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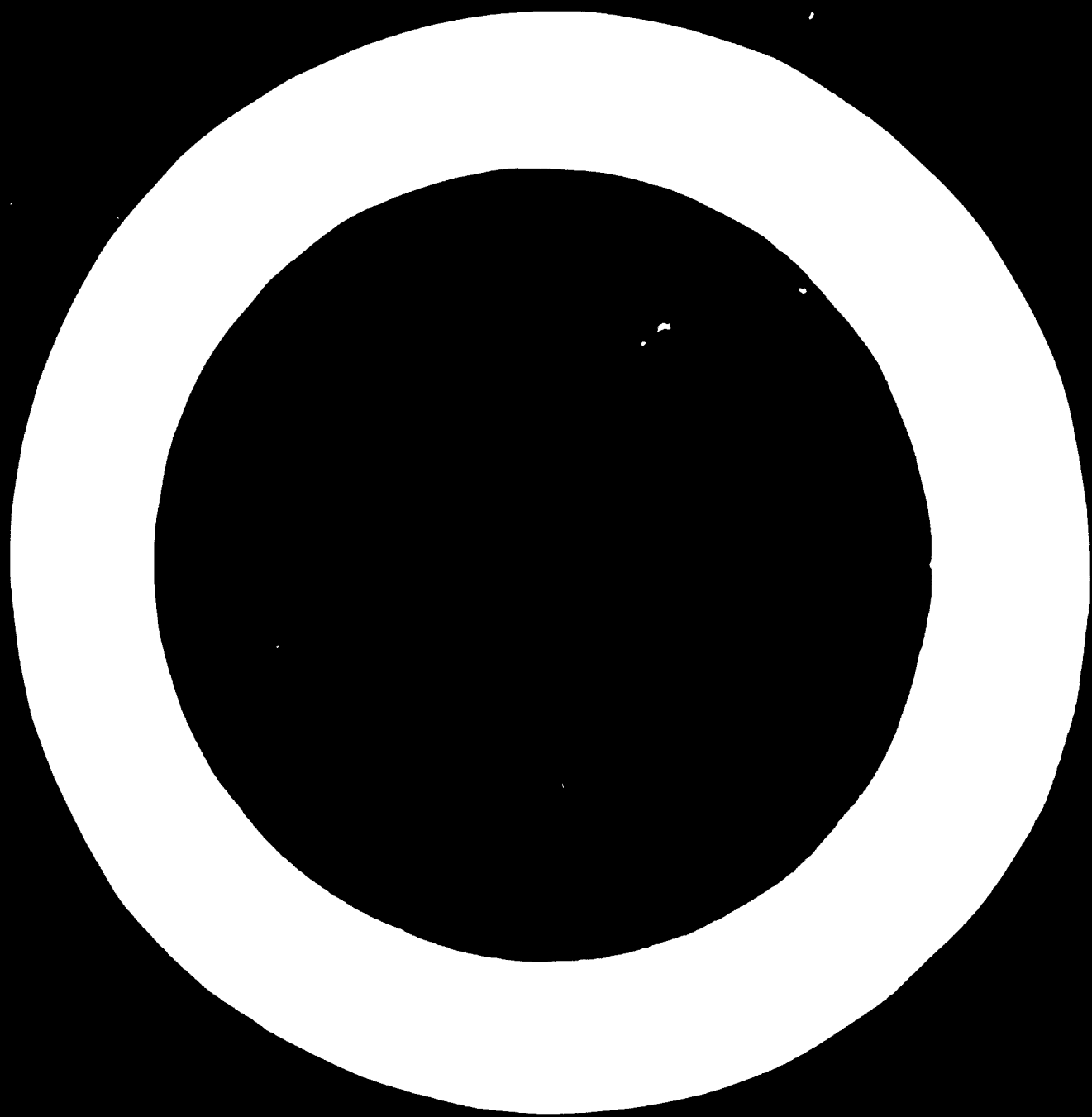
