominently in family budgets is to analyse the articles included in the consumer-price index, bearing in mind that those articles that account for a large part of household consumption are those that are given heaviest weight. Articles included in the consumer-price index and their weighted percentages are shown in table 25 below.

*Food products.* Table 25 indicates that food products account for 48 per cent of most people's expenditures. SCT is not directly concerned with food production because this area lies beyond its scope; however, SCT can take indirect action by giving priority to projects falling within the category of "processed foods", as long as the value added by processing is at least 30 per cent of the sales price of the item.

*Housing.* Table 25 also shows that a large share of family income goes towards housing. Assistance to the building-materials industry will result in better and cheaper dwellings. This is a profitable field of action for the small-scale industry programme. The same applies to the durable household goods industry. "Fuel and light" is included in the category of housing and covers water, electricity, gas, coal and paraffin. These items are provided either by public utility enterprises or by large private industries not included in the SCT programme.

*Clothing.* Clothing accounts for 17 per cent of consumer expenditures. The clothing sector is very suitable for inclusion in the SCT programme, as it is made up for the most part of small concerns that

use only domestically produced raw materials, and have a high ratio of labour to capital. SCT can therefore give priority to this sector of industry.

*Miscellaneous.* The group of miscellaneous items, which accounts for 12 per cent of consumer expenditures, is largely composed of services normally falling outside the scope of SCT. In addition, it includes various industrial products with a very low impact on consumer expenditures. For these reasons, it seems advisable to exclude those items from the assistance provided under the SCT programme.

Table 25. Chile: weighted percentages of the items appearing on the consumer-price index

Food products		47.59
Flour and starches . . . . .	11.45	
Meat and fish . . . . .	11.21	
Oil and fats . . . . .	2.76	
Dairy products and eggs . . . . .	5.60	
Miscellaneous food products . . . . .	5.70	
Alcoholic beverages . . . . .	1.26	
Vegetables and fruits . . . . .	9.60	
Housing		23.16
Rent . . . . .	11.08	
Durable household goods . . . . .	5.65	
Fuel and light . . . . .	6.44	
Clothing		17.35
Men's clothing . . . . .	6.23	
Women's clothing . . . . .	6.00	
Children's clothing . . . . .	3.66	
Upkeep of clothes and footwear . . . . .	1.47	
Miscellaneous		11.90
Transportation . . . . .	2.68	
Medical expenses . . . . .	4.20	
Toilet articles . . . . .	0.84	
Education and recreation . . . . .	1.31	
Repairs and upkeep . . . . .	1.88	
Tobacco . . . . .	1.00	
	Total	100.00

#### *Manufacturing and servicing of machinery*

Since the manufacturing and servicing of machinery affect all types of industry, they constitute another important item to be added to those already discussed.

All forms of production are to some extent mechanized, so that increasing the productivity of mechanized workshops and the quantity and quality of the repairs they do and the parts they manufacture is advantageous to all kinds of industrial undertakings and is even helpful in agricultural production. The advantages for industry include a greater amount of repair work available, higher quality parts and repairs, more economical repair work, savings on foreign currency by manufacturing articles and spare parts similar to those imported, and improved maintenance of the machinery used. All these advantages serve to decrease the price of the products and to increase their quality.

#### *Location of an enterprise in a regional development area*

Another criterion for selecting small enterprises to be assisted or for which feasibility studies are to be made would be based on the location of such enterprises. Preference would be given to enterprises located in areas covered by Government development plans, if available, or by SCT development schemes worked out in co-ordination with ODEPLAN and or CORFO.

Priority would be given to requests for assistance by small enterprises located in areas included in regional development plans; it is considered advisable, however, that such enterprises should in addition meet at least one of the following requirements: that no less than 50 per cent of the value of the raw materials used be locally produced; that the undertaking be an important source of employment for the local labour force (to the extent indicated below under "ratio of labour to capital"); that the enterprise benefit the area's balance of trade by producing articles that formerly had to be transported from other sections of the country, thereby saving on transport cost; or that the undertaking enables the area to ship articles to the rest of the country.

#### *Savings or earnings of foreign currency*

It is important to consider requests for assistance from enterprises whose major production, once the firm is set up or assisted, will replace imports or increase exports. The criteria as to the amount of such savings or earnings of foreign currency might be established as follows:

- (a) Enterprises applying for management, technological, or financial assistance must effect a minimum annual savings of \$ 10,000, calculated by comparing the production of the enterprise one year after the SCT report has been submitted with the output the year before assistance was granted.



- (b) New enterprises, for which feasibility studies are carried out, should be able to effect an estimated minimum annual savings of \$ 50,000 in the second year of their operation.

#### *High ratio of labour to capital*

It is difficult to determine this ratio without careful preliminary research on industry in general and small-scale industry in particular in Chile. It must be clearly stated that a high ratio of labour to capital does not mean the use of outmoded methods. A final criterion for the ratio of labour to capital will be defined when the necessary statistical material is available and the matter has been studied further.

#### METHODS FOR FUTURE ACTION

With a view to obtaining better results, a change in the way SCT directly assists small enterprises is being considered. It is now proposed to lay greater emphasis on training the owners and managers of small concerns so that they can receive greater benefits from the technical assistance given.

Moreover, plans have been made to direct technical assistance increasingly towards industrial groups and categories, granting individual assistance only for problem analysis and combining such activity with the training programme through courses and seminars. This will result in greater efficiency and better utilization of the resources available. Full assistance along the lines laid down in the analysis, might be rendered by firms of private consultants under the supervision of SCT. The firms would work under direct contract with the enterprise concerned, which would pay for a part of the services. SCT would pay the rest.

This same principle, which more and more will confine the activities of SCT to the promotion of industrial productivity and development, might be applied in setting up projects. SCT would participate directly only in those stages related to defining opportunities, identifying industrialists and possible investors, making preliminary feasibility studies and, where these are favourable, organizing interested parties into groups for the implementation of each project. Once the first steps have been taken, the entire final feasibility study or part of it can be subcontracted to private firms of experts.

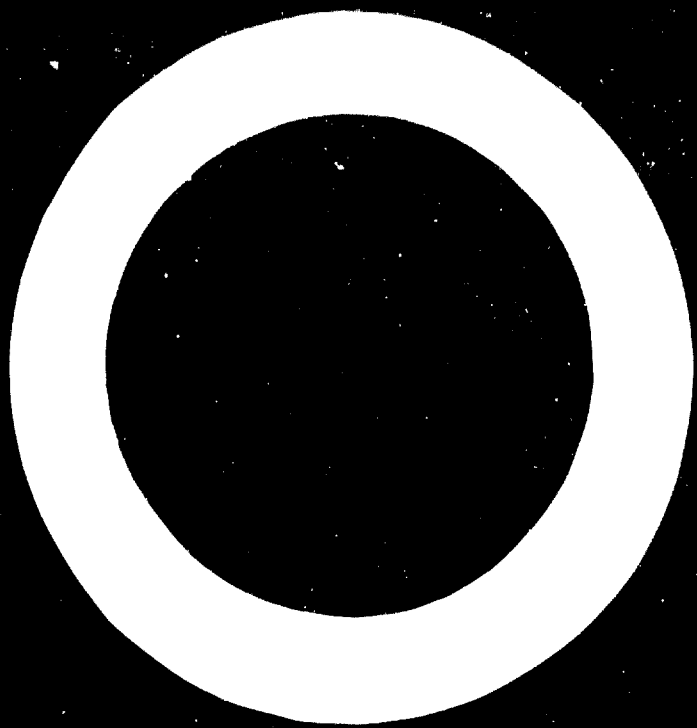
The method outlined above has the advantage of permitting the SCT staff to deal with many more enterprises and new projects, and for this reason is far more effective than previous methods.

This system can be developed because complete information on the characteristics of each branch of small-scale industry is already available

as a result of the advisory services rendered. Moreover, the data relating to the present situation would be complemented by economic sectoral surveys carried out on a permanent basis, so that the information would be kept up to date and the priority criteria proposed here would be periodically reviewed.

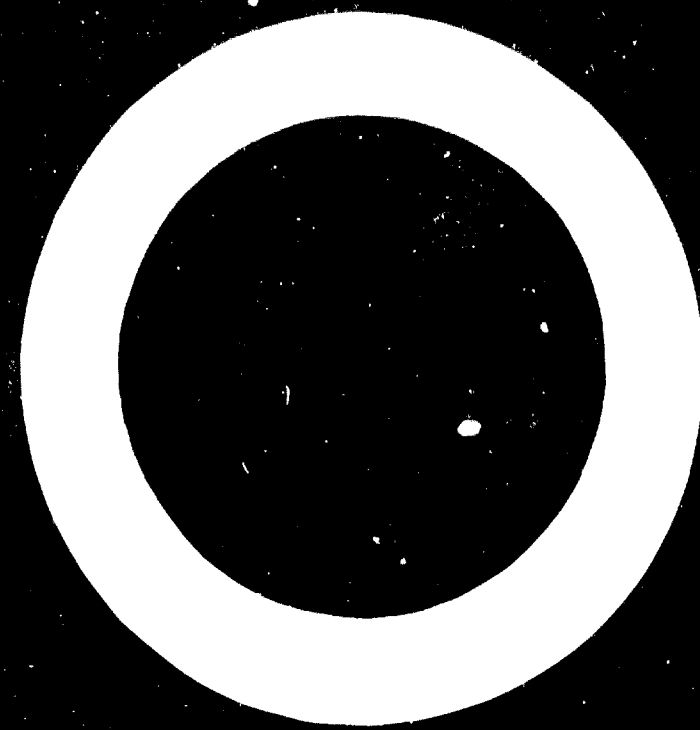
ANNEXES

*Summaries of Country Monographs*



*Annex 1*

ECUADOR: A CASE OF INDUSTRIAL  
PROGRAMMING



## GENERAL CHARACTERISTICS OF INDUSTRY IN ECUADOR

ECUADOR is a country whose industrial development is in its early stages. Its economy is primarily based on agriculture and animal husbandry, which account for 37.3 per cent of the gross national product, while manufacturing accounts for about 15.4 per cent.

During the period 1950—1960 the average annual growth rate of the manufacturing industry in Ecuador was 5.3 per cent. Factory production is the most dynamic component of the manufacturing sector, with a growth rate of 8.4 per cent during the same period.

Factory products consist mainly of non-durable consumer goods. In 1961, this type of consumer goods accounted for 61.4 per cent of industrial production, while durable consumer goods represented 30.9 per cent and capital goods 7.7 per cent.

The industrial survey carried out in 1963, which included 89 per cent of all industrial establishments employing seven or more persons, covered 639 manufacturing establishments, of which 308 were medium-sized and large enterprises and 331 were small-scale concerns. The most important findings of the industrial survey are reflected in the table below.

*Number of enterprises, employees, and the gross value of output of the manufacturing industry in Ecuador, classified by plant size, 1963*

<i>Plant size</i>	<i>Number of enterprises</i>	<i>Employees</i>	<i>Gross value of output (1,000 sucres)<sup>a</sup></i>
Small-scale enterprises . . . . .	331	4,274	187,122
Medium-sized and large enterprises . . . . .	308	27,609	3,213,709
<b>Total</b>	<b>639</b>	<b>31,883</b>	<b>3,400,831</b>

<sup>a</sup> 18.00 sucres = \$ 1.00.

## SMALL-SCALE INDUSTRY IN ECUADOR

### DEFINITION AND GENERAL CHARACTERISTICS

IN BOTH DEVELOPED and developing countries, small-scale industry represents an important part of economic activity. However, the position it occupies in these two groups of countries is different. In

the developing countries small-scale industry plays a leading role in that it accounts for a high percentage of all industrial establishments, provides work for a large number of workers with limited skills, and involves enterprises that do not need a high ratio of investment to manpower.

Various circumstances permit small-scale industry to progress in a developing country if not on an efficient and competitive level, at least in a seemingly prosperous manner: the necessity of providing employment, lack of technical know-how, limited qualifications of entrepreneurs, insufficient familiarity with the complex technology required by large-scale industry, a not very demanding attitude on the part of local consumers towards the final product, and protection afforded to small-scale entrepreneurs by fiscal and tariff regulations. This situation, which is peculiar to those countries which are still developing, has led to the growth of particular ideas on the scope of small-scale industry. Within the same country, varying definitions are given with differing objectives, such as the definitions used by credit organizations, government bodies responsible for protective measures, and statistical offices.

In Ecuador, until a few years ago, there was no great concern for the development of small-scale industry and no appreciation of its importance in the economic development of the country. There was therefore no theory regarding small-scale industry and no necessity to define it.

The term "small-scale industry" was perhaps first used by the entrepreneurs themselves to designate establishments having one or two machines, a small number of workers and very little capital, and engaging in simple processing operations designed to meet part of the local need for manufactured consumer goods.

Setting boundaries for small-scale industry is difficult because in Ecuador, as in other developing countries, most consumer goods are handmade and machinery is very rarely used, as is the case in cottage industries.

In the section on handicrafts, the General Economic and Social Development Plan of Ecuador attempts to define the point at which handicrafts end and industry proper begins. It indicates that the dominant factor in handicrafts is the manual skill of the craftsman, while in industry proper it is the machine. It also establishes a goal for craftsmen engaged in producing utilitarian goods: they should develop their businesses into small-scale industrial concerns. Because of this, interest is beginning to grow in the new concept of small-scale industry.

The Law for the Development of Artisan Activity and Small-Scale Industry, which was promulgated in January 1965, establishes the following definitions:



"For the purposes of this Law, the term 'handicrafts' shall mean work that is carried out primarily by hand, whether or not the machine is used as an auxiliary, and whose aim is production.

"The term 'small-scale industry' shall mean those activities in which the operation of the machine predominates over manual operations, and which are devoted to transforming raw materials or semi-finished goods into final or intermediate products, provided that their fixed capital, not including grounds and buildings, is valued at not more than 200,000 sucres." (§ 11,000).

This definition of small-scale industry, which is the prevailing one at the present time, differs from the one given in the charter of the National Development Bank, a credit institution for the development of agriculture and industry, which reads:

"By a small-scale industrialist or craftsman is meant a person engaged in one of those activities on a limited economic scale, with a fixed capital, taking into account depreciation in the form of machinery, equipment and tools, not exceeding 50,000 sucres, and with a gross annual output not exceeding 150,000 sucres in value." (§ 8,300).

For its part, the Stock Commission of the National Financing Corporation, which is responsible for administering the special fund established to meet the credit needs of small-scale industrialists, defines small-scale industrialists as those with a net capital of no more than 200,000 sucres (§ 11,000).

In an effort to cover the greater part of small-scale industry, if not the whole of it, the National Office for Economic Planning and Co-ordination has felt it desirable to add another element to the definition, i.e., the number of people employed. Thus, it considers that an enterprise can be called "small-scale" when it meets two of the following conditions:

- (a) Labour force of between 7 and 19, including administrative and sales staff;
- (b) Fixed capital, not including grounds and buildings, of up to 500,000 sucres (§ 27,500);
- (c) Gross value of output of up to 1 million sucres (§ 55,000).

The concerns considered as small-scale in the present survey were selected on the basis of these criteria.

#### PRESENT SITUATION

In Ecuador, as a general rule, small-scale enterprises are engaged in the production of consumer goods or intermediate goods. They are usually located near their markets, and most of them meet the needs of the area in which they are located or of the adjacent region. Most of the enterprises utilize domestic raw materials; the exceptions include

printing, mechanical, metallurgical and chemical industries, and those manufacturing certain kinds of textiles for which raw materials are imported. Small-scale enterprises are managed by their owners, who combine the duties of management, administration and production. The entrepreneurs are trained inadequately; their qualifications are usually limited to a small amount of practical experience or technological knowledge acquired empirically.

Small-scale enterprises employ less highly skilled labour than is usually required by larger concerns. They generally possess inadequate working capital and do not have easy access to bank loans and the capital market.

In legal and institutional matters, small-scale industry is protected by the Law for the Development of Artisan Activity and Small-Scale Industry, promulgated in January 1965, which, after defining small-scale industry, accords it the following general privileges:

- (a) Total exemption from all taxes related to the establishment or reorganization of any industrial or handicrafts concern;
- (b) Total exemption from taxes on imported raw materials to be used in producing exports;
- (c) Total exemption from taxes on the export of products;
- (d) Exemption from taxes on operating capital.

The following specific privileges are accorded to new enterprises, following evaluation, for a maximum of five years:

- (a) Exemption from all national or municipal taxes on transfers of ownership over immovable property to be used in production;
- (b) Tax exemption and preferential treatment for the import of machinery, equipment, tools and necessary raw materials;
- (c) Total or partial exemption from sales taxes.

Additional interesting information on small-scale industry can be obtained from the statistical data of the 1963 inquiry on industry, which may be compared with the data from the first industrial census in Ecuador, carried out in 1955, and with the industrial survey and the data of the Directory of Establishments of 1964.

On the basis of the definition cited above for the purposes of this study, it is found that out of a total of 639 concerns, 331 can be considered small-scale. The greater part of the small-scale enterprises (65 per cent) are engaged in foodstuff production, textiles, footwear and clothing, printing, and chemicals.

Seventy-four per cent of the country's small-scale industry is concentrated in the provinces of Guayas and Pichincha, and in particular in the cities of Quito and Guayaquil, whose populations are about 400,000 and 650,000 respectively. If the provinces of Azuay with 7 per cent and Tungurahua with 8 per cent are added, it can be

seen that the four provinces combined account for 89 per cent of the entire small-scale industrial sector.

This concentration shows that small-scale industry tends to gravitate towards the country's great population centres, where it finds a natural market and where the entrepreneur enjoys an abundance of labour, management skills and technical advice, credit facilities, public services, transport facilities, power and water, not all of which are available in other provinces or cities.

In industry in general, the average investment in fixed assets per enterprise is 4,596,000 sucres, while in small-scale industry the average is 390,000 sucres. In medium-scale and large-scale industry, an average of 5,169,153 sucres per enterprise is invested in machinery and equipment; in small-scale industry the figure is 210,259 sucres (\$11,700). The capital investment per employee averages 16,283 sucres (\$900) in small-scale industry; in larger industry it is 57,665 sucres (\$3,200).

In some branches of small-scale industry, the total investment is so low that it appears the industrial activities are being carried out at a level approaching that of the handicraft trade, i.e., using hand methods instead of machines.

The average ratio of annual turnover to fixed capital is 0.49 per cent for medium-scale and large-scale industry and 0.58 per cent for small-scale industry.

Of the total of 3,400 million sucres contributed to the gross national product by the enterprises surveyed, 187 million sucres, or 5.5 per cent, comes from small-scale industry. Absolute and relative figures are very significant, and it is unnecessary to comment on them. Nevertheless, it must be stressed that those branches producing foodstuffs, beverages, textiles and chemicals contribute 116 million of the 187 million sucres, or 62 per cent. The remaining fourteen types of production contribute 38 per cent, indicating that some of them are virtually unrepresented in the country's production.

Of the 1,449 million sucres in value added contributed by the 639 enterprises, 75.5 million sucres, or 5 per cent of the total, comes from small-scale industry.

At both levels of industry the most important branches are those producing foodstuffs, beverages, tobacco, chemicals, and those working with non-metallic minerals. This does not take into account concerns producing petroleum derivatives, which naturally are to be found only in large-scale industry.

As far as employment is concerned, it is found that of the 31,883 workers employed by the 639 concerns surveyed, 4,274, or 13.4 per cent of the total, are employed by the 331 small-scale enterprises (51 per cent of all those covered).

The salient finding here is the big difference between the average number of people employed in a small-scale enterprise (12.9 persons) and the average for the remainder of industry (89.6 persons per enterprise). The greatest differences between the two levels of industry occur in the production of tobacco, textiles and rubber goods.

Of the 410.6 million sucres paid in wages and salaries by the 639 enterprises, 31.1 million sucres, or 7.5 per cent, is contributed by small-scale industry. This means that 51 per cent of the enterprises pay 7.5 per cent of the wages and salaries.

The average annual individual wage in small-scale enterprises is 7,257 sucres, excluding benefits such as the obligatory social security contributions of the employer. This approximates the wages for skilled labour in Ecuador. Small-scale industry usually does not employ highly skilled labour so that the technical aspects of the process must be contributed by the entrepreneur himself.

When the data from the survey are analysed, it appears that the small industrialist in Ecuador has not yet discovered the optimum combination of factors to be used in his enterprise from the point of view of the plant's output. As a result, the average annual productivity per employee, which is 49,739 sucres in medium-scale and large-scale industry, is only 17,678 sucres in small-scale industry.

These results are related to investment, especially in machinery and equipment, which, as was seen earlier, small-scale industry utilizes to only a limited extent. It is not very surprising that when the investment per employee in large-scale and medium-scale industry is 3.54 times that of small-scale industry, the productivity in large or medium industry is 2.81 times that of small-scale industry.

The data presented lead to the conclusion that small-scale industry is not making an important contribution to raising the industrial product nor to solving the problems of employment and wage levels, production and productivity.

## FINANCING THE DEVELOPMENT OF SMALL-SCALE INDUSTRY

### CREDIT GRANTED BY THE NATIONAL BANKING SYSTEM

IN RECENT YEARS the credit granted to industry in general by the national banking system has shown an appreciable increase, owing in large measure to the use of sizeable foreign credit made available through the national development banks.

Between 1962 and 1965, total loans increased by 57 per cent, and loans to the industrial sector showed a much higher increase: in 1965 they were practically double what they were in 1962. The share of industrial loans in total loans rose from 14.7 per cent in 1962 to 18.7 per cent in 1965.

The two government credit agencies tripled their activities in the industrial sector between 1962 and 1965. In 1964, 79.5 per cent of the loans from government agencies went towards the purchase of capital goods on instalment plans with terms of from three to ten years. In 1965, the National Financing Corporation assumed responsibility for loans to the medium-sized and large enterprises, leaving assistance to small-scale industry and handicrafts exclusively in the hands of the National Development Bank. As a result of this move, the National Development Bank's activities dropped in 1965 to 50 per cent of the level of the preceding year, while the operations of the National Financing Corporation increased six times in the same period.

#### INVESTMENT IN AND FINANCING OF THE MANUFACTURING INDUSTRY IN THE COMING YEARS

Because a rapid increase in the rate of industrial development is anticipated, a higher investment in factory production is forecast for the next few years. Industrial development will result from the coming into operation of specific projects, the growing interest that domestic entrepreneurs are showing in industry, the success of the domestic and foreign promotion programmes, and particularly the advanced stage reached in the creation of the institutional, legal and administrative framework for industrial development.

Industrial enterprises will have to make a substantial contribution towards investment. It is estimated that domestic sources will have to provide 42 per cent of all investment, and private capital will have to contribute 15 per cent, for a total of 57 per cent. Of the remaining 43 per cent, 60 per cent will be available through public financing and 40 per cent through foreign loans.

According to the General Economic and Social Development Plan, "in view of the expected increase in the gross national product and total consumption, it will be possible to count on a greater increase in savings than in the past, especially since a drop in consumption is not involved." Despite this, Ecuador needs foreign aid to carry out the investment programme set forth in its ten-year plan.

#### FINANCIAL ASSISTANCE PROGRAMMES FOR SMALL-SCALE INDUSTRY AND HANDICRAFTS

Until the present decade, Ecuador had no specific financing programme for the development of small-scale industry and the handicraft trade. The National Development Bank, the official credit institution, was in charge of financing the country's industry and handicrafts in accordance with its over-all development credit policy.

After 1960, the need for developing small-scale industry and handicrafts was recognized, and in 1963 and 1964 a great impetus was given to development programmes in this sector. Preferential arrangements

were established for financing this area as, for example, in the December 1964 revision of the charter of the National Development Bank. At the same time, a law passed expanding the functions of the Stock Commission, making it an industrial development credit institution. A special fund for the development of small-scale industry and handicrafts was then established.

After December 1964, when the present law came into effect and government credit for industrial development was no longer granted by the Stock Commission of the National Financing Corporation, the National Development Bank took over financing of loans to small-scale industry, handicrafts and agriculture.

The National Development Bank operates through a bankers' credit division and a division of assistance loans, which finance particular economic sectors.

The bankers' credit division grants short-term, medium-term or long-term loans for concrete programmes in agriculture, livestock production, fishing or handicrafts, short-term working capital for industry and handicrafts, and short-term loans for the marketing of agricultural, industrial and handicraft products. The usual interest rate is 8 per cent plus 1 per cent for an emergency fund.

The division of assistance loans can grant loans to small farmers, industrialists and craftsmen who demonstrate a willingness to work, the potential ability to pay, and an eagerness to better their living conditions. The work of this division is, however, limited by the legal definition of small-scale industry and handicrafts. Enterprises too large for this definition come under the care of the banking division, which has not yet clearly defined the upper limit of small-scale industry.

The law treats loans granted by the National Development Bank through this division as special operations, in the sense that preferential arrangements are made for assistance loans. For example, the loans should be for building, repairing, or enlarging premises that are to be used for small-scale industry or handicraft activities; for the purchase of machinery, equipment and tools; for repairs to machinery and equipment; for the purchase of furnishings and other goods necessary for the operation of sales outlets for finished goods; or for providing working capital.

The amount of a loan may be as much as 100 per cent of the value of the investment plan. The terms and kind of payment are set according to the purpose of the investment and the income of the borrower. The security may consist of a real estate or a personal chattels mortgage, as the bank decides, and it may be equivalent in value to the loan. The rate of interest is decided by the bank management. At the present time, it is 8 per cent; the 1 per cent for the reserve fund is not collected.

Such credit must be accompanied by technical and educational assistance, which necessitates the co-operation of the Government and other public or private bodies with social or public purposes. To this end, the bank is now establishing systems for the co-ordination of credit programmes with other bodies responsible for technical assistance, such as the Andean Mission and CENDES (Development Centre).

Moreover, the bank has a technical training programme for its own staff and for new employees. Its new credit policy is to grant loans based on an over-all plan for each enterprise. The plan is worked out by the borrower with the help of the bank supervisor. The amount of the loan, the period for repayment and the form repayments will take are worked out on the basis of this investment plan. After the loan has been granted, investments are supervised and technical and financial assistance is given.

In addition to these government agencies, there is the Stock Commission of the National Financing Corporation, which was established in accordance with Decree No. 316 of 1964. Its chief aims are to encourage domestic savings with a view to developing a stock market, to finance fixed and working capital for private industry on a medium-term and long-term basis, to channel foreign credit towards the country's industrial enterprises, and to promote, organize and regulate the national stock market.

As part of its industrial financing role, the Stock Commission has concentrated on meeting the credit needs of medium-scale and large-scale industry. It carries out this activity directly, utilizing its own resources and foreign credit sources. However, title 9 of the institution's charter envisages the establishment of a special development and guarantee fund for small-scale industry. The role of the fund is to finance fixed and working capital for small-scale industry through the national banking system and private financing institutions. By means of this fund, small-scale industrialists would be able to obtain medium-term loans on the same basis as bank loans to finance fixed and working capital.

In practice, this financing policy has not been as successful as was hoped, because the private bankers show a lack of interest in making use of the fund's capital and because the small industrialists are often asked by the bankers to put up security they do not have.

## TECHNICAL ASSISTANCE AND ADVISORY SERVICES

### INSTITUTIONS RESPONSIBLE

IN ECUADOR'S General Economic and Social Development Plan, great emphasis is placed on the development of small-scale industry by converting handicraft concerns to small-scale size, by creating new enter-

prises and, above all, by modernizing the plants now in existence. With this in mind, the Law for the Development of Artisan Activity and Small-Scale Industry was passed on 15 January 1965, providing incentives and protection to small-scale industry. Various organizations involved now provide technical assistance for handicrafts and small industrial concerns.

The National Office for Economic Planning and Co-ordination is the government institution at the ministerial level responsible for planning the country's economy and advising the Government on economic policy. It drew up Ecuador's General Economic and Social Development Plan for 1964—1973, which has since been adopted as government policy.

In order to co-ordinate industrial development with other sectors of the national economy, the office carries out surveys to identify industrial opportunities. Once an opening has been established and its viability assured, it is hoped that private initiative will assume the responsibility of carrying out projects to accomplish the ends envisaged in the plan.

As a part of its role of co-ordinating economic development in the industrial sphere, the office participates in the work of other institutions specializing in technical assistance. Thus, this institution, in accordance with legal provisions, carries out yearly industrial studies with a view to setting up priorities for industrial projects meriting government protection under the Law for the Development of Artisan Activity and Small-Scale Industry.

In the promotion of industrial development, the planning office represents the Government in negotiating with the government institutions of countries with which Ecuador has ties of friendship, with international organizations and multilateral technical assistance institutions. In this way, the office channels technical assistance and foreign credit and helps to attract investments for the industrial enterprises of Ecuador.

*CENDES*, the Development Centre, is an institution set up in 1952 and financed by the Government to give technical assistance in the promotion and development of industrial enterprises. The division for economic research and the division for industrial promotion were set up when the centre was founded; the division for industrial extension was set up in January 1964; and a productivity division was established in January 1965.

The *General Office for the Development of Handicrafts and Small-Scale Industry* is part of the Ministry of Industry and Commerce. It is responsible for the administration of the Law on the Development of Artisan Activity and Small-Scale Industry. It grants tax exemptions in keeping with the Government's policy of stimulating small new



enterprises or enterprises already established, organizes handicraft and industrial fairs which display goods produced by each of the country's regions, and takes part in international trade fairs.

OCEPA, the Ecuadorian Trade Organization for Handicraft Products, is primarily concerned with demonstrating that Ecuador can successfully place handicrafts of artistic value and fine workmanship on the foreign market. Although it has been in operation for only a few years, OCEPA has succeeded in interesting North American and European firms in distributing handicrafts from Ecuador.

#### MANPOWER AND VOCATIONAL TRAINING PROGRAMMES

As far as the economic progress of the country is concerned, the important problem of manpower requires a great deal of attention, since it involves the optimum utilization of the human factor in production.

With a view to planning technical education, basic preliminary research has been carried out on the country's human potential and manpower reserves, with the result that priorities have been established and an industrial occupation register assembled.

A programme in this area has been established by the Department for Integral Planning of Education, a part of the Ministry of Education, in accordance with the conclusions and recommendations formulated at the Conference on Education and Economic and Social Development in Latin American, which took place in Santiago, Chile, in March 1962. This programme has established the foundation for the planning of technical education with respect to present and future needs and the availability of labour and qualified personnel. It has also laid the groundwork for the reorientation of the programmes in accordance with the findings of the above-mentioned studies, for the establishment of the necessary institutions, for the training of teaching staffs, and for the adequate financing of training schools.

#### TRAINING FOR CRAFTSMEN

The economic situation of the handicraft sector is becoming more difficult as industrialization advances. The majority of craftsmen are employed in three broad fields: shoe-making, tailoring and carpentry. Their contribution to the total production is: footwear and clothing, 39.6 per cent; woodwork and furniture, 15.6 per cent.

Since the first step in industrializing a country is to develop the manufacture of goods for the domestic market, it is not surprising that large manufacturing enterprises have been set up in the major industrial sectors, e.g. for the manufacture of plastic shoes, apparel and furniture. This has come as a blow to the craftsmen who, until a short while ago, were the chief suppliers of the domestic market.

It is not possible to slow down the development of these manufacturing enterprises in order to spare the handicraft sector, but it is necessary to increase the artisans' productivity so as to furnish the market with reasonably priced, good-quality products.

A more serious problem is the unsatisfactory distribution of fields of activity. Although a large number of handicraft concerns are engaged in the production of footwear and apparel, very few exist in the mechanical fields, even though in this field the handicraft concerns could act as servicing units or work under subcontracts to larger firms. This concentration of efforts in clothing and footwear is perpetuated by the lack of training in handicrafts.

Vocational training is handled by two kinds of institution: vocational schools, and some private institutions under the supervision of the National Association for the Defence of the Craftsmen. The chief purpose of OCEPA is to promote the sale abroad of handicrafts whose production requires artistic skill. To supplement this aim, the organization accords technical assistance and runs special training programmes. CENDES is also giving technical assistance.

#### INDUSTRIAL ESTATES PROGRAMME

The industrial estates programme was started in 1964, with research directed towards surveys and the setting up of industrial estates in Tulcán, Ibarra, Quito, Ambato, Cuenca and Guayaquil. Certain aspects of the programme, e.g. feasibility studies, planning, building, and advice on the establishment and operation of the estates, are handled by CENDES.

The programme is financed by both the Government and public and private local bodies. In the case of Cuenca, the collaboration of the United Nations Development Programme (Special Fund) was requested. The industrial estates planned for Quito and Guayaquil will be developed by the private sector on the basis of surveys carried out by CENDES.

The advantages and facilities offered by industrial estates include:

- The reduction of the initial expenses when a plant is established in isolation;
- The stimulation of industrial development in zones where there are still no manufacturing establishments capable of absorbing surplus labour;
- Greater ease and lower costs in the establishment of the common services required by the enterprises;
- The possibility of joint activities, such as collective purchasing of raw materials and supplies, marketing, sharing transportation facilities and certain services; and

The facilitation of technical and administrative advice for the small concerns included in the estate.

The present situation of the estates in Ecuador is described below.

The Tulcán Industrial Estate (Parque Industrial Tulcán, C. A.) was set up by the Municipal Council of Tulcán, the Union of Handicraft Co-operatives of Carchi, the Carchi Development Board, the Carchi Promotion Company and CENDES. It has one million sucres in registered capital. Some of the infrastructure work has been carried out; for example, land has been levelled, sewers and roads have been laid, and arrangements have been made for installing electricity and water facilities. Work will soon begin on seven industrial halls, each with a working area of 450 square metres. Here small enterprises can either rent their quarters or purchase them on long-term loans.

The handicrafts centre known as Industrial de Ibarra, organized by the provincial council of Imbabura, the Ibarra municipal council, the Diocese of Ibarra, the Americana Footwear Co-operative, the Wood-Workers Co-operative and CENDES, has 1.3 million sucres in registered capital. In 1965, work was begun on the infrastructure and the building of three industrial halls covering a total of 1,500 square metres. The buildings were opened on 28 April 1966. CENDES is providing technical assistance for those using the estate and is also setting up a small enterprise to manufacture cement blocks and equipment for drying wood.

In addition to the establishment of these industrial estates, technical and financial assistance is being sought from UNDP (Special Fund) to set up a model industrial estate in Cuenca and two pilot plants, one for processing foodstuffs and the other for exploiting coal from Biblián.

The Azuay Economic Recovery Centre has supplied an area of 16 hectares on which infrastructure work had already begun prior to the construction of the industrial halls. The total investment envisaged for the project is 40 million sucres, of which 11.6 million sucres will be contributed by UNDP.

Preliminary surveys have also begun on industrial estates in Quito and Ambato, and organizations and institutions that might be interested in participating in these projects have been approached.

### TECHNICAL ASSISTANCE FROM ABROAD

ECUADOR has been receiving technical assistance under the provisions of various international agreements with both international organizations and foreign Governments.

A basic technical assistance agreement was signed by Ecuador and the United Nations in June 1953 and extended in February 1956 to include all United Nations agencies. This agreement is primarily an expression of the desire to put into practice resolutions and decisions relating to technical assistance programmes of the United Nations and the specialized agencies in support of the cultural, economic and social progress of the country.

Under the terms of this agreement, Ecuador benefits from technical assistance offered by the various programmes under the UNDP: the expanded programme, the regular programme, Special Fund projects, OPEX experts and regional advisers on short-term missions.

Another important source of technical assistance is the Organization of American States (OAS), which, under its Direct Technical Assistance Programme, has sent experts to Ecuador in administration, financial programming, human resources programming, rural development, etc.

With respect to bilateral assistance, Denmark, the Federal Republic of Germany, France, Spain, Switzerland, the United Kingdom and the United States, among others, have signed bilateral conventions with Ecuador for the purpose of aiding economic and social development, under which they send experts and equipment and offer scholarships for specialized studies to officials of Ecuador.

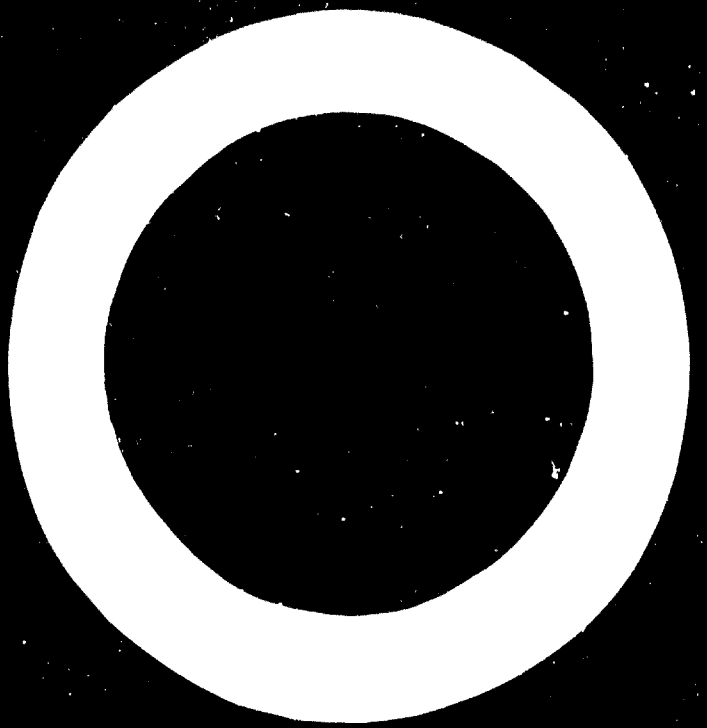
The National Office for Economic Planning and Co-ordination has been entrusted by law with co-ordinating technical assistance received from international bodies. In Article 8 of the Emergency Decree-Law No. 40 of 2 August 1961, published in the Official Register, No. 281 of August 1961, the office is made responsible for setting up long-term and short-term programmes for international technical assistance and assistance from foreign Governments.

In accordance with the article cited above and as a complement to the General Economic and Social Development Plan, the National Office for Economic Planning and Co-ordination has submitted a preliminary three-year technical assistance programme for consideration by the Advisory Group on External Financing. This programme lists the external aid required in the next three years if the country is to achieve its goals. It partially implements the General Development Plan and lists requests to be made of international organizations, foreign governments with which Ecuador has friendly ties, and private institutions abroad offering assistance. The aim of the programme is to make better use of technical assistance, as far as its character, quality and organization are concerned, within a framework of priorities, and to formulate clearly defined goals to be reached within specified periods of time.

Ecuador has benefited greatly from technical co-operation. Because of it, the country has been able to accomplish some of the work

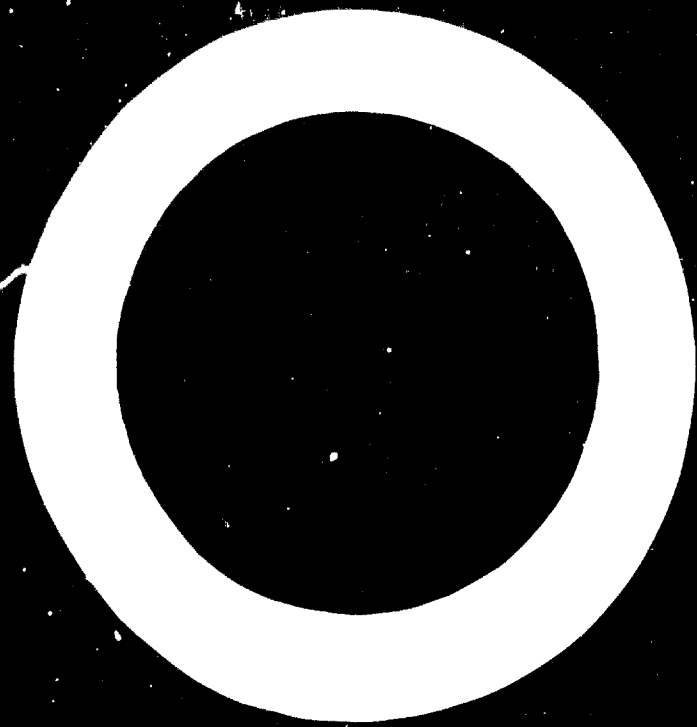
involved in carrying out development projects. The first stages of the General Economic and Social Development Plan are usually considered the most difficult and require much effort on the part of all production sectors and a large number of experts and specialists, who may be secured through foreign technical assistance.