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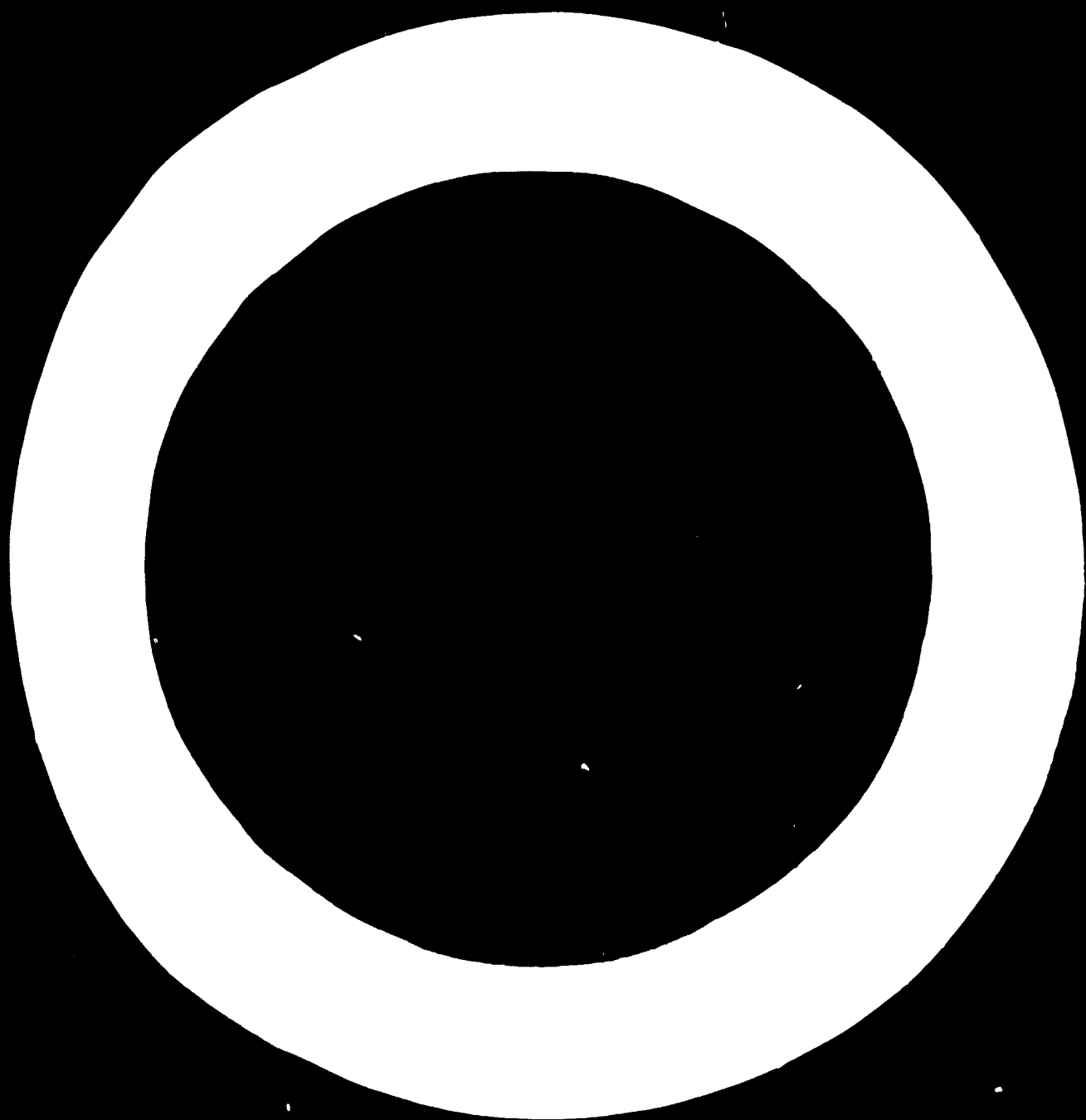
UNDER-DEVELOPED