The technical assistance programme will increase the capacity of the country to carry out its economic and social plans. The form of the programme will depend on estimates, systematized by sectors, and types and forms of assistance, based on the analysis of each programme or project involved in the first phase of the country's General Economic and Social Development Plan.



*Annex 2*

MEXICO: A CASE OF INDUSTRIAL  
FINANCING





## SMALL-SCALE AND MEDIUM-SIZED INDUSTRY IN MEXICO

### GENERAL CONCEPT AND DEFINITION

THE CONCEPT of small-scale and medium-sized industry may be understood in several ways, depending on the economic and social conditions prevailing in a particular country, branch of industry and period of history. Two groups of criteria can be applied in classifying enterprises. One group takes into account quantitative data, such as capital invested, the value of sales, the number of workers or the consumption of energy. The other group is based on qualitative data, such as the organization and management of the enterprise, methods of production, or influence on the market.

In Mexico, since the Guarantee and Development Fund for Small-Scale and Medium-Sized Industry came into existence, a quantitative criterion has been used for classifying enterprises by size, namely, the active capital of the enterprise concerned. This criterion has proved convenient and easy to apply, and particularly useful when loans are being considered, since the active capital of enterprises is an important factor which must be taken into account in determining the volume of loans that can be granted.

In 1954, when the fund began operations, it defined a small or medium-sized enterprise as one whose active capital was not less than 50,000 pesos and not more than 2.5 million pesos.<sup>1</sup> However, this definition has had to be altered so as to keep it in line with current conditions, the higher degree of industrialization and the need of industry for greater resources in terms of investment and loans. Hence, the ceiling was raised, first to 3.5 million pesos, then to 5 million, later to 10 million and in September 1965 to 15 million. At the same time, the lower limit has been reduced to 25,000 pesos for enterprises established outside areas of industrial concentration.

A "sub-size" enterprise, i.e., one smaller than a small-scale enterprise, is an enterprise handling proprietary resources of less than 25,000 or 50,000 pesos, depending on whether it operates in a zone of industrial concentration or not. Similarly, a large industrial enterprise is one whose active capital is greater than 15 million pesos.

<sup>1</sup> 12,500 pesos - 8,100

## ECONOMIC IMPORTANCE

All the economically advanced countries have progressed from primitive societies, in which production and distribution are carried out on a small scale, to modern societies, in which the increase in industrial output leads to large production units. However, small and medium-sized enterprises also develop and grow alongside the large enterprises; they consume and process raw materials produced by large-scale industry, or they provide large-scale industry with materials or parts that it needs.

Small-scale and medium-sized industry has a key role to play in even the most industrialized countries. For example, in 1958, slightly more than 90 per cent of the manufacturing establishments in the United States employed fewer than 100 workers; together they employed 27 per cent of the entire industrial labour force, and their output represented 27 per cent of the total, measured in terms of value added. In 1959, 98 per cent of the manufacturing establishments in Japan had fewer than 100 workers, and they employed 56 per cent of the labour force of the entire manufacturing industry, producing 34 per cent of the total industrial output. In the United Kingdom, 91 per cent of all industries fell within the small-scale and medium-sized category, and in the Federal Republic of Germany, the corresponding figure for 1953 was 89 per cent.

In a study carried out by Messrs. Arthur D. Little de México, S. A., a firm of consultants, the combined production of small-scale and medium-sized industry in Mexico was estimated at approximately 14 per cent of the country's gross national product in 1955. According to calculations made by the Guarantee and Development Fund for Small-Scale and Medium-Sized Industry (hereafter usually referred to as Guarantee and Development Fund), this industrial sector accounted for 19 per cent of the gross national product in 1964. Its importance in terms of the value of production is higher than the combined total for the construction, petroleum, electricity, transport and communications industries.

In 1930, there were 45,696 manufacturing establishments in Mexico; 86.4 per cent of these were sub-size industrial enterprises and small workshops, employing 51.5 per cent (292,000) of the total industrial labour force. Only 12 per cent were in the category of small-scale and medium-sized industry.

Twenty years later, in 1950, many of the former workshops and small industrial establishments had expanded to the level of small-scale and medium-sized enterprises. In that year, there were 53,389 industrial enterprises in processing industries, and the percentage of the sub-size establishments (craft shops and workshops) had decreased

from 86.4 per cent to 71.9 per cent. On the other hand, the share of small-scale and medium-sized industry had risen from 12 per cent to 25.5 per cent, and it employed 40.7 per cent of all industrial workers.

In 1955, the same trend toward small-scale and medium-sized industry was apparent. Of 70,300 manufacturing establishments, only 51.9 per cent of the total fell in the category of sub-size enterprises. Small-scale and medium-sized industry accounted in the same year for 45.6 per cent of all manufacturing establishments and employed 75 per cent of the total industrial labour force.

Industrial development has continued in the last five years, and sub-size establishments have been expanding and swelling the ranks of small-scale and medium-sized industry; the latter sector has also continued to consolidate itself and expand, partly as a result of new projects. What used to be small-scale and medium-sized industry has increased its dimensions as a result of the dynamic nature of the Mexican economy over the last 35 years. According to the seventh industrial census, 99,904 industrial enterprises of all sizes belonged, in 1960, to the processing sector, the sector with which the Guarantee and Development Fund is concerned. The importance that small-scale and medium-sized industry had acquired by 1960 can be appreciated from the data given below.

Of the 99,904 establishments, 42.8 per cent were sub-size enterprises, i.e., small workshops and establishments of the cottage-industry type whose active capital and proprietary resources in use were less than the minima of 25,000 and 50,000 pesos established by the operational rules of the fund; and 56.8 per cent, or 56,780 establishments, were in the category of small-scale and medium-sized industry. The remaining 0.4 per cent, or 352 establishments, were in the category of large-scale industry.

The importance of small-scale and medium-sized industry in the processing sector is confirmed by a comparison of data regarding capital invested, the value of output, value added and staff employed in each of the various categories or sizes of industrial enterprises.

The capital invested by the 56,780 small and medium-sized establishments represented 63.5 per cent of the total for all processing industries in 1960. The output of these establishments accounted for 71.5 per cent of the value of the total output of the processing sector. Value added in small-scale and medium-sized industry was 75.9 per cent of the total. Small-scale and medium-sized industry employed 79.2 per cent of the total labour force of the processing industries, whereas large-scale industry employed only 11.3 per cent.

The economic strengthening of small-scale and medium-sized industry in Mexico is important not only because its present and potential impact on production and employment but also because the sector makes an essential contribution to the development of the entire

economy. Small-scale and medium-sized industry accounts for a large share of national industrial output and is still the chief employer of industrial labour in the country. In many regions of Mexico, small enterprises make an important contribution to regional incomes; in many cases they process the agricultural products of the region. To the extent that small-scale and medium-sized industry uses local raw materials and supplies the national and export markets with its products, it helps to integrate the country economically. As in Japan, the United States and other countries, small-scale industry is essential to the economy because it provides the flexibility needed to deal with the abrupt changes in demand in markets at home and abroad.

#### FUNDAMENTAL CHARACTERISTICS

In 1962, the Guarantee and Development Fund carried out a field investigation to ascertain the special peculiarities of small-scale and medium-sized industry. The field workers visited more than 500 small-scale and medium-sized enterprises in about 90 provincial towns in Mexico. Some of the information obtained is presented below.

##### *Locational factors*

The field investigation showed that the locational factors influencing small-scale and medium-sized industry were the same as for large-scale industry, except that the entrepreneurs evaluated them differently. (In small-scale industry, decisions are made without analysis, whereas in large-scale industry they are made on the basis of a set of specific technical considerations that take into account most of the locational factors.)

The most important locational factor was the proximity of the market, a decisive consideration in 38.5 per cent of the cases investigated. Often this was the only item the industrialist took into account in establishing his enterprise. (Market proximity is particularly important because it involves other advantages, such as ease in distributing products with the maximum saving, and the availability of industrial services. The mobility of small-scale industry, a characteristic that gives it a great advantage over large-scale industry, reinforces the tendency for such enterprises to be set up in the vicinity of the market.)

In a smaller number of cases (15.8 per cent), location was decided by the presence or proximity of sources of raw materials. In such cases, the industries in question used perishable raw materials, such as fruit, vegetables or fish, or had inputs low in value per unit of weight, such as cement, clay and vegetable oils.

One locational factor that proved to be of not inconsiderable importance for small-scale and medium-sized industry was that of local ties—the desire of the industrialist to remain at his place of origin

or permanent residence. This sentiment may carry greater weight with an entrepreneur than many factors of an economic nature, and a reduced exploitation of resources or of development opportunities may be the consequence.

### *Competitive position*

Small-scale and medium-sized industry can compete favourably with large-scale industry in many industrial branches, for instance, in the manufacture of sweets, milk products, food pastes, footwear, garments, wooden furniture and plastics. Its principal competitive advantages include the quality of production, the flexibility with which it can change from one design to another, and the regularity with which it supplies the market.

### *Reasons for establishment*

The real motivation for an individual to become an industrialist is complex and difficult to assess. However, it is of interest to ascertain at least the background of the entrepreneur at the time he decided to become an industrialist.

In 39.4 per cent of the cases, the entrepreneur's technical skill was the decisive factor; in 28.5 per cent of the cases, the entrepreneur had had commercial experience; and in 20.2 per cent of the cases, he had had both technical and commercial experience. In addition, the establishment of large-scale industries offering a favourable environment also had some influence (11.9 per cent of cases), because this opened up a market for new products or made possible the acquisition of certain raw materials, parts or semi-finished products.

The investigation revealed that experience in manufacturing was the factor that most often helped to stimulate the establishment of small or medium-sized enterprises, and furthermore, that the new enterprises were being set up by technicians and workers who had previously been engaged in the same type of work. Of the new establishments, 62 per cent were set up as industrial enterprises from the very outset; the remaining 38 per cent were workshops that later developed into small or medium-sized enterprises.

### *Technical assistance*

The information collected showed that only 51.9 per cent of the enterprises had at some time received technical assistance in the fields of production and training of manpower. In a very few cases (5 per cent) the aim of technical assistance was the training of staff in the distribution and sale of products.

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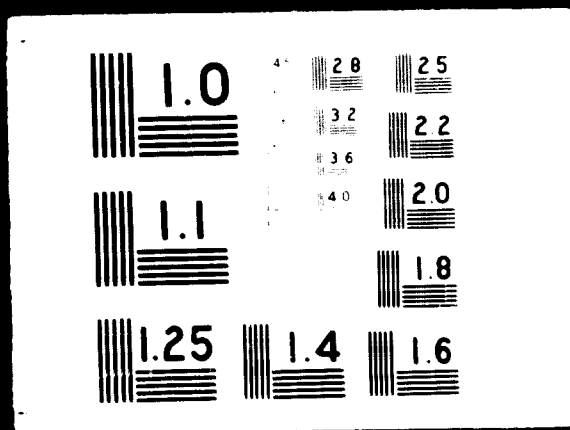


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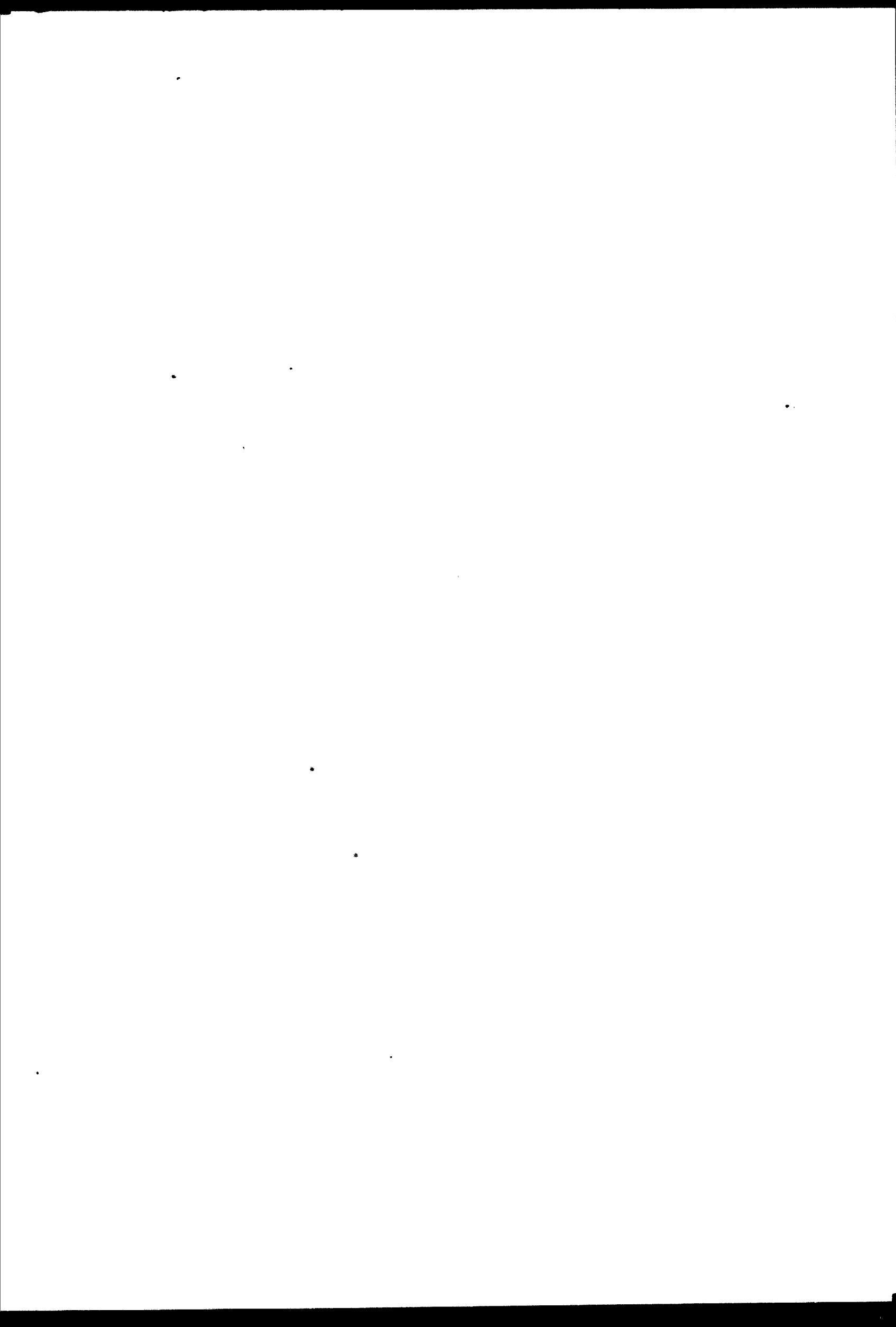
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used professional services and technical literature, and in a relatively small number of cases (11 per cent), they were advised by centres specializing in technical training.

### *Productive activity*

*Buildings.* According to the investigation carried out by the fund, 27.9 per cent of the small enterprises occupied premises that had been adapted to serve as factories but with one part reserved for the entrepreneur's dwelling. Medium-sized industries, mainly those established recently, used buildings better suited to manufacturing, but in many cases (46.7 per cent) the premises were rented. Only 25.4 per cent of the industries were housed in unsuitable buildings.

*Equipment.* Entrepreneurs in small-scale or medium-scale industry generally acquire second-hand equipment of varying capacity, which they frequently arrange without planning for future expansion. However, 29.4 per cent of the small and medium-sized enterprises visited had equipment that had been acquired less than five years previously; this indicates that these enterprises had a high degree of dynamism.

*Labour.* Labour occupies a prominent position in small-scale industry, making up by its skill for the deficiencies of the equipment. It accounted for the largest input factor (86.2 per cent) in productive processes, with 41.2 per cent accounted for by skilled workers, 41.2 per cent by unskilled workers and 2.8 per cent by technical personnel. Indirect labour represented 14.8 per cent. The management staff also has special characteristics that distinguish it from that of large-scale industry. Because a small staff must perform a variety of administrative tasks, managerial employees obtain experience and knowledge in a broad number of fields.

*Raw materials.* Most small and medium-sized enterprises consume materials of domestic origin, obtained mainly from the regions in which they are established. More than 90 per cent of the enterprises visited used only domestic raw materials. The few enterprises using foreign materials did so because such materials were not produced in Mexico. Between 44 and 93 per cent of the enterprises, depending on the branch of industry, had regular supplies of raw materials. The most important obstacle the enterprises encountered was the scarcity of economic resources for maintaining adequate and suitable stocks.

### *Markets*

In most cases, the small and medium-sized industrialist sells what he produces, rather than producing what the market demands. The market for his goods is mainly local and regional in nature. According to the study made by the fund, 73.5 per cent (by value) of the total sales of small-scale and medium-sized industry were made in the

regional market. Sales to the domestic market were somewhat infrequent (24.4 per cent) and were only of importance in the branches of textiles, chemicals, metal goods and the construction of electrical and other machinery. The percentage of foreign sales was insignificant (2.1 per cent).

### *Financing*

The majority of the enterprises financed themselves out of their own funds. Of the resources at their disposal, 73.3 per cent consisted of capital, reserves and undistributed profits; 19.2 per cent consisted of bank loans, particularly short-term; and the remaining 7.5 per cent was made up of loans from friends, relatives and money-lenders. Short-term financing was obtained by 43.8 per cent of the enterprises, and medium or long-term financing by only 14.2 per cent. Forty-two per cent of the establishments still remained outside the system of bank financing.

In 1964, the Guarantee and Development Fund decided to supplement its earlier investigation with a study on the economic characteristics of the 3,298 industrial enterprises that had been assisted by the fund through private institutions in the first eleven years of its activity (1954—1964). Some of the results of this study are presented in the next chapter.

## ANALYSIS OF 3,298 ENTERPRISES IN THE PROCESSING INDUSTRIES

### BACKGROUND OF THE STUDY

DURING THE FIRST eleven years of its operation (1954—1964), the Guarantee and Development Fund for Small-Scale and Medium-Sized Industry granted medium- and long-term loans to 3,298 small and medium-sized industrial enterprises throughout the country.

From these enterprises the fund collected information regarding the amount and origin of their resources, the breakdown of their assets, the value of their output and their trading results and used it to present a quantitative analysis of small-scale and medium-sized industry in Mexico.

The data presented and their analysis show:

- (a) The origin of resources;
- (b) The amount of sales, costs, charges and profits;
- (c) The importance of the labour factor and labour productivity;
- (d) The degree of liquidity and solvency with which the enterprises operated;

- (e) The trading results;
- (f) The type of policy adopted regarding sales and stocks.

The 3,298 enterprises, taken together, are of great significance in the country's economy. They represented 56.82 per cent of the establishments appearing in the 1960 industrial census. Their invested capital represented 18.84 per cent and their output 20.15 per cent of the total value. They employed 18.99 per cent of the total labour force working in small and medium-sized enterprises in the country.

The basis of the statistical material analysed was as follows: each industrial enterprise that applies to the fund through a private institution presents with its application for a loan a copy of its most recent balance-sheet and statement of profit and loss, and provides additional information on its equipment and installations, its industrial specialty, the articles it produces, the number of workers it employs.

Since the financial statements on which this study was based were obtained by the fund over a period (eleven years) in which the value of money had fluctuated, allowance had to be made for these fluctuations. The figures in each of the balance-sheets and statements of profit and loss were adjusted by applying the 1954 wholesale price index worked out by the Bank of Mexico. Once the figures in all the balance-sheets and statements of profit and loss had been expressed in 1954 prices, it was possible to reconvert them to 1964 values.

The 3,298 enterprises were grouped according to their branch of industry as listed in the International Standard Industrial Classification (ISIC) of the United Nations; 23 groups and 109 classes or branches were obtained.

The 3,298 enterprises studied were of medium and small size according to the limits of 25,000 to 10 million pesos of active capital, which had been laid down by the law governing the fund at the time when the present study was begun. Of these enterprises, 97.67 per cent were engaged in processing industries. The remaining 2.33 per cent represented service enterprises connected with the processing industries.

In view of the special characteristics of small and medium-sized enterprises in Mexico, it was necessary to adapt the United Nations classification in two respects: the major group, "manufacture of footwear, other wearing apparel and made-up textile goods", was divided into "manufacture of footwear" and "manufacture of wearing apparel"; and the major group "manufacture of petroleum and coal derivatives" was not included because this is considered large-scale industry in Mexico.

The establishments studied were located in all the political divisions of the country, although 50.3 per cent were located in the Federal District and the remaining 49.7 per cent in 29 states of Mexico. These figures are a faithful reflection of the economic and social concentra-

tion in the Federal District. After the Federal District, the most significant political divisions in this study, as far as the number of establishments that have had transactions with the fund is concerned, are Guanajuato, Nuevo León, Oaxaca, Mexico and Jalisco.

#### SIZE OF ENTERPRISES

The 3,298 small and medium-sized industrial enterprises studied were grouped according to the proprietary resources handled and the number of workers employed. This type of classification can help in defining what constitutes small-scale and medium-scale industry.

Of the enterprises studied, 68.92 per cent were operating on proprietary capital of up to 1 million pesos. Manufacturing establishments whose active capital was higher than 1 million pesos represented the other 31.08 per cent. Enterprises with capital of up to 3 million pesos predominated in this group.

Some countries and some international organizations classify industry according to the number of workers employed. This type of classification provides another indicator that makes it possible to distinguish small-scale from medium-sized industries. Enterprises employing up to 25 workers accounted for 49.51 per cent of the total. Some industries employed small staffs but nevertheless had large-scale capital investments and sales owing to the application of advanced techniques in their organization and production processes. Industries employing from 26 to 75 workers constituted 38.03 per cent of the total studied; 12.46 per cent of industries employed more than 75 workers.

The average size of small and medium-sized enterprises varied from one industrial group to another. Some groups of industries with small proprietary resources made up for their lack of capital by the use of more manpower, e.g., the footwear industry.

Each industrial group was classified according to the two indicators mentioned in order to show the size of the industrial enterprises within each type of activity. In this way it was possible to ascertain the branches in which one or other type predominated.

#### ASSETS

The average level of capital investment in total assets in the 3,298 industrial enterprises studied was 1,778,400 pesos. The enterprises with the highest level of capital investment in total assets belonged to the following groups: manufacture of beverages, chemicals and chemical products, textiles, and electrical machinery, apparatus and appliances. On the other hand, the groups of industries engaged in the manufacture of footwear, the tanning of hides and the manufacture of furniture and fixtures contained a larger proportion of small-scale enterprises because the average levels of investment were lower.

Examination of the composition of assets shows that current assets represented 51.16 per cent of total resources. The most important item of available current assets was inventory, representing 25.33 per cent of total assets.

Another important item of current assets was accounts receivable, which represented 19.85 per cent of total assets. Because of competition, small and medium-sized enterprises are compelled to give their customers special treatment. Accordingly, some industrial groups, such as those manufacturing footwear, wearing apparel, chemicals and chemical products, and electrical machinery, apparatus and appliances, make a large proportion of their sales on credit.

Immobilized investments (fixed assets) represented 43.78 per cent of total assets. This gives an idea of the degree of mechanization and the stability of small-scale and medium-sized industries. It is the older established industrial groups or those that carry out a considerable degree of processing that maintain high fixed investments; examples include food products, textiles, paper and paper products, metals and building materials. Investment in machinery and equipment represented a major share (32 per cent) of the total assets of these enterprises. Productive capacity depends on these investments. In approximately 50 per cent of the industrial groups, investments under this heading exceeded the average for the 3,298 enterprises studied.

Investments in immovable property amounted to 10.26 per cent of total assets. When one examines this item, the settled nature of this industrial sector becomes more evident. As the level of activity approaches the commercial scale, there is a tendency for the share of investment in immovable property to become less, because the productive process does not require specially constructed buildings or premises.

Transport equipment is not a significant item of assets except in those industrial groups that have to distribute their products themselves (beverages, food products, wood manufactures and non-metallic mineral products).

As can be observed from the data, the active capital of the enterprises consisted of the sum of company capital and contributions, plus reserves and undistributed profits. The average active capital per establishment for the industries as a whole amounted to 1,326,100 pesos; the average for the beverage industry was the highest, namely 1,973,200 pesos, while the average for proprietary resources of enterprises manufacturing footwear was 795,000 pesos.

Among outside resources, short-term commitments predominated, a fact notable in all the industrial groups into which the 3,298 enterprises covered in this study were classified. The ratio of current liabilities to fixed liabilities was 4.1:1.

The enterprises studied made little use of credit, particularly medium- and long-term credit, in their operations since fixed liabilities represented 5.24 per cent of their total resources. The low level of credit utilization may originate from the following factors:

- (a) Ignorance of the sources and forms of credit suited to the needs of small and medium-sized enterprises;
- (b) Deficiencies in the administrative and accounting systems of the enterprises;
- (c) Limitations in the organized credit market.

The degree of short-term liquidity in all the enterprises studied was fairly satisfactory, although current liabilities represented 20.19 per cent of total resources. The high degree of liquidity originated from the predominance of liquid resources in the composition of assets. Thus, the creditors represented by current liabilities were protected by current assets amounting to 2.53 pesos for every peso of short-term commitments contracted.

With respect to this index, the various industrial groups showed slight variations in relation to the general average. Thus, the backing for each peso was 1.72 pesos in the group of wood products industries, while the leather industries (tanneries) recorded the highest figure, namely 3.32 pesos. Tanneries generally buy and sell for cash and make less use of finance institutions.

The volume of long-term indebtedness of the 3,298 enterprises taken as a whole was relatively insignificant, representing scarcely 5.24 per cent of total resources. This meant that each peso of fixed liabilities was backed by fixed investments of as much as 8.36 pesos. There were variations in this financial index also, the minimum being 6.03 pesos for electrical appliances and the maximum being 18.12 pesos for the rubber products industry.

To sum up, the financial situation of the enterprises studied was fairly stable on the whole, as can be seen from the following data:

- (a) For each peso of their total short-term and long-term liabilities, current and fixed assets amounted to 3.93 pesos;
- (b) For each peso of their total liabilities, they had 2.93 pesos of active capital.

Both indices were fairly similar in the various groups into which the enterprises were classified.

#### SALES AND TRADING RESULTS

The 3,298 enterprises had average annual sales valued at 2,183,500 pesos per establishment.

The beverage industry had the highest average sales, namely, 3,513,500 pesos. The lowest average, 1,471,700 pesos, was found in the enterprises manufacturing non-metallic mineral products, the only



industrial group in which the value of sales was on the average less than total assets, a fact explained by the diversity of size and the variety of activities of the group.

The most significant item in the consolidated statements of profit and loss of the 3,298 enterprises studied was the cost of the products sold, which amounted on the average to 1,525,800 pesos, or 69.88 per cent of the total value of annual sales. The proportion represented by cost varied little from one industrial group to another. The highest percentage was found in the group of food products (77.07 per cent) and the smallest in the beverage industry (60.16 per cent).

Operating costs averaged 446,400 pesos, representing 20.44 per cent of the total value of sales. This was the most important item in industries producing for final consumption, with their high costs of distribution and sale of products, e.g., in the beverage, pharmaceutical products and cosmetics industries.

The profits for all the enterprises averaged 211,300 pesos, or 9.68 per cent of the value of annual sales. Enterprises manufacturing parts for the automobile industry achieved the highest percentage of profits (12.41 per cent), while the food-processing industries had the lowest figure (7.33 per cent).

### *Operational indices*

To ascertain the level of efficiency of small-scale and medium-scale industry, the value of annual sales was correlated with the main items of assets.

*Annual sales compared with current assets.* The 3,298 enterprises achieved average annual sales of 2.40 pesos for every peso of their current assets. Only in the four following industrial groups was the average lower than 2.00 pesos, with the working capital being "turned over" less than twice a year: electrical machinery and appliances (1.65 pesos); manufacture of machinery (1.77 pesos); manufacture of transport equipment (1.92 pesos); and manufacture of wearing apparel (1.97 pesos). On the other hand, the highest turnover of working capital was found in the group of food-processing industries, which attained annual sales of 3.93 pesos for every peso of current assets.

*Annual sales compared with fixed assets.* When the value of annual sales was related to the amount invested in fixed assets, the index for all the enterprises together rose above that for current assets, owing to the smaller share of fixed investments in the composition of assets. Thus, for each peso of fixed assets there were annual sales of 2.80 pesos, and the figure was 3.84 pesos when investment in machinery and equipment was taken as the basis.

*Annual sales compared with total assets and active capital.* For every peso of total assets, the 3,298 enterprises attained annual sales of 1.23 pesos. For every peso of their active capital, or their proprietary resources, the annual sales reached 1.65 pesos. The highest figures were found in the groups manufacturing food, footwear and wearing apparel, and chemicals and chemical products.

### *Profits*

The relationship between the profits achieved by the enterprises studied and the main components of the assets and proprietary capital of the enterprises was next established.

*Profits compared with investment in fixed assets.* Annual profits of 27 centavos were earned for every peso of investment in fixed assets. In particular, each peso of investment in machinery and equipment yielded a return of 37 centavos.

*Profits compared with total assets.* Here there was little variation from one industrial group to another. The average for all the enterprises together was 12 centavos for each peso of total assets, the minimum, 10 centavos (in the groups of beverages, textiles, paper and paper products, and non-metallic minerals), and the maximum, 15 centavos (manufacture of footwear and of furniture and fixtures).

*Profits compared with active capital.* Profits showed a higher ratio to active capital than to total assets. There was a return of 16 centavos for every peso of active capital. However, this index showed greater fluctuations from one industrial group to another; the minimum was 12 centavos return per peso of active capital in the paper and non-metallic mineral products industries, and the maximum was 21 centavos per peso in the wood industry.

### LABOUR FORCE

The 3,298 enterprises studied employed a total of 131,332 workers. The staffs of the enterprises ranged from a minimum of 1 to a maximum of 1,525; the latter figure was for a contracting and building enterprise, i.e., a service enterprise. The largest staff in a processing industry (a sawmill) was 585.

*Average labour force.* The average labour force per establishment throughout the 3,298 industries was 39.8 workers. The lowest group average, 22.6 workers, was in the leather and leather products industry, and the highest, 70.3 workers, was in the wood industries.

*Investment per worker.* In the small-scale and medium-scale industries, there is a fair proportion of investment in relation to the number of employees. The enterprises studied required, on the average, assets of 46,660 pesos for every worker employed. The volume of investment per worker was higher in the food products, beverage, textile, rubber products, and chemical and chemical products industries.

On the other hand, in the wearing apparel, footwear, furniture and wood industries, the enterprises employed more persons but had smaller investments per worker.

*Labour productivity.* Labour productivity can be measured to some extent by the value of sales per worker. In the 3,298 enterprises, there was an average of 54,832 pesos of sales for every worker. The groups that achieved the largest sales were those that had made the greatest investments—evidence of the marked correlation between the value of investment and the amount of sales. The profits generated per worker in all the enterprises together averaged 5,306 pesos a year, the minimum being 3,670 pesos in the manufacture of footwear, and the maximum 7,499 pesos in chemicals and chemical products.

#### SALES POLICY

The average term of sales in the 3,298 enterprises was 58 days, although it differed considerably from one industrial group to another. Some had a majority of cash or very short-term sales, e. g., food products, wood, and leather industries, where the term of credit granted to customers averages about one month.

The industries that granted the longest terms of payment belonged to the following groups: electrical machinery and appliances, manufacture of machinery, wearing apparel and pharmaceutical products. In these industrial groups the market is accustomed to having credit offered by the manufacturer.

#### ACCUMULATION OF STOCK

The annual index for the turnover of stock was 3.39, which means that the stock accumulated for 106 days, or in other words, was renewed about every three-and-a-half months.

Enterprises manufacturing machinery had the slowest turnover of stock; the goods accumulated on the average for 175 days. The group of food industries maintained its stock for only 55 days on the average; it was the group with the fastest turnover, owing to the short production cycle and the small range of raw materials processed.

### FINANCING OF SMALL-SCALE AND MEDIUM-SIZED INDUSTRY

#### NEED FOR FINANCING

ONE OF THE problems small-scale and medium-sized industry faces is the procurement of funds, whether for executing new projects or for expanding, improving or promoting existing enterprises. Financial resources are clearly one of the most important factors in industrial

growth, from the very beginning of the enterprise; the more advanced the phase of industrialization, the greater the demand for funds.

The credit system in Mexico has two main subdivisions: the state and the private banking systems. Government action in this branch of economic activity has enabled a considerable volume of funds to be channelled into industry, through the National Finance Corporation, which makes funds available to large industrial projects, and through the Guarantee and Development Fund for Small-Scale and Medium-Sized Industry, which operates within the framework of the National Finance Corporation. The National Bank has not only contributed financial aid to private enterprise but has also promoted social development programmes.

#### THE GUARANTEE AND DEVELOPMENT FUND FOR SMALL-SCALE AND MEDIUM-SIZED INDUSTRY

The small or medium-sized industrialist with an ambition to expand seeks funds urgently and may often draw upon unsuitable sources of credit. He may make use of short-term loans when buying raw materials or investing in fixed assets, an action which impedes healthy development because these loans have inconveniently short amortization periods. Also, they are usually too small to enable the enterprises to carry out their programmes of stocking the raw materials needed in order to plan production for two or three months. Worse still, short-term loans are sometimes used to expand or improve installations. Such objectives call for medium or long-term loans, which are often difficult to obtain.

Taking into account the importance of small-scale and medium-sized industry in Mexico, the Government, on the initiative of the Ministry of Finance and Public Credit, decided to support this area of industry by means of an agency that would provide it with "adequate and timely credit assistance". Previously, the major efforts of the National Bank had been concentrated on the promotion of large industrial enterprises. In December 1953, the Government enacted a law establishing the Guarantee and Development Fund for Small-Scale and Medium-Sized Industry. The agency was called a "fund" because it is made up of funds contributed by the Government. The National Finance Corporation, in its capacity as trustee, is responsible for the administration of the fund.

The aim of the fund, as stated in the preamble to the law, is to provide small and medium-sized industrialists, through private institutions, with loans that are adequate, quickly processed, bear a low rate of interest, and whose amortization period is adjusted to meet the needs of this sector of industry. Once the industrialist has complied with the indispensable minimum requirements, his request for a loan can be processed in a relatively short time. Owing to the government origin of its resources, the fund is able to charge for its

loans a rate of interest lower than that prevailing in the market. The rate that has been applied is 10 per cent a year on unpaid balances; part of this rate (4 per cent) is intended for the private institutions acting as intermediaries in the loan transaction.

Also as a result of the government origin of the fund's resources, industrialists are allowed medium or long-term amortization periods adjusted to the conditions of each enterprise, but within the time-limits provided by law.

In view of the size of the banking network, the Government considered it suitable for the fund to operate as a reserve institution to which a private bank might apply for additional or supplementary resources to be channelled into small-scale and medium-sized industry.

The operating rules of the fund define the term "small-scale and medium-sized industry" on the basis of the net worth of a concern. According to these rules, the small-scale and medium-sized sector of industry at present includes all industrial enterprises with a net worth of at least 25,000 pesos in the case of enterprises operating in the provinces, or 50,000 pesos in the case of those operating in zones of industrial concentration, such as Monterrey and the Federal District, provided that the net worth of the individual enterprise does not exceed 15 million pesos, regardless of its location. By "net worth" is understood the sum of the personal resources contributed by the industrialist or shareholders towards the operation of the business. In other words, net worth is the difference between assets and liabilities. The term "industrial enterprises" includes not only enterprises organized in the form of a company but also those operating on an individual basis in the name of the owner, director or manager.

#### *Authorized operations of the fund*

The law authorizes the fund to:

- (a) Guarantee the deposit banks and financial corporations up to 200,000 pesos for each loan these institutions grant to small or medium-scale industrialists;
- (b) Guarantee and acquire bonds issued by small or medium-scale industrialists to the limit of 1 million pesos;
- (c) Acquire bonds issued by finance agencies;
- (d) Rediscount loans that banks and finance institutions grant to small and medium-scale industrialists for the purchase of supplies or capital equipment;
- (e) Rediscount loans that finance institutions grant to small or medium-scale industrialists against security in the form of real estate or stocks and shares.

The first of the operations mentioned, namely, the guarantee that the fund may extend to credit institutions, opens up great new possibilities for extending financial support to small and medium-scale

industrialists, particularly those in the provinces. This type of operation means that in granting loans to small and medium-scale industrialists, the credit institutions in the country have two advantages: they may use the fund's resources, and the fund may guarantee as much as 50 per cent of each loan.

The second type of operation, namely, the acquisition of bonds issued by small or medium-scale industrialists, means that industrialists will have a definite purchaser for the bonds they issue.

The third type of operation open to the fund, namely, the acquisition of bonds issued by finance corporations, may help these corporations increase the resources they intend to use for loans to small and medium-scale industrialists.

The fourth type of operation, the rediscounting of loans granted by deposit banks and finance corporations to small and medium-scale industrialists for the purchase of supplies and capital equipment, helps industrialists in many ways.

Mexico's banking laws specifically provide for loans for the purchase of supplies. The purpose of this legislation is to enable industrialists to meet their working capital requirements by obtaining the supplies of raw materials and equipment they need for a specific production period. By means of such loans, industrialists can stock up their warehouses for periods of one, two or three months and can obtain funds to pay the wages of their workers, with the advantage that they have up to three years to pay back the loans. In this way they can gradually build up their own stock of working capital.

Loans for the purchase of capital equipment can be requested by industrialists for one or more of the following purposes: (a) to acquire and install machinery and equipment; (b) to acquire, construct or expand buildings needed by the enterprise; or (c) to use part of the loan to pay off liabilities, provided that the liability in question is of not more than one year's standing; only part of the loan may be used for this purpose. By means of capital equipment loans, industrialists can expand and improve their installations, production processes and capacity. They can increase the volume of production, reduce costs and raise profit margins, expand their production programmes by manufacturing new articles, and improve the presentation, quality and finish of the articles already in their programmes. The amortization period varies in practice from three to six years.

Recently the fund was empowered by the Ministry of Finance and Public Credit to rediscount loans that finance corporations grant to small and medium-scale industrialists against security in the form of real estate or stocks and shares. The main objective of these loans is to consolidate the liabilities of small or medium-sized industrial enterprises, although the loans may be used in part for the expansion or

improvement of plant, equipment, buildings and installations. The amount of credit for which rediscounting is requested may not be greater than 50 per cent of the value of the respective security. The amortization period may not exceed ten years, and the loan may be amortized in equal consecutive instalments repaid at intervals of not more than 90 days; however, the first repayment instalment may not be deferred beyond one year.

#### *Amount of each loan*

The maximum amount of loans for the purchase of supplies is 1,250,000 pesos, and for capital equipment, 2,500,000 pesos. When both types of loan are granted to one and the same industrialist, the combined amount must not exceed 3,375,000 pesos.

The amount that the fund may rediscount for loans against security in the form of real estate or stocks and shares granted to one and the same enterprise, or the total of these loans and capital equipment loans granted to that enterprise, may not exceed 2.5 million pesos. In addition to such loans, the fund may rediscount supply loans to the same enterprise up to a maximum of 875,000 pesos. In cases considered particularly deserving by the technical committee of the fund or for enterprises engaged in activities of particular importance to the industrial development of the country, the committee may authorize the rediscounting of loans for quantities above those mentioned, but the total of supply and capital equipment loans and loans against real estate or stock for one enterprise may not exceed 5 million pesos.

There is no lower limit on the loans that a small-scale industrialist may request, as is illustrated by the following example. With the aid of the fund's resources, a credit institution in Oaxaca has granted 386 loans to 277 small enterprises, for amounts varying between 15,000 and 50,000 pesos. Actually, these small enterprises are typical of the economic structure of Oaxaca. But the most significant fact about them is that, despite the modest amount of the loans requested, they employ a total of 1,840 workers, and the volume of their annual sales totals 49 million pesos, which is equivalent to average annual sales of 215,000 pesos per enterprise.

The fund has so far not set any limits on the number and volume of the rediscounting transactions that individual institutions may submit for consideration.