COUNTRIES



UNITED NATIONS





**ESTABLISHMENT
OF INDUSTRIAL ESTATES
IN UNDER-DEVELOPED
COUNTRIES**



**Department of Economic and Social Affairs
UNITED NATIONS
New York, 1961**

ST/ECA/66

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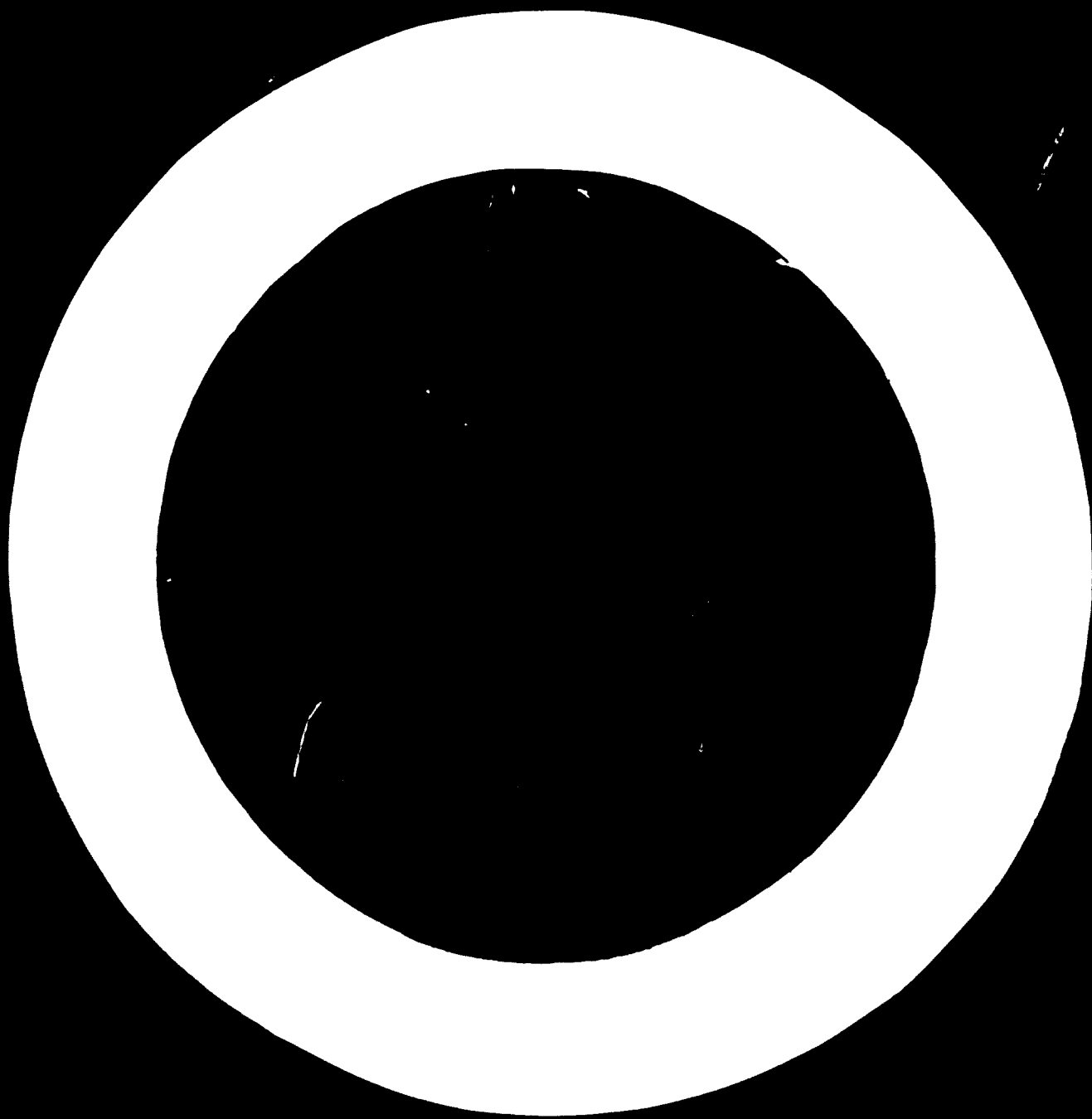
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FOREWORD

In February 1959, the Advisory Committee on the Work Programme on Industrialization — which was convened by the Secretary-General in accordance with resolution 674 A (XXV) of the Economic and Social Council — recommended that a study on the establishment of industrial estates in under-developed countries should be undertaken by the Secretariat of the United Nations under its programme of work on industrialization and productivity.

At its twenty-seventh session, the Council adopted resolution 709 A (XXVII) in which, among other things, it requested the Secretary-General to “lay particular emphasis on projects of direct practical value to economic development” and, in particular, to “projects concerning industrial zones and estates”. The present report has been prepared, in accordance with this request, by the Division of Industrial Development of the Department of Economic and Social Affairs.