#### *Loan policy*

In its operations, the fund complies with the law establishing it and its own operating rules, as well as with the directives issued by the technical committee, which may be summed up as follows:

- (a) To examine the loans as carefully as if they were being transacted directly between the fund and the industrialists;
- (b) To ensure that applications for loans comply with the law and the operating rules of the fund as well as with the banking legislation in force;
- (c) To give priority to investment programmes;
- (d) To verify that the loans are justified and that conditions regarding security and repayment are acceptable;
- (e) To ensure, as far as possible, that the amortization periods for the loans are suited to the general conditions of the enterprises and their capacity to pay, taking into consideration the probable outcome of projects;
- (f) To ensure also that loans are distributed to enterprises throughout the country and throughout the different branches of industry, with preference being given to loans intended for enterprises that produce necessities or articles important to local or regional economies;
- (g) To ensure that the amount of the loans is sufficient to enable the beneficiary enterprises to carry out their investment programmes according to their needs.

The fund recovers 100 per cent of the amounts outstanding on maturity. This is the result of the responsive attitude of the small industrialists, who are anxious to have access to bank credit with a convenient repayment period, amount and interest rate, and also to have the opportunity for subsequent financing. Other contributing factors are:

- (a) The intervention of private banks as intermediaries;
- (b) The fact that the amount is geared to investment needs, with repayment capacity taken into account;
- (c) Medium and long-term repayment periods adjusted to suit the situation of each enterprise;
- (d) The system of repayment by monthly instalments;
- (e) The fact that these loans are studied, appraised and approved at three different stages: first, by the industrialist himself when he submits his investment programme and supporting data; second, by the private institution, which pays great attention to repayment capacity, previous experience with the applicant, security etc.; third, by the fund.

Reports have been received from private institutions indicating that they have had favourable results in a very high percentage of cases with regard to loans granted to small and medium-scale industrialists and rediscounted by the fund. Industrialists have thus responded satisfactorily to the stimulus of good loan financing.



*Operational results of the fund**Resources of the fund*

On 30 June 1966, the fund's own resources amounted to 168,107,928.86 pesos, broken down as shown in table 1 below.

*Table 1. Breakdown of the sources of the Guarantee and Development Fund*

	<i>Million pesos</i>
Amount supplied by the Federal Government . . .	120.0
Profits made in previous financial years . . . .	44.2
Profits for the financial year 1965/1966 . . . .	3.8
Total	<u>168.0</u>

In addition to these net profits, the fund has paid a commission of 21,331,957.37 pesos to the National Finance Corporation for its services as a trustee.

*Other resources*

The other resources available to the fund consist of three successive loans made by the Inter-American Development Bank (IDB) in 1961, 1963 and 1966 for \$ 3 million, \$ 5 million and \$ 8 million respectively.

In April 1966, the fund made the first repayment of principal to IDB, in the amount of \$ 249,999.99, so that the balance in its favour was reduced to \$ 2,750,000.01. By 30 June 1966, the fund had disposed of the first two loans.

The fund will begin to use the third loan (\$ 8 million) after IDB has verified that the previous \$ 5 million loan has been properly used for the purpose for which it was granted.

Pending receipt of the first remittance from IDB, the fund had to request a loan of 10 million pesos from the National Finance Corporation in order to continue its operations. It had used 7 million pesos of this loan as of 30 June 1966.

*Total resources*

The resources of the fund on 30 June 1966 totalled 273,484,287.41 pesos, as indicated in table 2 below. In addition to these resources, the fund was to receive the third IDB loan of \$ 8 million.

Table 2. Mexico: total resources of the Guarantee and Development Fund as of 30 June 1966

	<i>Million pesos</i>
Federal Government's contribution . . . . .	120.0
Profits . . . . .	48.1
IDB loans . . . . .	96.8
Loans from National Finance Corporation . . . . .	7.0
Other liabilities . . . . .	1.5
Total	<u>273.4</u>

How the total resources of the fund as of 30 June 1966 were invested is shown in table 3 below.

Table 3. Mexico: investments of the Guarantee and Development Fund as of 30 June 1966  
(Thousand pesos)

	<i>Investments</i>
Liquid assets . . . . .	1,994.8
Balances outstanding . . . . .	270,229.6
Sundry debtors . . . . .	1,259.6
Furniture and equipment . . . . .	166.1
Loans to staff . . . . .	1,093.5
Mortgages . . . . .	819.8
Short-term loans . . . . .	114.1
Medium-term loans . . . . .	156.1
Other loans . . . . .	3.4
Total	<u>273,484.2</u>

#### OPERATIONS

During the financial year 1965/1966, the committee authorized the rediscounting of 942 loans for an amount of 240,725,606.28 pesos. In the same year, 73 loans, amounting to 22,180,473.39 pesos, were repaid. A net amount of 869 loans was thus authorized during the financial year, totalling 218,545,132.89 pesos.

In 1965/1966, the number of loans authorized by the committee was 22.7 per cent higher than in the previous financial year, and the amount of money loaned was 28.2 per cent higher than the amount authorized in 1964/1965. Adding the figures for the year 1965/1966 to those for previous years, the net total of loans authorized by the fund from the commencement of operations through June 1966 was 6,898, amounting to 1,429,516,234.60 pesos (see table 4 below).

Table 4. Mexico: number and amount of loans authorized by the Guarantee and Development Fund, 1954-1966

Year	Number of loans	Amount of loans (million pesos)
1954	99	18.5
1955	349	49.0
1956	375	68.0
1957	432	72.9
1958	482	89.8
1959	613	103.6
1960	589	110.0
1961	703	136.8
1962	699	133.0
1963	670	176.3
1964	672	167.5
1965	749	187.3
1966 (January-June)	460	116.4
Total	6,898	1,429.5

The 6,898 loans authorized during the life of the fund were granted to 3,804 small and medium-sized industrial enterprises. Some enterprises received more than one loan at different stages in their development.

Taken together, the 3,804 enterprises that received money through the fund are of great economic significance:

- (a) They employed 142,096 workers;
- (b) Their combined net worth amounted to 4,547 million pesos;
- (c) Their annual output had a market value of 7,818 million pesos;
- (d) Financing by the fund represented 31.42 per cent of the net worth of these enterprises, and 18.27 per cent of the value of their annual output.

The fund's loans were made through 151 different private loan institutions, mostly finance corporations (table 5 below).

Table 5. Mexico: participation of intermediary private institutions in distribution of loans authorized by the Guarantee and Development Fund

	Number of institutions	Percentage	Amount of loans (million pesos)	Percentage
Finance corporations . . . .	80	53.0	1,065.7	74.5
Deposit banks . . . . .	62	41.1	337.7	23.6
Other institutions . . . . .	9	5.9	26.1	1.9
Total	151	100.0	1,429.5	100.0

Supply loans, i.e., those used for the acquisition of materials and supplies or other items of working capital, constituted the majority for by capital equipment loans, used mainly for the purchase of machinery and equipment, or for buildings and installations (see of loans, both in number and amount; the remainder was accounted table 6 below).

*Table 6. Mexico: distribution of loans by type as authorized by the Guarantee and Development Fund*

	<i>Number of loans</i>	<i>Percentage</i>	<i>Amount of loans (million pesos)</i>	<i>Percentage</i>
Supply loans . . . . .	4,326	62.7	782.0	54.7
Capital equipment loans .	2,572	37.3	647.5	45.3
Total	<u>6,898</u>	<u>100.0</u>	<u>1,429.5</u>	<u>100.0</u>

The average amount for supply loans was 180,781.60 pesos, and for development loans, 251,732.12 pesos; the general average for both types was 207,236.33 pesos. As shown in table 7 below, the majority of the loans had terms of amortization of up to two years.

*Table 7. Mexico: terms of amortization for loans authorized by the Guarantee and Development Fund*

<i>Number of loans</i>	<i>Term of Amortization</i>	<i>Amount of loans (million pesos)</i>
388	Up to 12 months	55.1
3,667	Up to 24 months	594.3
1,712	Up to 36 months	347.1
610	Up to 48 months	169.5
517	Up to 60 months	258.6
4	More than 60 months	4.9
<u>6,898</u>		<u>1,429.5</u>

It may be concluded that in general most of the loans granted with terms of amortization of up to two years were used for supply purchases, the term normally being between 15 and 24 months. Table 8 below classifies the loans granted by amount.

Table 8. Mexico: classification of loans authorized by the Guarantee and Development Fund

Number of loans	Percentage of total number of loans	Amount up to (pesos)	Total amount (million pesos)	Percentage of amount for all loans
4,776	69.24	200,000	407.5	28.5
765	11.09	300,000	208.4	14.6
444	6.44	400,000	166.1	11.6
319	4.61	500,000	154.8	10.8
231	3.35	600,000	134.1	9.4
144	2.09	800,000	105.4	7.4
166	2.41	1,200,000	165.2	11.6
28	0.41	1,500,000	39.6	2.8
8	0.12	1,750,000	13.2	0.9
14	0.20	2,000,000	27.3	1.9
3	0.04	over 2,000,000	7.5	0.5
<u>6,898</u>	<u>100.00</u>		<u>1,429.5</u>	<u>100.0</u>

It is interesting to note that 69.24 per cent of the loans that the fund has authorized were for amounts of up to 200,000 pesos; the average of such loans was 85,300 pesos.

The textile processing industry has benefited by these loans, but especially the following industrial groups: food products, textiles, metal goods, wearing apparel and chemicals. Specifically, the fund has supported 2,115 small and medium-sized enterprises engaged in the production of consumer goods, representing 55.6 per cent of the total number of enterprises assisted. These 2,115 enterprises have received 2,396 loans for supply purchases, totalling 393.9 million pesos, and 1,303 capital equipment loans, totalling 281.6 million pesos.

Moreover, the fund has helped 1,689 enterprises manufacturing production goods, representing 44.4 per cent of the total. These enterprises have received 1,930 supply loans, totalling 388.2 million pesos, and 1,269 capital equipment loans, totalling 365.9 million pesos.

As of June 1966, the fund had assisted 3,804 enterprises, of which 1,463 had a net worth of between 25,000 and 500,000 pesos, representing 38.4 per cent of the total. The average amount of capital was 252,300 pesos. If it is assumed that small-scale enterprises are those with a maximum capital of one million pesos, it is found that the fund has assisted 2,304 small-scale enterprises, constituting 60.6 per cent of the total.

Enterprises having funds totalling 1.0 to 3.5 million pesos at their disposal can be considered to be at a transitional stage between small-scale and medium-scale enterprises. This is particularly true of enterprises producing capital goods. The beneficiary industries falling within the limits mentioned above numbered 1,262, representing 33.2 per cent of the total.

The total number of small-scale and transitional-stage enterprises assisted, namely 3,566, represents 93.8 per cent of all enterprises to which loans were made. Only 238 enterprises assisted by the fund had more than 3.5 million pesos of capital of their own in use, the maximum amount being 15 million pesos. These medium-sized enterprises represented 6.2 per cent of the total number of enterprises assisted.

#### BALANCES OUTSTANDING AND RECOVERED

In the financial year 1965/1966, the fund provided 869 loans for a total of 203,592,355.22 pesos. If this amount is added to the 1,151,751,139.97 pesos loaned before 30 June 1965, it will be found that a total of 1,355,343,495.19 pesos, corresponding to 6,723 loans, was made available by the fund. On the date the balance-sheet was drawn up, 175 loans, amounting to 74,172,739.41 pesos, were being processed (table 9 below).

*Table 9. Mexico loans authorized and implemented through the Guarantee and Development Fund, 1954—1966*

	<i>Number of loans</i>	<i>Amount of loans (million pesos)</i>
Total loans authorized . . . . .	6,898	1,429.5
Loans implemented in 1954		13.1
1955		40.3
1956		68.8
1957		69.2
1958		98.7
1959		86.2
1960		110.1
1961		127.8
1962		122.2
1963		166.7
1964		172.2
1965		186.0
1966 (January-June)		94.0
Total loans implemented . . . . .	<u>6,723</u>	<u>1,355.3</u>
Loans being processed . . . . .	175	74.2

Of the 1,355,343,495.19 pesos of loans implemented, the amount recovered by 30 June 1966 was 1,085,113,823.85 pesos, leaving a balance of 270,229,671.34 pesos outstanding at that date. The amounts recovered per year are shown in table 10 below.

*Table 10. Mexico: amount of loans recovered by the Guarantee and Development Fund, 1954—1966*

<i>Year</i>	<i>Amount recovered</i>
1954	0.8
1955	14.3
1956	30.8
1957	55.4
1958	69.1
1959	92.6
1960	89.9
1961	102.6
1962	120.2
1963	128.2
1964	145.5
1965	149.7
1966 (January—June)	85.2
Total	<u>1,085.1</u>

The balance of 270,229,671.34 pesos outstanding on 30 June 1966 is broken down into supply and capital equipment loans in table 11 below. Balances outstanding are recovered with the greatest regularity, and on time.

*Table 11. Mexico: balances of loans outstanding as of 30 June 1966, according to type of loan*

	<i>Million pesos</i>	<i>Percentage</i>
Supply loans . . . . .	112.7	41.7
Capital equipment loans .	157.4	58.3
Total	<u>270.2</u>	<u>100.0</u>

Because supply loans are granted for shorter terms than are capital equipment loans, there is a lower proportion of them outstanding. The supply loans are recovered more rapidly, permitting a faster turnover of the fund's resources. (See tables 12 and 13 below.)

*Table 12. Mexico: estimated number of amortizations of supply loans, 1966—1969*

<i>Year</i>	<i>Number of amortizations</i>	<i>Amount (million pesos)</i>
1966 (July—December)	4,565	44.8
1967	5,891	55.0
1968	1,440	12.0
1969	82	0.8
Total	<u>11,978</u>	<u>112.7</u>

*Table 13. Mexico: estimated number of amortizations of capital equipment loans, 1966—1973*

<i>Year</i>	<i>Number of amortizations</i>	<i>Amount (million pesos)</i>
1966 (July—December)	4,023	28.2
1967	7,200	52.9
1968	5,296	40.1
1969	2,964	24.3
1970	1,094	9.8
1971	126	1.4
1972	17	0.5
1973	2	0.1
<b>Total</b>	<b>20,722</b>	<b>157.4</b>

The balances outstanding have been increasing steadily since the fund began its operations, as may be seen in table 14 below.

*Table 14. Mexico: balances outstanding and annual increase, 1954—1966 (million pesos)*

	<i>Balance outstanding</i>	<i>Annual increase</i>
31 December 1954	12.3	—
31 December 1955	38.2	25.9
31 December 1956	76.1	37.9
31 December 1957	89.9	13.7
31 December 1958	119.4	29.5
31 December 1959	112.9	6.5
31 December 1960	133.0	20.1
30 June 1961	158.1	25.1
30 June 1962	160.0	1.8
30 June 1963	168.3	8.2
30 June 1964	206.1	37.1
30 June 1965	228.1	22.0
30 June 1966	270.2	42.0

#### FUNDS FOR OPERATIONS IN THE FINANCIAL YEAR 1966/1967

With the resources already at the fund's disposal and those that may be made newly available to it through the third IDB loan, a total of 292 million pesos can be earmarked for operations during the financial year 1966/1967 (table 15 below).



*Table 15. Mexico: estimated funds available for financing purposes in 1966*

	<i>Million pesos</i>
Available funds . . . . .	2.0
Balances outstanding and maturing . . .	134.0
Third IDB loan . . . . .	100.0
Probable profits . . . . .	4.0
Recovery of loans implemented during the year (approximately 18 per cent) . . .	52.0
Total	<u>292.0</u>

*Participation of the fund in the private banking system with respect to balances outstanding*

The fund's share in the balances outstanding of banking institutions has decreased each year, as shown in table 16 below.

*Table 16. Mexico: participation of the fund in loans to industry granted by private banks, 1960—1965*

<i>Year</i>	<i>Percentage</i>
1960	2.2
1961	2.3
1962	2.1
1963	2.1
1964	1.9
1965	1.7

This decrease may be partly explained as follows: wishing to publicize its operations, the fund has taken part in conferences and seminars with both industrialists and intermediary institutions. As a result of these exchanges, a larger number of industrialists are applying to banks for the type of loan most suited to their needs and submitting appropriate documentation in support of their applications. In turn, credit institutions have begun to provide a type of financing more specifically suited to the needs of the industrialists and in larger amounts.

According to the fund, the publicity work is still incomplete, and efforts need to be intensified so that each small and medium-scale industrialist knows which loans are most suited to his development needs and so that the bank can grant him such loans, either from its own resources or by channelling operations through the fund. This publicity campaign must be centralized in the provinces.

In tables 17, 18 and 19 below the balances outstanding of supply and capital equipment loans granted by the private banking system are compared with the portion of the fund's balances outstanding for these two types of loan.

*Table 17. Mexico: balances outstanding of supply loans granted by private banks compared with fund figures, 1960—1965*

<i>Year</i>	<i>Amount of loans granted by private institutions (thousand pesos)</i>	<i>Amount of loans granted by the fund (thousand pesos)</i>	<i>Percentage of fund loans in total</i>
1960	2,002.2	55.9	2.8
1961	2,032.1	62.7	3.1
1962	2,001.1	69.7	3.5
1963	2,092.7	97.0	4.6
1964	2,569.6	99.3	3.9
1965	2,813.6	111.2	4.0

*Table 18. Mexico: balances outstanding of capital equipment loans granted by private banks compared with fund figures, 1960—1965*

<i>Year</i>	<i>Amount of loans granted by private institutions (thousand pesos)</i>	<i>Amount of loans granted by the fund (thousand pesos)</i>	<i>Percentage of fund loans in total</i>
1960	567.1	77.2	13.6
1961	731.9	95.5	13.0
1962	803.0	90.4	11.3
1963	1,042.1	101.5	9.7
1964	1,448.4	126.0	8.7
1965	1,648.9	150.3	9.1

*Table 19. Mexico: balances outstanding of supply and capital equipment loans granted by private banks compared with fund figures, 1960—1965*

<i>Year</i>	<i>Amount of loans granted by private institutions (thousand pesos)</i>	<i>Amount of loans granted by the fund (thousand pesos)</i>	<i>Percentage of fund loans in total</i>
1960	2,569.3	133.1	5.2
1961	2,764.0	158.2	5.7
1962	2,804.1	160.1	5.7
1963	3,134.8	198.5	6.3
1964	4,018.0	225.3	5.6
1965	4,462.5	261.5	5.9

The figures for the fund's operations refer exclusively to loans granted to the processing industry, whereas the bank statistics represent the over-all figure for the supply and capital equipment loans that private institutions have made available to all types of productive activity, without a breakdown showing whether they were for agriculture, industry, commerce, etc. A comparison of fund financing available to the processing industry and the supply and capital equipment loans granted by private banks yields the following findings:

- (a) The balances outstanding of supply loans by private institutions increased by 811.4 million pesos (40.5 per cent) while the corresponding fund figures rose by 55.3 million pesos (98.9 per cent); the fund's share rose from 2.8 per cent in 1960 to 4.0 per cent in 1965.
- (b) The balances outstanding of private banks with respect to capital equipment loans increased by 1,081.8 million pesos (190.8 per cent), whereas the balances of the fund in this type of operation increased by only 73.1 million pesos (94.7 per cent). The fund's share has diminished; balances represented 13.6 per cent in 1960 and only 9.1 per cent in 1965.
- (c) As a whole, the balances outstanding of the fund increased by 128.4 million pesos (96.5 per cent) in the period 1960/1965. On the other hand, the balances of private banks increased by 1,893.2 million pesos (73.7 per cent) over the same period. However, a comparison of the balances of private banks and the fund shows that the share of the fund has remained steady, varying between 5.2 per cent and 6.3 per cent.

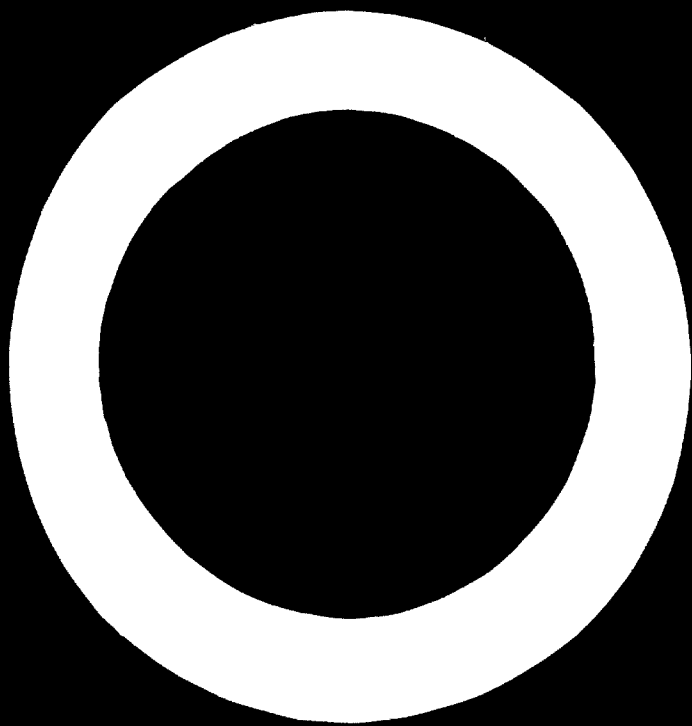
This situation is primarily a result of the notable increase in the operations of private banks. They have applied their resources to a larger volume of capital equipment loans, without permitting any decrease in the volume of supply loans, which have actually increased, although at a lower growth rate.

It may be useful to recall the following passage from the preamble to the statute establishing the fund:

"It must also be borne in mind that the benefits of this fund for the Mexican industrialist are greater than the sums considered hitherto, as it is felt that by further stimulating the credit facilities which private banks can make available to Mexican industrialists, more funds from the banking system will be channelled into the development of medium and small-scale industries."

*Annex 3*

**PANAMA: A CASE OF TECHNICAL ASSISTANCE**



## BACKGROUND

UNTIL A FEW years ago the economic and social systems of Panama had a singular structure—the result of the country's special historical and geographical situation. The Isthmus made Panama an important international cross-road through which a large number of persons and a considerable volume of goods inevitably passed. Consequently, a commercial type of urban economy developed, which in turn gave rise to, and indeed called for, national institutions and infrastructure especially suited to it.

The intensification of economic activity resulting from periodic booms in international trade and from large-scale construction along the highway across the Isthmus, with a corresponding concentration of manpower, has considerably accentuated urban trade, the characteristic feature of the economy of Panama. It has led to a great increase in population, both Panamanian and foreign, which is systematically concentrated in Panamá and Colón, the cities at the two ends of the Canal.

The special structure of the economy was responsible for a number of serious setbacks in a relatively short space of time that considerably hampered Panama's development.

Between 1940 and 1960 the country passed through two important and conflicting phases in its process of economic and social development. From 1940 to 1947, Panama enjoyed exceptional prosperity, but from 1948 to 1960, it suffered the effects of a profound economic crisis and depression, from which it recovered only towards the end of the period.

The period of prosperity, which resulted from the great intensification of economic activity connected with the operation and defence of the Canal during the Second World War, made it possible to achieve rapid expansion and considerable growth in the national economy, with full employment. However, in the early postwar years, economic activity reverted to normal levels, and the demand for Panamanian goods, services and labour underwent a sharp contraction, the effects of which were felt throughout the country from 1948 on.

This grave economic crisis, plus the various problems inherent in the growth of nationalism, confronted the Government with a serious dilemma: it had to choose between increasing production or maintaining a state of chronic under-development. The first alternative was the logical course, although it presented a great challenge: to bring about

a rapid change in the established economic structure, a structure based on trade and the sale of services and centred almost exclusively in the metropolitan areas of the country.

Although industrialization was the indispensable means of shaping the new economy needed in the country, Panama was not always in a position to define clear-cut goals or policies of action adequate for the industrial development to which it aspired. Nevertheless, despite the circumstances, a certain degree of dynamic growth has been achieved in Panama's manufacturing industry. But it was necessary to determine what type of industrialization should be promoted in view of Panama's internal economic conditions: the scarcity of human, technological, physical and financial resources; the ill-defined and uncertainly oriented market; and the limitations of the infrastructure.

Within the general context of industrial development, the Government and the private sector made efforts from the outset to promote medium-scale industry, especially in the metropolitan areas. However, no special encouragement was given to small-scale industry. The importance of this sector is not often discussed in Panama. Efforts to develop it have so far been casual and lacking in imagination.

The explanation for the almost total neglect of small-scale industry is probably to be found in the natural desire of a young and developing country to achieve within a few years what has cost other more advanced countries centuries of effort. However, small-scale industry has always been a part of the economy; and, if it was previously considered a backward sector, it is today viewed in the proper perspective, and attempts are being made to strengthen, diversify and develop it.

For this purpose, the National Service for Handicrafts and Small-Scale Industry (Servicio Nacional de Artesanías y Pequeñas Industrias, SENAPI), was set up, with the assistance of the United Nations Development Programme (Special Fund) and the Government of Panama, for a period of four years, at a cost of 1,712,740 balboas.<sup>1</sup> SENAPI was officially initiated on 28 August 1966 with the signing of the Plan of Operation at Chitré. The executing agencies for this programme are the International Labour Organisation (ILO) and the Ministry of Agriculture, Commerce and Industry (MACI) of Panama. The activities of SENAPI are discussed in greater detail later.

## STRUCTURE OF SMALL-SCALE INDUSTRY

### PRINCIPAL BRANCHES

PANAMA HAS a modest small-scale industry and a primitive handicraft sector, which produce—though not at a very advanced level—articles

<sup>1</sup> 1.00 balboa = \$ 1.00.

of wood, leather, clay, fibre and straw, paper, rubber, glass, non-metallic minerals and metal; also dairy and other food products of agricultural and marine origin. A variety of utilitarian articles are manufactured and repaired.

The problems confronting Panama's small-scale industry are about the same as those affecting that sector in any other country. However, a study of the situation in Panama by type of industry indicates that the older industries, designed to meet the basic and essential needs of the public, account for the greatest number of establishments. Consequently, the food and clothing industries predominate in the country's manufacturing sector.

Wood and furniture-making industries rank third in number of enterprises, representing 11 per cent of all industrial enterprises. These industries are characterized mainly by the small scale of their operations.

The food industry—one of the most important—predominates in the interior of the country. In the province of Panamá only 15 per cent of the industrial enterprises specialize in the production of food, while in the interior 42 per cent of the establishments engage in this activity.

The manufacture of shoes, clothing and other textile products holds fourth place in terms of value of output. These activities account for total output value of 7,900,000 balboas, i.e., 7 per cent of total national production. Only 12 per cent of the number of enterprises specializing in these activities are large-scale, contributing 87 per cent of the total output in the clothing and footwear industries. Small-scale enterprises represent 88 per cent of the total number of establishments but contribute only 13 per cent of the total value of output in this branch of activity.

Acknowledging the importance of small-scale industry in the development of a country and the advantages that can be gained from its activities, it is necessary to examine the reasons for the stagnation and low output of this sector in Panama.

#### CREDIT

One of the major difficulties of small-scale industry in Panama is the scarcity of funds available for renewing and expanding equipment or for meeting the operating costs of an enterprise. This is the result of difficulties encountered by the entrepreneur in securing the guarantees required by financing institutions.

Although small-scale industrialists can accumulate the initial capital for their operations (from their own savings or from those of relatives and friends), they inevitably need supplementary sources of credit. If the credit cannot be obtained from specialized institutions, the entrepreneur is often obliged to resort to loans from businessmen or middlemen who, for various reasons, usually demand exorbitant interest rates.



### LABOUR

Newly recruited workers in small-scale industry—even if they are graduates of vocational training centres—generally need to acquire skill in performing practical work as they go along. They also need the help (sometimes only occasional) of veteran foremen or of other workmen and craftsmen, who have usually been trained in a traditional environment.

The problem of basic, advanced or specialized training is not confined to new workers. If production methods are to be adapted to the new conditions created by industrial development, the foremen, workmen and craftsmen already employed in an enterprise must acquire new skills, for which there may be no instructor available in the enterprise itself.

### RAW MATERIALS AND SUPPLIES

Apart from the normal difficulties inherent in harvesting or extracting raw materials and the need for a more rational system of purchasing, small-scale industrialists usually have no great problem in obtaining supplies of local raw materials. However, in obtaining imported raw materials and supplies of other articles, many small-scale industrialists, for financial or other reasons, may be virtually dependent on a single supplier who may be tempted to abuse his monopoly. Another more general disadvantage of the small entrepreneur is that he is rarely in a position to obtain discounts for purchases in large quantities.

Moreover, small-scale industries lack the laboratories, the plant and the specialized personnel to undertake studies of raw materials and their more rational utilization.

### PRODUCTION

The main characteristic of many small enterprises is that the production methods are traditional and have not been adapted to take advantage of new tools, equipment, installations and machinery, techniques and markets. Such adaptation is an essential prerequisite for the survival of many sectors of small-scale industry. However, small entrepreneurs often do not know how to make the necessary adjustments. They have no opportunity to carry out the technical research necessary for improving production.

Another common feature of many small enterprises is that they have developed in a haphazard fashion. Workshops that may have been well designed originally have been so altered by the subsequent introduction of new machinery and installations set up at random that the physical structure of the enterprise has become completely irrational. Defective handling and maintenance of machinery is frequent and costly in many small industries.

It is also typical of small-scale industry that entrepreneurs find it extremely difficult to solve their production problems and adapt to new manufacturing techniques by themselves, without the help and advice of a specialized government service.

### MARKETING

Small-scale industry is frequently at a disadvantage with respect to marketing. In many cases, entrepreneurs are dependent on a single middleman for an outlet for their products. They have difficulty in advertising, organizing displays, producing catalogues, finding exhibition halls, making contact with potential buyers located some distance away, or in breaking into domestic markets.

The failure to apply quality standards and the lack of uniformity even within a single batch of a given product manufactured by the small enterprise, or in products manufactured by a group of small-scale enterprises producing a similar article, are frequently great obstacles to market expansion.

### MANAGEMENT AND ADMINISTRATION OF ENTERPRISES

Most of the topics considered in the preceding paragraphs are problems of management. At the root of them all lies the fundamental problem of developing rational methods of management and administration for small enterprises, however small they may be.

The heads of small-scale industries in Panama constitute a large proportion of the business executives. Most of them have had no systematic training for the difficult and diverse tasks they are required to perform. In some cases, the administrators have had no training in management; in others, training has been confined chiefly to a specialized aspect of their work.

Many small-scale industries started out as handicraft industries or mere workshops operated by master craftsmen. In such cases, the head of the enterprise may be an excellent craftsman, but has little interest in or knowledge of accounting, costing, marketing and other aspects of his work. Other small establishments were started by businessmen with experience in buying and selling, but with little knowledge of production.

Thorough training for an entrepreneur is no substitute for common sense, good judgement and intelligence. However, training can be of great help in ensuring that a manager tackles his problems systematically, asks the right questions, and knows the techniques that will assist him in finding solutions. The small-scale industrialist must also be able to define tasks and spheres of authority clearly and to delegate some of his responsibilities to others.

## IMPORTANCE OF SMALL-SCALE INDUSTRY

### PROBLEMS OF DEFINITION

THE DEFINITION of small-scale industry varies from country to country. In Panama there is still no legal definition of what constitutes handicraft workshops, small-scale, medium-sized or large-scale industry. Before SENAPI was established, the Dirección General de Estadísticas y Censo undertook to make a classification of small-scale and large-scale industry for its own needs, using the 1961 Industrial Census as a basis. It concluded that data on "large-scale" industry (enterprises with five or more employees) should be published separately from data on "small-scale industry" (enterprises with fewer than five employees).

For study, planning and development of small-scale industry in Panama, the classification devised by the Dirección de Estadísticas y Censo is clearly inadequate. For the purposes of this paper, establishments with up to 15 employees will be considered as belonging to the small-scale industry sector.

### DATA ON THE TREND OF ITS DEVELOPMENT

There are few means for gauging the quantitative contribution of small-scale industry to the national economy or, in particular, for making yearly comparisons in order to determine the growth of the sector. The only sources are the Dirección General de Estadísticas y Censo, which uses the Census of Industry, Commerce and Services for 1962, and the Directorio de Establecimientos de la República (1961). Nevertheless, useful data are available that make it possible to present a fairly clear picture of the situation of small-scale industry in Panama.

At the beginning of July 1964, Panama had a population of 1,129,136, with 777,000 persons aged ten years old and older, of whom 378,000 (48.5 per cent) were "economically active". Fifty per cent of the active population was employed in agriculture, while the remainder was employed in other sectors of the economy. About 40,000 persons worked in small factories, cottage industries or family-type handicraft workshops, making up approximately 22 per cent of the economically active sector, excluding agriculture.

According to data for December 1963, there were 2,072 manufacturing enterprises in Panama employing from one to fifteen persons, while only 228 enterprises employed more than fifteen persons. The total number of persons employed in manufacturing enterprises was 17,623, of whom 5,834 were working in the 2,072 small enterprises. Thus 89.6 per cent of the manufacturing enterprises employed 33 per cent of the total number of workers in the manufacturing industry.

### STRUCTURE OF SMALL-SCALE INDUSTRY

Although the classification devised by the Dirección General de Estadísticas y Censo for small-scale industry (up to five persons employed in an establishment) and large-scale industry (five or more persons) is not suitable for the purposes of this paper, the critical survey made by that institution on the structure of Panama's manufacturing industry is very useful.

The results of the first census of the manufacturing industry in Panama (1961) reveal some important characteristics. An analysis of the figures shows the predominance of small-scale industry of the handicrafts type, in which little use is made of modern production techniques; this is typical of an under-developed industry.

Of the industrial establishments covered by this census 76 per cent were very small and employed a staff ranging from one to four persons. Most establishments were operated by the owner or members of his family. Their contribution to the total value of production amounted to 5 million balboas, or only 5 per cent of the country's manufacturing output.

In contrast, large establishments, employing five or more persons, represented only 24 per cent of the total number of establishments covered, but their contribution to the total value of production was 102 million balboas, or 95 per cent of total production. Furthermore, 60 establishments, employing 50 or more persons, contributed 61 per cent of the total value of production.

#### *Legal constitution*

A study of the census figures pertaining to the legal constitution of the various enterprises reveals a strong tendency towards individual ownership or management. In small-scale industry (up to five employees), individually owned establishments represent 95 per cent of the total. In large-scale industry (five or more employees), there is approximately the same percentage of individually owned establishments (44 per cent) as of joint stock companies (43 per cent). The remaining 13 per cent is made up of establishments belonging to co-partnerships, limited companies or silent partnerships.

#### *Geographical distribution of industry*

Significant regional differences can be noted in the geographical distribution of industry. More than half the industrial enterprises (55 per cent) are situated in the provinces with the greatest concentration of urban population, such as Panamá and Colón. The other 45 per cent are distributed among the seven interior provinces of the country. The province of Chiriquí has the greatest number of industrial establishments, representing 42 per cent of all industries in the interior, most

of them, as in the other provinces, being of the small-scale variety. Only 25 per cent of the establishments in the interior are large-scale enterprises.

### *Employment and remuneration*

The manufacturing industry is one sector of the economy that is daily acquiring greater importance because of its ability to absorb manpower. The manufacturing industry employed an average of 15,000 persons during 1961, of which 85 per cent were paid personnel; the remaining 15 per cent included owners, active partners and family members working without compensation. Characteristically, the paid employees in the manufacturing sector consist mainly of operatives and workmen, i. e. persons employed directly in the production process. The total figure for this category was 10,000. The administrative, managerial and technical staff numbered 2,000.

The industries with the largest proportion (58 per cent) of paid employees are as follows, in descending order: food industries, clothing, footwear, wood and furniture.

The data on the volume of paid employees obtained from the 1962 census on the manufacturing industry differ from those obtained from the 1960 census because cottage industries were not considered in the 1962 census. Because of the nature of the two censuses, there were differences in methodology and classification.

Remuneration deriving from the manufacturing industry amounted to almost 18 million balboas in 1962 distributed as follows: 17 million balboas for wages and salaries and 678,000 balboas for special allowances, bonuses, shares in profits and severance pay. The annual average salary for administrative and technical staff was over 2,000 balboas, while workmen received an average annual wage of 1,100 balboas.

### INPUT, PRODUCTION AND VALUE ADDED

The total value of input (intermediate consumption) for the final production of manufactured goods amounted in 1961 to 56 million balboas. Its components included raw materials, containers and packing and other materials, which accounted for 87 per cent of the total input value.

In 1961 large-scale industry obtained 54 per cent of its raw materials from the domestic market and imported the remainder (46 per cent). The percentage of domestic raw materials used is higher because the greatest concentration of industrial activities is in the food industry, which acquires most of its raw materials from the country's agricultural sector. In most branches of the food industry, more than 90 per cent of the raw materials are of domestic origin. The only branch of the food industry in which the percentage of domestic raw material is lower (22 per cent) is the bakery branch.

The other industries that rely primarily on domestic raw materials are: wood, 96 per cent; non-metallic minerals, 80 per cent; leather goods, 68 per cent; footwear, 62 per cent; and beverages, 55 per cent. The industries using the greatest proportion of imported raw materials are: tobacco, clothing, furniture, paper products, printing, rubber goods, chemicals, metals industries, machine repairs and transport equipment, and miscellaneous industries.

If the input value is compared with that of gross production, it will be seen that 52 per cent of the production value went towards covering the different items of input needed to generate production. The other 48 per cent represented the value added, i. e., the contribution of the establishment to the production process. The ratios between input, value added and the value of gross production differ according to the branch of activity and the size of the industry.

## TECHNICAL ASSISTANCE AND ADVICE FOR SMALL-SCALE INDUSTRY

### PROFESSIONAL TRAINING PROGRAMME

UNTIL SENAPI was established, there was no specialized body to provide technical assistance, advice or training for entrepreneurs and managers of small-scale industries.

In Panama City some of these functions are carried by the Centre for Industrial Development and Productivity, an agency of the Ministry of Agriculture, Commerce and Industry. However, the enterprise pays for the assistance it receives. The centre specializes in assisting medium-sized and large-scale industry. It provides professional training programmes, consisting of 20 hours of instruction, for the medium and upper levels of management. There are also courses for supervisors and workers. For some enterprises the centre has provided assistance in such matters as inventory-taking, administration, production processes and costs. The centre operates in Panama City and occasionally in David.

### INDUSTRIAL TRAINING

Industrial training, which is designed to promote industrial development by providing industry with specialized workers, has been severely criticized for certain shortcomings. At present, however, sufficient evidence on which to assess its efficacy is lacking.

There are nine industrial vocational training institutions in Panama, of which five are public. The number of their graduates increases somewhat each year.

## FINANCING OF SMALL-SCALE INDUSTRY

NO PROGRAMMES for financial assistance to small-scale industry in Panama have yet been drawn up. On the whole, industrial financing is still inadequate for a developing country. Loans for personal consumption were approximately 29 per cent higher in 1965 than industrial loans, while commercial loans were five times greater.

It was not until the middle of 1966 that the banking agency DISA had a revolving fund of 20,000 balboas designed exclusively to assist small-scale industry. SENAPI participates in this programme, serving as intermediary for the interior provinces.

Any bank in the country will provide loans to a small-scale industrialist who can offer the necessary guarantees, which are no different from those required for ordinary and current commercial loans. DISA is the only banking agency that has initiated financing specifically for small-scale industry.

## INTERNATIONAL CO-OPERATION IN THE FIELD OF SMALL-SCALE INDUSTRY

SINCE INDUSTRIAL development is very recent in Panama, international co-operation in the field of small-scale industry has been almost exclusively handled by ILO. It was only a few years ago that the term small-scale industry began to be used in connexion with development. The United States Agency for International Development (AID) has co-operated with ILO on the SENAPI project, and its assistance will probably increase as the programme advances.

## TECHNICAL ASSISTANCE FOR THE NATIONAL PLAN FOR THE DEVELOPMENT OF HANDICRAFTS AND SMALL-SCALE INDUSTRY

Under its programme of economic and social development, and at the request of the Government, an ILO expert was appointed in 1964 to study rural handicrafts and small-scale industries. The expert began work in October 1964 at the Centre for Industrial Development and Productivity, an agency of the Ministry of Agriculture, Commerce and Industry (MACI).

A project for developing handicrafts and popular arts was completed by the middle of 1965 and the National Plan for the Development of Handicrafts and Small-Scale Industry was completed in the following November. These projects were approved by the National Co-ordinating Committee for the Development of Handicrafts and Small-Scale Industry. In December 1965, the Government submitted for consideration by UNDP (Special Fund) a project for the creation and establishment of the National Service for Handicrafts and Small-Scale Industry (SENAPI).