In view of the many problems raised in connexion with the establishment of industrial estates in under-developed countries, it is expected that further projects in this field will be undertaken in the near future in the form of reports and studies which will appear either as monographs or articles in the United Nations *Bulletin on Industrialization and Productivity* and in the form of seminars.

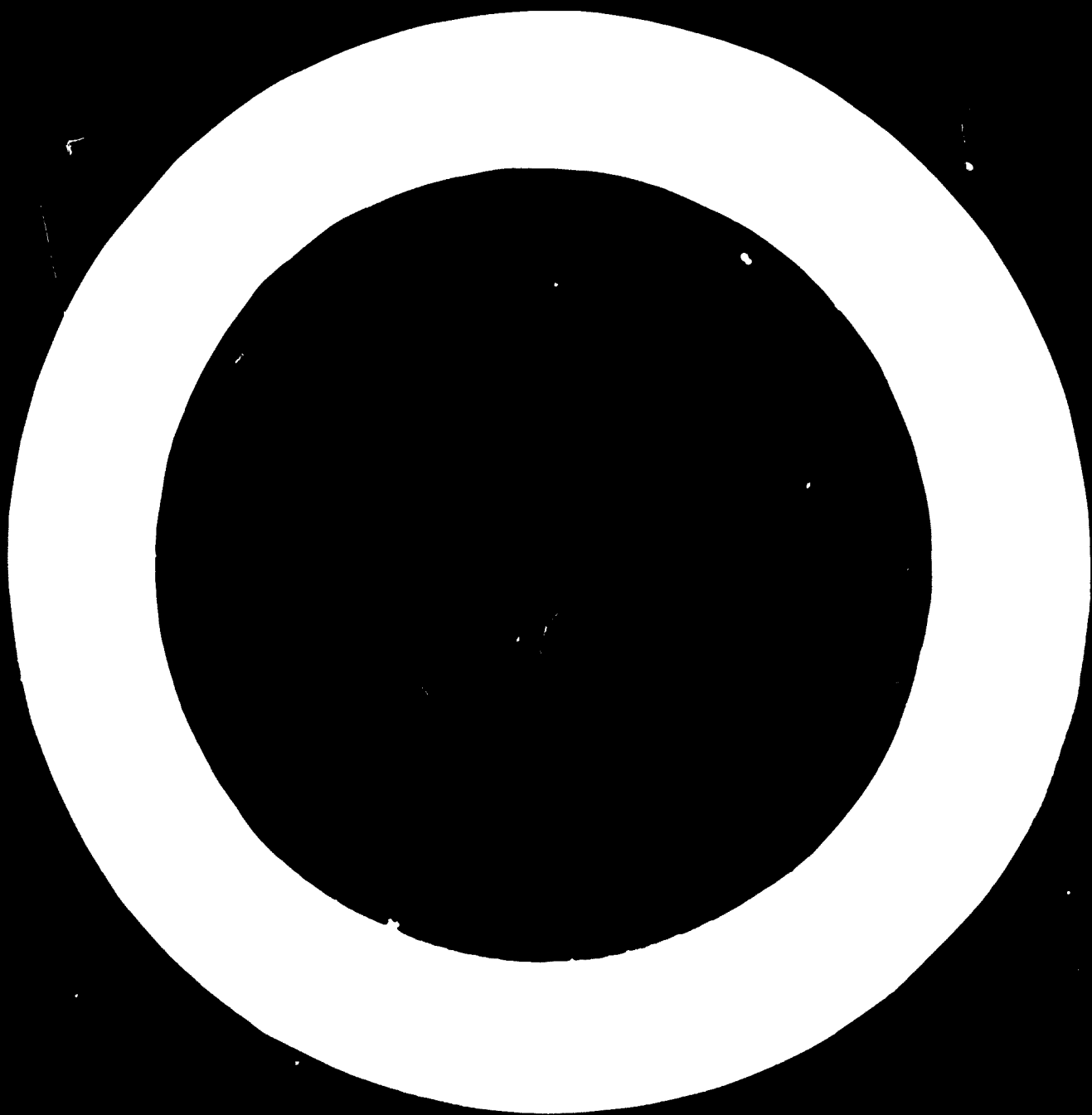


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INTRODUCTION

Towards the end of the nineteenth century, a new method of organizing, housing and servicing industry began to be applied in some economically advanced countries of western Europe and in the United States. A few organizations were set up for the purpose of assembling, improving and subdividing tracts of land, and frequently for erecting factory buildings, according to a comprehensive plan, in advance of, or upon, demand, either for sale or lease to prospective industrial occupants. The plan provided for streets, rail lead tracks and utilities and sewers, which were usually installed before the sites were sold or leased, or were otherwise assured to the prospective occupants. Control over the area and buildings was exerted by the developing agency through zoning and restrictive covenants incorporated in the deeds of sale or leases, with a view to protecting the investments of both developers and occupants and ensuring compatibility among the industrial activities of the latter. A variety of services was provided by the developing agency.