The project was approved by the United Nations in June 1966, and ILO was officially designated as executing agent. The plan of operation, namely, the agreement between the Government of Panama, the United Nations and ILO, was signed by Don Marco A. Robles, the President of the Republic of Panama and the representatives of the international organizations on 28 August 1966, at Chitré, in the province of Herrera, where SENAPI has its headquarters.

SENAPI began its programme in September 1966. It will receive assistance from the UNDP (Special Fund) through ILO for a period of four years.

The total cost of the project over this period will be \$ 1,712,740, broken down as follows:

- (a) UNDP (Special Fund): \$ 905,800 for the provision of twelve experts, equipment and machinery for experimental and training laboratories and workshops, vehicles, advanced training fellowships for the Panamanian staff of SENAPI, designing equipment, audio-visual media and various operating expenses;
- (b) Government of Panama (MACI): \$ 806,940 for salaries for the Panamanian staff of SENAPI (professional and administrative), buildings for offices and workshops, office equipment, maintenance of equipment, machinery and transport, allowances for accommodation and board during the training programme and various administrative expenses.

## THE NATIONAL SERVICE FOR HANDICRAFTS AND SMALL-SCALE INDUSTRY

THE PURPOSE of the National Service for Handicrafts and Small-Scale Industry (SENAPI) is "promotion, encouragement, advancement, creation and diversification of activities and production in handicrafts and small-scale industries throughout the Republic, with particular emphasis on the interior of the country".

SENAPI operates under the direct authority of the Ministry of Agriculture, Commerce and Industry. The manager and co-manager of the MACI-UNDP/SF-ILO project maintain the closest possible working liaison with Panama's Centre for Industrial Development and Productivity.

### FUNCTIONS OF SENAPI

In the field of economic research and business administration, SENAPI undertakes:

- (a) Economic studies of specific industries, regions and types of product;
- (b) Feasibility studies of certain handicrafts and small-scale industries;
- (c) Assessment of conditions for development;



- (d) Promotion of product groups and of handicraft and industrial co-operatives;
- (e) Studies of sources of financing and assessment of the possibilities for a broader policy of providing credit to small-scale industrialists and craftsmen;
- (f) Industrial accounting and cost studies;
- (g) Market surveys, and analysis and organization of marketing and exhibitions;
- (h) Preparation of courses and seminars for the managerial staff of enterprises.

In the field of technical research, SENAPI deals with:

- (a) Technical studies and analysis of domestic raw materials;
- (b) Technological research;
- (c) Product design;
- (d) Selection of tools, equipment and machinery best suited to different types of production;
- (e) Planning of production techniques and testing;
- (f) Studies of small-scale industrial plants and handicraft workshops concerning the installation of machinery, determination of specifications and cost estimates.

SENAPI'S technical assistance services include:

- (a) Organization and supervision of centres for the demonstration of handicraft techniques;
- (b) Organization of co-operatives for procuring raw materials and equipment and for the collective sale of products;
- (c) Organization of producers' co-operatives;
- (d) Publication and distribution of SENAPI pamphlets for small-scale industrialists and craftsmen, with information on manufacturing processes, equipment and machinery, raw materials, marketing, organization of co-operatives, elementary accounting, and the results achieved through the SENAPI technical assistance programme.

For industrial personnel at all levels, heads of small industries, foremen, master craftsmen, craftsmen and workmen, SENAPI provides in its workshops specialized training and advanced courses in theory and practice in the following fields:

- (a) Leather industry: tanning, saddlery, fine leather work, shoe-making;
- (b) Wood industry: carpentry, cabinet-making, wood carving;
- (c) Pottery industry: throwing, modelling, moulding, casting, enamelling, firing;
- (d) Vegetable-fibre industry: hat-making, textiles, hand-woven goods, ropes, carpets;
- (e) Food industry: preparation and preservation of juices, fruits, vegetables, meat and fish; cheese-making.

There are also special courses in business administrations, industrial accounting, cost studies, organization of workshops, operation of co-operatives, industrial drafting and artistic design, creation of furniture models, etc. SENAPI has the necessary flexibility to provide the courses most suited to the needs of small-scale industry.

#### STAFF

One of the main tasks of the UNDP/SF-ILO project is to supplement the training of national personnel who work directly with ILO experts, in order to ensure the continuity of the programme after the UNDP-ILO work has been completed.

ILO has provided SENAPI with a manager for the MACI-UNDP/SF-ILO project, and an industrial engineer. It has also provided one expert in each of the following fields:

- (a) Finance, credit and accounting;
- (b) Marketing and economic research;
- (c) Handicraft and industrial co-operatives;
- (d) Product design;
- (e) The pottery industry;
- (f) The tanning industry;
- (g) The leather industry;
- (h) The vegetable-fibre industry;
- (i) The wood industry;
- (j) The food industry.

SENAPI's national personnel include:

A co-manager for the project (chief of SENAPI);

Twenty-one professionals, technicians and instructors in all the above branches (counterparts of the ILO experts);

Seven administrative officers;

Five transport and maintenance staff members.

#### RESULTS ALREADY ACHIEVED BY SENAPI

Since its establishment, SENAPI has endeavoured not to restrict its activities to mere studies but to achieve concrete results. However, the organization has been handicapped because it does not yet have at its disposal all the staff and the material resources that are to be provided with the help of the UNDP (Special Fund).

SENAPI's achievements have been made possible by the interest shown in the programme in all official and private circles in Panama, by the co-operation and the material assistance SENAPI has received from many agencies and organizations, such as the National Co-ordinating Committee for Handicrafts and Small-Scale Industry, Ministry of Education, National Welfare Lottery, United States Agency for International Development (AID), Panamanian Development Institute (INPADE), and Desarrollo Industrial, S. A.

Two demonstration centres have been organized. The first, in the community of La Arena (Herrera), specializes in pottery. Under the guidance of an ILO expert in this field, encouraging results have already been achieved in the use of new techniques, and the quality of products has undergone a complete transformation within a few months. As results improve and production and marketing systems methods are further perfected, this demonstration centre will gradually be converted into a co-operative for the production of pottery ware.

The second demonstration centre, at La Colorada (Veraguas), specializes in saddlery, woodwork and tailoring. Although it still has no experts in leather work, SENAPI has begun to produce various articles that have been well received both in the province of Veraguas and in the capital.

A third demonstration centre is about to be established at La Pintada (Coclé) for the manufacture of hats from vegetable fibres.

In 1966, SENAPI provided small-scale industries and handicraft workshops in the central provinces with technical assistance dealing with:

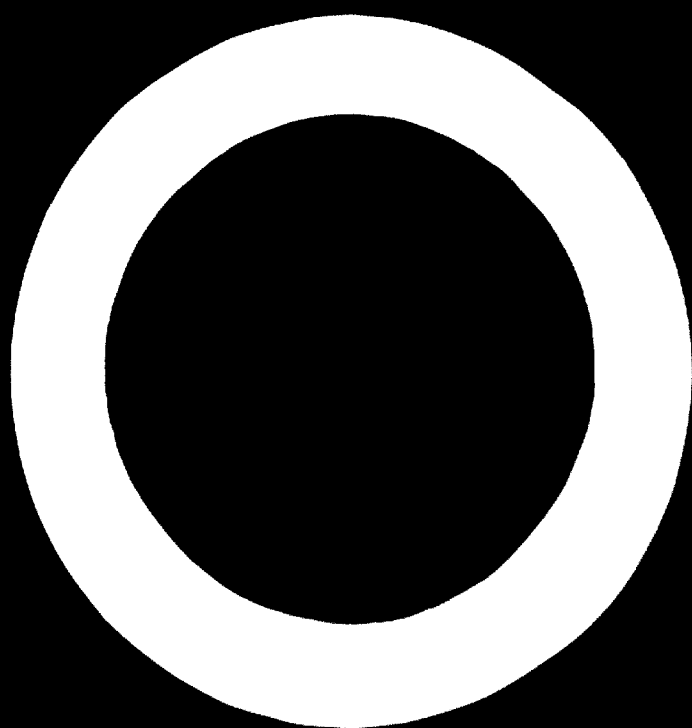
- (a) Plans for the installation of machinery in cabinet-making shops;
- (b) Preparation of plans and supervision of the manufacture of equipment and construction of pottery furnaces;
- (c) Organization of the production of basket-work articles;
- (d) Designing of model products;
- (e) Economic research into small-scale industry and handicraft workshops in the central provinces and the province of Chiriquí.

SENAPI also encouraged savings among handicraft workers and obtained loans from DISA, AID and INPADE for the workshops of tinsmiths, shoemakers, potters and pole-makers.

The successful results achieved in the course of 1966, i. e., during the preliminary phase of the organization of SENAPI, show the importance of this programme. The Government of Panama will soon begin to expand SENAPI's work throughout the country, with the help of UNDP (Special Fund) and ILO, in order to promote the development of small-scale industry in Panama.

*Annex 4*

**VENEZUELA: A CASE OF INDUSTRIAL FINANCING  
AND ZONING**



## ECONOMIC IMPORTANCE OF SMALL-SCALE INDUSTRY

### CONCEPT AND DEFINITION OF SMALL-SCALE INDUSTRY

UNTIL RECENTLY, the concept of small-scale industry remained ill-defined. In 1960, however, the National Commission for the Financing of Small-Scale and Medium-Scale Industry set up by the Ministry of Development began its work and defined "small-scale industry" as those enterprises with an active capital of not more than 100,000 bolívars (\$ 22,727).<sup>1</sup> In 1961, the Central Bureau for Planning and Coordination (CORDIPLAN) undertook the first industrial survey, defining small-scale industry for methodological purposes as those enterprises employing between 5 and 20 persons.

With respect to promotion programmes, co-operatives and private associations, there is still no clear definition, and the demarcation lines between small-scale and medium-sized industry are often confused.

In the present paper, the criterion established by CORDIPLAN has been adopted, as it is the only one that permits statistically comparable figures to be obtained.

### GENERAL CONSIDERATIONS

Small-scale industry is very important in Venezuela. In 1961, it accounted for 18.9 per cent of manufacturing production, 82.5 per cent of all manufacturing activities. In 1963, when the third economic census<sup>2</sup> was carried out, small-scale industry accounted for 43.5 per cent of all enterprises and employed 16.5 per cent of all those working in manufacturing activities. The data of the industrial survey and of the economic census are not comparable in absolute values because the bases and methods employed were different. Interesting conclusions may be drawn, however, from the relative magnitudes observed.

Table 1 below gives the number of enterprises and employees in small-scale industry in Venezuela for 1961 and 1963, together with the relation of these figures to the rest of manufacturing industry.

In 1963, industry in Venezuela was concentrated in certain fields, such as the food industry, clothing and footwear, furniture and fixtures, and transport equipment. These branches of industry lend them-

<sup>1</sup> 4.50 bolívars = \$ 1.00.

<sup>2</sup> The two previous censuses were in 1936 and 1953.

Table 1. Venezuela: number of enterprises and employees in small-scale industry, 1961 and 1963

Year	Enterprises		Employment	
	Number of small-scale enterprises	Percentage of total manufacturing enterprises	Number of employees in small-scale industry	Percentage of total manufacturing labour force
1961	6,216	82.5	57,488	36.6
1963	2,634	43.5	24,628	16.5

Source: CORDIPLAN, Industrial Survey, 1961; preliminary data of the third economic census.

selves to the establishment of small units producing goods for local consumption. Service industries, where, for example, industrial activity amounts in fact to repair services, are also particularly suitable for small establishments.

Table 2 below shows the structure of manufacturing industry as a whole and small-scale industry in 1961 and 1963, with industries grouped according to the International Standard Industrial Classification (ISIC) of the United Nations.

Table 2. Venezuela: number of enterprises as a percentage of total manufacturing and small-scale industry, classified by industrial group, 1961 and 1963

ISIC group	1961		1963	
	Manufacturing as a whole	Small-scale industry	Manufacturing as a whole	Small-scale industry
20. Food . . . . .	18.6	19.1	21.8	26.9
24. Footwear and other wearing apparel . . . . .	16.3	15.7	13.0	10.7
26. Furniture and fixtures . . . . .	11.4	12.1	7.2	7.7
28. Printing and allied industries . . . . .	5.0	5.1	5.4	7.2
31. Chemical products . . . . .	3.4	2.9	4.6	2.7
33. Non-metallic minerals . . . . .	5.7	5.8	5.5	6.5
35. Metal products, except transport equipment . . . . .	4.3	4.5	6.9	7.1
37. Electrical machinery, apparatus, appliances and supplies . . . . .	3.4	3.3	2.3	1.7
38. Transport equipment . . . . .	15.5	17.1	15.5	11.5

Source: CORDIPLAN, Industrial Survey, 1961; preliminary data of the third economic census.

#### MANUFACTURING EARNINGS AND PRODUCTION FIGURES FOR SMALL-SCALE INDUSTRY

Although small-scale industry accounted for a large percentage of the total number of enterprises in 1961, it was responsible for only 18.9 per cent of total manufacturing earnings (table 3 below).

The proportion of small enterprises in one branch of industry may be quite different from that in another. Small enterprises account for 70 per cent of the production of timber, but for only 5 per cent of the

production of hides and 0.5 per cent of production in petroleum refining.

The industries in which small enterprises predominate are furniture, paper products, machine repair, clothing, and vehicle repair. In contrast, in the food industry, which is typical of Venezuelan small-scale industry because of the number of small units it contains and its contribution to employment, small enterprises account for only 34 per cent of total output.

The predominant activity of small enterprises is the manufacture of non-durable consumer goods, which make up almost 40 per cent of the production of small-scale industry. The repair of equipment and machinery, including vehicles, and the manufacture of some intermediate products, mainly construction materials, follow, each representing less than 16 per cent.

#### EMPLOYMENT FIGURES FOR SMALL-SCALE INDUSTRY

In 1961, small-scale industry in Venezuela employed 57,488 persons, or 36 per cent of the total manufacturing employment. The

*Table 3. Venezuela: share of small-scale industry in manufacturing production and employment, classified by industrial group, 1961*

<i>ISIC group</i>	<i>Production</i>	<i>Employment</i>
<i>Traditional industries</i>	27.0	35.9
20. Food	34.1	38.8
21. Beverages	7.4	20.1
22. Tobacco	2.4	14.2
23. Textiles	7.3	6.6
24. Footwear and other wearing apparel	36.6	46.2
25. Wood and cork	69.5	55.8
26. Furniture and fixtures	51.7	59.5
29. Leather and leather products	42.6	47.5
<i>Intermediate industries</i>	5.6	22.9
27. Paper and paper products	5.0	16.7
30. Rubber	14.3	25.0
31. Chemical products	19.2	26.8
32. Petroleum and coal derivatives	0.5	0.7
33. Non-metallic minerals	20.8	39.3
34. Basic metals	4.4	13.0
<i>Mechanical industries</i>	32.2	57.1
35. Metal products except transport equipment	25.4	45.4
36. Machinery except electrical machinery	41.0	41.2
37. Electrical machinery, apparatus, appliances and supplies	31.3	48.2
38. Transport equipment	34.9	65.1
<i>Others</i>	29.9	45.8
28. Printing and allied industries	26.4	46.3
39. Miscellaneous	38.7	44.8
<b>All industrial groups</b>	<b>18.9</b>	<b>36.6</b>

Source: CORDIPLAN, Industrial Survey, 1961.



sector's share of total manufacturing employees varied from 65 per cent for industries producing transport equipment to 6.6 per cent for textiles and 0.7 per cent for petroleum products.

In 1961, the average number of persons employed in a small industrial enterprise was 9 persons; this average was maintained in 1963, although the average for the intermediate and traditional industries decreased, while the average for the mechanical industries group rose from 20 in 1961 to 25 in 1963.

The productivity of labour in small-scale industry is substantially lower than the average productivity in the manufacturing industry as a whole; thus, in 1961, the value added per worker in small-scale industry was 18,011 bolívares (\$ 5,376), while average productivity in the manufacturing industry as a whole was 34,150 bolívares (\$ 10,194). This means that small-scale industry attained only some 55 per cent of the average productivity in the manufacturing industry, and scarcely one third of the productivity of large-scale industry.

#### PRODUCTION CONDITIONS IN SMALL-SCALE INDUSTRY

Three fundamental relationships have been used as a basis for analysing the production conditions of small-scale industry in relation to the other manufacturing activities in the country: (a) the value-added/fixed-capital ratio, (b) the production/fixed-capital ratio, and (c) the value-added/production ratio.

The value-added/capital ratio was calculated by taking as the numerator the value added by small-scale industry in 1961 and as denominator the fixed capital for this group, i. e., the value of buildings and structures, machinery and equipment, transport equipment and office equipment.

The average value-added/capital ratio for small-scale industry in 1961 was 1.57, i. e., for every unit of capital invested in small-scale industry over one and a half units of value added were obtained.

The same ratio for the manufacturing industry as a whole was 0.63, while for large-scale industry it was even less — only 0.48. This indicates the smaller capital requirements per unit of value added in small-scale industry compared with large-scale industry and, indeed, compared with the average for the manufacturing industry as a whole.

Nevertheless, there are cases where this ratio, even for small-scale industry, is less than unity, i. e., a large investment is required per unit of value added. This is the case, for example, in the petroleum, basic metals and chemicals industries.

On the other hand, the predominance of the labour factor over capital requirements is to be observed in tire re-treading, tobacco manufacture, garment manufacture, footwear repair, machinery repair, and the manufacture of construction materials.

The remainder of the activities had a value-added/fixed-capital ratio of between 1.0 and 2.0 in 1961, i. e., an average requirement of

one unit of capital for one to two units of added value. In 1963, the average ratio was 1.5. It was just over unity for clothing and footwear manufacture and furniture manufacture; for the remaining activities it was between 1.0 and 2.0, as in 1961.

The production fixed-capital ratio is different from the value-added/fixed-capital ratio because it includes in its composition the value of the costs entering into the manufacture of the product. This ratio is therefore higher than the foregoing ones, and the difference between the average ratio for small-scale industry and that for manufacturing industry as a whole is greater. Only in the clothing and footwear industry is this ratio lower than the average for manufacturing as a whole. This is not so much a result of the low ratio for this group as it is of the relatively high ratio for the medium-scale industries, which have a predominating influence in manufacturing as a whole.

The value of the production generated per unit of capital varies from 7.66 for the tobacco industry and 6.90 for the rubber industry to 1.59 for the basic metal industries. In 1963, the average ratio was 3.36; the clothing and footwear industries had the highest ratio for that year.

The value-added/production ratio reflects the value added to materials bought from third parties (material costs) with respect to the value of production. The average ratio for small-scale industry indicates that 45 per cent of the value of production constitutes value added. This ratio is higher than the average for manufacturing as a whole, which is 43 per cent.

The influence of costs in the "traditional industries" group of small-scale industry is greater than the average for the manufacturing industry, but this is not so in the case of the intermediate and mechanical industries group, where the value added exceeds the average for the manufacturing industry as a whole.

In 1963, the value-added/production ratio was 0.44, which was very similar to that for 1961, although the intermediate industries recorded a lower ratio in 1963 than in 1961.

#### INVESTMENT OF FIXED CAPITAL IN SMALL-SCALE INDUSTRY

Investment in Venezuelan manufacturing industry in 1961 was to a large extent concentrated in large manufacturing enterprises, particularly in large enterprises producing intermediate goods. Small-scale industry had scarcely 8 per cent of the total capital of the manufacturing industry, and most of it was concentrated in the traditional industries group, as may be seen from table 4 below.

In 1961, the average amount of capital per small-scale industrial unit was estimated at 8.8 thousand bolivars, which is only one fifth of the average for the manufacturing industry as a whole and one tenth of the average for large-scale industry. The average amount of capital per enterprise in 1963 was 11.5 thousand bolivars.

Table 4. Venezuela: distribution of fixed capital by categories and types of industries

	Large-scale industry	Medium-scale industry	Small-scale industry	Manufacturing industry as a whole
Traditional industries . . .	16.1	5.7	4.9	26.7
Intermediate industries . .	61.1	5.4	1.0	67.5
Mechanical industries . . .	1.0	1.5	1.7	4.2
Remainder . . . . .	0.5	0.7	0.5	1.7
Total	78.7	13.3	8.0	100.0

Source: CORDIPLAN, Industrial Survey, 1961, table 23.

The composition of capital assets also displays different characteristics in small-scale industry. A little less than a quarter of the capital consists of building and structures, about 60 per cent consists of machinery and equipment, and the rest consists of office equipment and transport equipment.

For the manufacturing industry as a whole, buildings and structures account for 39.6 per cent of the fixed capital because of the influence of medium-sized and large-scale industry in this category.

The percentage accounted for by transport equipment is four times greater for small-scale industry than for manufacturing industry as a whole. One reason for this is the way finished products are distributed; medium-sized and large-scale industries can place contracts with specialized transport enterprises for the distribution of their goods, whereas this is very difficult for small enterprises with a low volume of production. Also, small-scale industries include many service activities where it is necessary for the employees to travel to carry out their work.

#### COST STRUCTURE OF SMALL-SCALE INDUSTRY

The composition of the value of production of small-scale industry is analysed in table 5 below.

Material costs represented 54.8 per cent of the value of production of small-scale industry in 1961, and 56.3 per cent in 1963. Raw materials accounted for 91.4 per cent of these costs; the most important of the other components were electric power and processing. The increase in material costs for 1963 is partially explained by the fact that the foreign exchange unification law passed in 1962 raised the cost of imported raw materials.

Material costs for the manufacturing industry as a whole represented 56.8 per cent of the value of production, a percentage slightly higher than that recorded for small-scale industry.

Labour costs amounted to 21.3 per cent of the value of production in small-scale industry in 1961; wages accounted for 60 per cent of these costs. In 1963, labour costs fell to 19.6 per cent of the value of production, but the proportion of labour costs accounted for by wages increased from 60 per cent in 1961 to 68 per cent in 1963. Social security charges represented 11 per cent of total labour costs.

For the manufacturing industry as a whole, labour costs averaged only 16.3 per cent of total costs; wages accounted for 50 per cent of labour costs. By comparison, large-scale industry had labour costs of only 13.3 per cent, of which wages accounted for 46 per cent.

*Table 5. Venezuela: cost structure for manufacturing industry, as a percentage of the value of production, 1961*

Costs	Large-scale industry	Medium-scale industry	Small-scale industry		Manufacturing industry as a whole
			1961	1963	
Material costs . . . . .	58.7	52.6	54.8	56.3	56.8
Processing . . . . .	0.4	1.2	0.4	3.1	0.6
Raw materials . . . . .	56.6	50.0	52.7	51.5	54.6
Fuels and lubricants . . . . .	1.1	0.5	0.8	0.7	0.9
Electric power . . . . .	0.6	0.9	0.9	1.0	0.7
Labour costs . . . . .	13.3	21.4	21.3	19.6	16.3
Wages . . . . .	6.0	11.6	12.8	13.4	8.3
Salaries . . . . .	4.6	6.4	5.2	4.2	5.0
Other remuneration . . . . .	—	0.3	0.9	—	0.3
Social security payments . . . . .	2.7	3.1	2.4	2.0	2.7
Other costs . . . . .	28.0	26.0	23.9	24.1	26.9
Overhead charges . . . . .	2.0	4.3	4.1	3.5	2.9
Other expenses . . . . .	26.0	21.7	19.8	20.6	24.0
Gross value of production . . . . .	100.0	100.0	100.0	100.0	100.0

Source: CORDIPLAN, Industrial Survey, 1961; preliminary data of third economic census.

With respect to social security charges, the situation was the opposite of that for wages. In large enterprises, social security charges represented 20.3 per cent of labour costs and in medium-sized enterprises, 16.5 per cent. In small-scale industrial enterprises, however, they accounted for only 11.2 per cent. This seems to indicate that in small-scale industry, the existing legal requirements for social security charges were being only partially fulfilled.

The other costs, consisting of overhead charges (rentals, publicity, etc.) and the "other expenses" category, which includes the gross profits of the manufacturing enterprises, also showed interesting differences between one industrial sector and another.

In small-scale industry, the gross profits (depreciation, direct taxation and net profit) represented 19.8 per cent of the gross value of production. In large-scale industry, this average increased to 26.0 per cent, while the average for manufacturing industry as a whole was 24.0 per cent.

The incidence of material costs varied from one industry to another; the highest was for food products, petroleum products and timber industries. The incidence of labour costs varied from 9.6 per cent for the food industry, to 48 per cent for the foundry industry. The participation of other industrial sectors in the production process was higher in most cases than the proportion accounted for by labour

costs, varying from 6.6 per cent for the paper products industry to 54.8 per cent for the petroleum products industry.

In 1963, labour costs remained almost at the same level as in 1961, but the percentage of costs accounted for by overhead charges decreased, while that accounted for by gross profits rose.

#### RAW MATERIALS

The 1961 sample survey enabled the origin of the raw materials consumed by small-scale industry to be identified by industry. It was established that 88.1 per cent of the raw materials consumed by this sector were of domestic origin. This was because a substantial group of small-scale industries utilized raw materials, produced in the locality in which these industries were situated.

The average proportion of home-produced raw materials consumed varied from 7.3 per cent for the metal products industry to 100 per cent for the tobacco industry.

#### INDUSTRIAL AREAS

THE FIRST STEPS toward regional planning have now been taken in Venezuela, and specialists are investigating what has been done in this field in other countries. The competent official bodies, however, are still not in a position to set the appropriate machinery in motion themselves. The main Venezuelan national planning body, CORDIPLAN, conscious of its function and of the importance of planning, continually stresses the need to adopt procedures and to set up bodies for regional planning in the near future. So far, only bodies responsible for planning regional development have been established in Venezuela. Among the most important bodies are the Venezuelan Corporation of Guayana (CVG), the Andes Development Corporation (CORPOANDES), the Central Western Development Foundation (FUDECO), the Zulia Planning Council (CONZUPLAN), and other bodies established under the auspices and with the technical assistance of the Venezuelan Development Corporation (CVF) and the municipal councils, such as the Maracaibo Industrial Development Company (COMDIMA), the Company for the Development of the Industrial Area of Barquisimeto (COMDIBAR) and the recently formed Oriente Industrial Development Company (COMDIOR).

Planning and co-ordination bureaux under the regional executive authorities have been set up at the state level, and a regional planning division at the headquarters of CORDIPLAN provides advice and technical assistance to these offices.

One of the most effective instruments for developing the foundations of the manufacturing industry in Venezuela has been the establishment of industrial areas provided with the necessary basic industrial services (water, electricity, telephones, gas, roads). These industrial areas are

generally laid out by municipal councils in parcels of suitable size for setting up factories and for sale at prices covering the cost of the services provided.

These areas are administered by companies set up for this purpose and partly financed by CVF. The industrial areas of Valencia, Maracaibo, Barquisimeto and Oriente, which were promoted and financed by CVF, are now in operation. The industrial areas of Maracay, La Victoria and Cagua in the state of Aragua and the area of Santo Tomás in Guayana are also in operation. Santo Tomás is under the direction and promotion of the Venezuelan Guayana Corporation.

#### VALENCIA INDUSTRIAL AREA

In 1959, an industrial development body at the municipal level, the Valencia Industrial and Sanitary Development Foundation (FUNVAL), was set up principally to promote industrialization, establish a sanitary infrastructure and improve town planning and the amenities of Valencia. The foundation proceeded to acquire the necessary ground for setting up industrial enterprises. This resulted in the establishment of the municipal industrial area, which consists of 800 hectares of municipal ground adjoining an area of 1,200 hectares of private property intended for the construction of industrial sites.

The industrial area is divided into two parts. The northern section has an area of 200,000 square metres and is designed for the establishment of small-scale and medium-sized industries, for which purpose it is provided with the necessary facilities, such as water mains, sewers, drains, telephones, gas mains, streets and avenues. The southern section, 6 million square metres in area, is designed for the establishment of large-scale industry and is provided with public lighting and electric power supplies, deep wells for the supply of water, a telephone service provided by the Public Electrical Administration and Development Company (CADAFE), an industrial gas supply, an airport (under construction), and a full-time bus service.

It is planned to provide additional services and facilities, such as an area for a permanent industrial exhibition and commercial centre, an effluent treatment plant, full-time police and fire department forces, and the reforestation and maintenance of green areas. The cost of the work to be carried out in the industrial area is estimated at 60 million bolívares.

This industrial area, which is run by an efficient administration, has brought about great industrial expansion, a result of its advantageous location and the favourable conditions under which industries and companies can establish themselves and operate there. Industries established in the Valencia district are exempted from the tax on the licence required to engage in industry or commerce and also from 40 per cent of the construction tax for five years from the start of production. When this five-year period is over, the industries pay a tax

of 0.1 per cent on gross sales. Furthermore, in the municipal industrial area, industries receive all the essential services they need at the lowest possible rates.

#### MARACAIBO INDUSTRIAL AREA

Another experiment worthy of mention is the establishment of the Maracaibo Industrial Development Company (COMDIMA). This is a commercial venture in the form of a joint stock company set up by CVF and the municipal council of Maracaibo with the object of developing an industrial area properly designed from the technical point of view and meeting the industrial development needs of the state of Zulia.

The municipal council's contribution to the capital of the development company was 1,148,000 square metres of land located in that part of the city of Maracaibo reserved under the town-planning regulations for industrial uses. The participation of the city government of Maracaibo in this venture ensures its active collaboration in the solution of any problem arising in the future development of the industrial area.

CVF, for its part, subscribed half the registered capital of the company and provided financing for the construction of the town services in the industrial area. In addition, it contributed another indispensable element: the technical assistance needed to ensure that the design of the area, the execution of the construction work, and the promotional efforts in connexion with the new area were carried out in accordance with the soundest and most modern techniques.

The municipal council reserved for the Maracaibo industrial area, an area of 700 hectares located south-west of the city. In addition, it recently approved the granting of a ten-year exemption from municipal taxes to industries establishing themselves in the industrial area. This was the first of the council's incentives aimed at promoting the establishment of industry in the area. The complete programme provides also for an industrial centre (20 hectares in area) designed to house passenger terminals, a postal and telecommunications system, fire department, and banking and municipal institutions, etc.

The Perijá highway and the Avenida de los Haticos provide good access roads. The ring road gives a direct link to practically the whole city of Maracaibo. The area is also very close to the access roads leading to the bridge across the lake, and it is near the new airport at Caujarito.

#### BARQUISIMETO INDUSTRIAL AREA

The Company for the Industrial Development of Barquisimeto (COMDIBAR) is an enterprise promoted by CVF and the municipal council of Iribarren in the state of Lara with a view to the development of an industrial area properly designed from the technical point of view and in keeping with the urgent development requirements of this area.

It is planned to establish this industrial area on ground to be made available by the municipality of Iribarren district. For this purpose, the

company is authorized to install and operate factories and industrial establishments, represent and distribute domestic and foreign products, and import, export, buy and sell such products. It can carry out every type of legal transaction in law or operation covered by its articles of establishment, and any other operations of lawful business or commerce that the provisional management may consider to be in the interests of the company.

The Barquisimeto industrial area (ZIBA) is located north-west of the city of Barquisimeto and occupies approximately 210 hectares of land, 997,542 square metres of which will be divided into plots for industrial use.

Under an agreement signed between CVF, the government of the state of Lara and the National Commission for Small-Scale and Medium-Scale Industry, 30 industrial buildings out of a total of 100 are being built in the industrial area at a cost of 10 million bolívares.

The Barquisimeto industrial area is being constructed to house enterprises suitable for promotion in the area, such as the industries of milk and meat products, fruit products, groundnut processing, animal foods, dehydrated products, leather products, fertilizers, agricultural implements, work clothing manufacture, timber and timber products, metal constructions, sugar-cane products, sand and clay products, plastics products, and printing and packaging products.

The Morón-Barquisimeto gas pipeline will supply the industrial area with the gas it needs, and the nearby capital of the state of Lara will provide it with adequate water and electric power services.

#### ORIENTE INDUSTRIAL AREA

The Oriente Industrial Development Company (COMDIOR), a commercial company formed by CVF and the municipal council of Bolívar district of the state of Anzoátegui, has as its fundamental object the development of the industrial area to be established on ground the municipality is making available to the company. The company is authorized to engage in activities similar to those of COMDIBAR.

The establishment of COMDIOR represents the first step towards the industrialization of the eastern part of Venezuela through the financing of large-scale projects in agriculture, tourism, stock-raising and industry. Among the main projects to be put into effect are the establishment of a plant for the production of groundnut oil to be used in fish-canning, the development of the fruit industry in the Caribbean area, the manufacture of cotton gins, the construction of an industrial-scale slaughter-house in the state of Anzoátegui at a cost of 6 million bolívares, a programme for developing the fishing industry, a plan for investments in mining and petroleum production, and a plan for the development of tourism.

The Oriente industrial area is located in the "Los Montones" sector of the municipality of El Carmen in Bolívar district, three kilometres



from the international airport at Barcelona. The work will be carried out in two stages, the first of which provides for the development of an area of 1 million square metres in a relatively short period. The area will be supplied with water from the INOS waterworks, while electric power will be supplied from the CADAFE sub-station at Barcelona. The Tigasco gas pipeline crosses the Barcelona industrial area from east to west, and a telephone system already exists in the area.

## FINANCING OF SMALL-SCALE INDUSTRY

### GENERAL CONSIDERATIONS

THE VENEZUELAN financing system for manufacturing activities operates through three institutions: CVF, the Industrial Bank of Venezuela and the National Commission for the Financing of Small-Scale and Medium-Scale Industry. Only the last-mentioned body has the specific task of financing these activities. Over the last three years, the share of the public sector in financing small-scale industry has been 4 per cent, while the CVF has contributed an extra 1.1 per cent, making a total of 5.1 per cent, as shown in table 6 below.

Table 6. Venezuela: comparison of loans made to small-scale industry with those to industry and other economic activities as a whole<sup>a</sup>, 1963-1965

	Total loans (million bolivars)	Loans made to small-scale industry (million bolivars)	Loans made to small-scale industry: percentage of total loans %
1963	120	10	8.3
1964	188	8	4.3
1965	298	13	4.4
Total	606	31	5.1

Source: Industrial Department, CORDIPLAN.

<sup>a</sup> Loans granted by the Venezuelan Development Corporation (CVF), the Industrial Bank of Venezuela and the National Commission for the Financing of Small-Scale and Medium-Scale Industry.

The traditional industries have been those most favoured in this financial assistance programme, having received 53.9 per cent of all the financial assistance granted during the five years covered by the programme. The food industry accounted for 48.8 per cent of the total for the traditional industries and 26.2 per cent of the total for all groups.

### THE NATIONAL COMMISSION FOR THE FINANCING OF SMALL-SCALE AND MEDIUM-SCALE INDUSTRY

Through this body, set up in 1959, the Ministry of Development operates its financial assistance programme for small-scale and medium-sized industry in conjunction with the executive authorities of federal agencies, the Industrial Bank of Venezuela and private banks.

The basic objects of the programme are: (a) to make loans to artisans and small-scale and medium-sized industry for production

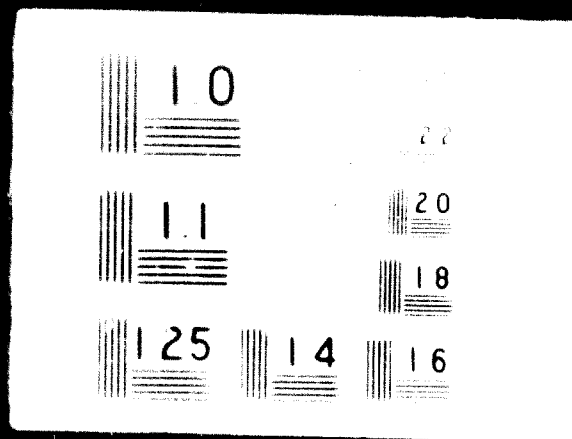


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equipment, installations, working capital, raw materials and other items necessary for the production of goods, (b) to provide the necessary technical assistance to raise the levels of productivity and production, and (c) to create favourable conditions for the economic and social improvement of the country by ensuring permanent sources of employment and by training industrial entrepreneurs and labour.

In order to finance programmes for small-scale industry, the commission maintains a fund made up of contributions from the Ministry of Development and CMI and sums specifically set aside for that purpose by regional authorities. These funds are deposited with the Industrial Bank of Venezuela. A separate fund with different regulations and conditions exists for financing programmes for medium-scale industry; in this paper, only the programme for small-scale industry is considered.

For the purpose of this programme, a small-scale enterprise is considered to be one whose active capital at the time it requests a loan does not exceed 100,000 bolivars (\$22,727). In the case of the medium-scale industry programme, the corresponding range of active capital is from 100,000 bolivars to 1,000,000 bolivars. The commission grants loans for any of the activities described as manufacturing activities in the International Standard Industrial Classification (ISIC) of the United Nations.

The small-scale industry programme operates all over the country in a decentralized manner; a regional commission in each state deals with the receipt of requests and their transmission to the central office. The total loans advanced may not exceed 25,000 bolivars (\$5,682). Each regional executive requires loan applicants to provide what is considered to be adequate guarantees for this purpose in the form of bonds, industrial collateral or mortgages. On the basis of these guarantees, he is then able to vouch for the borrower to the national commission.

The loans made are subject to 6 per cent annual interest on the unpaid balance, and capital repayments and interest payments are made monthly, quarterly or twice-yearly over a period of not more than five years. The commission levies an additional 0.5 per cent on the total amount of the loan granted to cover the study and evaluation costs of each application, and, within the maximum stipulated repayment period, it can allow periods of grace of up to eighteen months. The loans obtained may be used for working capital as well as for the purchase of raw materials and machinery.

Since it was established in 1960, the National Commission for the Financing of Small-Scale and Medium-Scale Industry has advanced a total of 49,000,000 bolivars (\$11,186 million) to 3,421 small-scale industrial enterprises. The industry that has received the largest amount in loans (26.2 per cent of all loans granted) is the food industry. It is followed by the jewellery and trinket manufacturing industry, which has received 18 per cent of the loans; the clothing and footwear industry,

with 13 per cent, the timber industry, with 12.7 per cent, and the non-metallic minerals industry, with 8 per cent. The only activities that have not benefited from the programme so far are the textile industry, because it is a medium scale or large scale activity, rather than a small scale one, the furniture industry, the paper and cellulose industry, the petroleum products industry, the basic metals industry, and the mechanical industries group (except for the metal products industrial group, which has received 9.2 per cent of the total loans).

The distribution of loans over the territory of Venezuela is fairly equal, but there is a tendency for more loans to be granted to the more industrialized states such as the Federal District, Miranda, Carabobo, Zulia and Aragua.

In 1962, the commission began a programme of loans to medium-scale industry, a programme that is acquiring considerable importance. Up to 1965, 64.2 per cent of the commission's loans had been granted to small scale industry, but in the period 1963-1965, the proportion was 48.8 per cent for small scale industry and 52.2 per cent for medium-scale industry.

#### THE VENEZUELAN DEVELOPMENT CORPORATION (CVF)

This is the largest loan-granting institution in the country, and its work has been of great significance in speeding industrialization. The corporation does not have a specific loan programme for small-scale industry, since its field of activity is directed more towards medium-sized and large-scale industry, but it has given financial assistance to small enterprises. The total financial assistance granted by CVF to Venezuelan manufacturing industries is between 130 and 370 million bolivars per year, of which the most that has been granted to small enterprises in one year is 1.8 per cent.

The small enterprises considered eligible for loans from CVF are those with an active capital of less than 100,000 bolivars and fewer than 20 employees. A total of 82 such enterprises, employing an average of 15 persons, have been assisted in the last five years. In four cases, the enterprises assisted employed more than 20 persons, but only on a seasonal basis because of the type of activity involved.

Of the financial assistance extended, 72.9 per cent represented long-term loans (maximum repayment period 10 years, interest 6 per cent and one year of grace); 16.3 per cent represented bonds entered into in order to guarantee loans made by foreign financial institutions; 10.1 per cent represented expenditures under the programme for renting fixed assets with the option of purchase,<sup>3</sup> and only 0.7 per cent represented short-term loans.

<sup>3</sup> This programme provides for the installation at CVF's expense of the building and machinery required for a project, to be repaid in monthly instalments over ten years.

In addition to its financial assistance programme, C.V.F. participates in the programmes for industrial areas described earlier.

Any type of enterprise, regardless of size, may receive assistance from these two programmes, provided that such assistance is in keeping with the priorities set out in the national plan.



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