These features are common to the organizations known today as planned or organized industrial tracts, districts or parks¹ in the United States, trading estates or industrial estates in the United Kingdom, industrial zones in Italy, industrial subdivisions in Puerto Rico, and industrial estates in India and other countries; these terms refer both to the organization managing the project and to the site and installations. They differentiate these industrial communities from portions of a town reserved for industrial use by city zoning ordinances, from unimproved and unplanned tracts of land offered for sale as suitable for industry, or from sites improved for the use of an individual industrial establishment or of a very small number of industries.

These common features allow for differences in the purposes, organization and operation of such communities, both as between countries and within the same country; some of these differences will be discussed below. In this study, the term "industrial estate" will be used to express the generic concept, although it will also apply to the specific forms known under this name in certain countries.

The first estate was established in 1896 in the United Kingdom, at Trafford Park, Manchester, by a private

group. In the United States, the Clearing Industrial District, near Chicago, also sponsored by a private corporation, began to operate in 1899. In Italy, the industrial zone of Naples was founded in 1904 by a special state law which entrusted the zone's management to the city. In the course of the next thirty or forty years, only a few private groups followed suit in Britain and the United States, and a few municipalities in northern Italy. The British Government did not show interest in the device until a few years before the Second World War, and at no time did the Federal Government of the United States intervene in the development of industrial estates in that country. The Italian Government began to promote industrial estates as a tool for the industrialization of southern Italy only in 1957.

The British Government first encouraged the use of the device in 1934 as one of the means of combating unemployment in the depressed regions known then as Special Areas, and gave it considerable impetus after the Second World War, when it adopted a nationwide policy of industrial location tending to divert new industry from congested areas and to steer it towards certain under-privileged regions and new population centres. Today, eighty-one estates and smaller "group sites" are in operation in the five Development Areas (the former Special Areas and some additions), fifteen in the "New Towns" and six in Northern Ireland.

In Italy, seven industrial zones were established in the course of the thirty-three-year period from 1917 to 1949, all of them in the industrially developed northern part of the country. In 1953, a zone was opened at Catania, Sicily, which is, apart from the zone of Naples now almost fully occupied, the only one in operation in the South. Between 1941 and 1957, basic development work was started in fifteen zones, in both northern and southern Italy. In 1957 and 1959, the Government passed two laws on the development of Southern Italy which stressed the role of industrial zones in the industrialization of that region and set forth uniform rules for their establishment. Under these laws, the Government will assist in the creation of large areas of industrial development - four of which are currently being developed - as well as of industrial estates of a narrower scope.

In the United States, the growth of industrial estates has accelerated, in the past few years, at an extraordinary rate. By 1939, only thirty-three industrial districts and parks were in existence. Between 1940 and 1949, seventy-four additional districts were developed. Towards the end of 1957, the total number was 302; in 1958, it was estimated at over 800; by the middle of 1959, at well over 1,000, scattered throughout the country (see map

¹ The industrial district corresponds strictly to the above definition. The industrial park is a district planned to ensure compatibility between the industrial operations therein and the existing activities and character of the community in which the park is located. See *A Report on the Dartmouth College Conference on Industrial Parks, June 1958, sponsored by Arthur D. Little, Inc. and the State of New Hampshire* (Cambridge, Massachusetts, 1958). Industrial tracts are improved plots where neither buildings nor services are provided.

No. 1).² While these figures may include groups of industries which do not, strictly speaking, fall within the definition given earlier, it is undeniable that the industrial district or park has become one of the most characteristic and most successful forms of industrial organization and location in that country.

In the past ten years, industrial estates have also been established in other advanced countries, such as the Netherlands, where about one hundred small industrial tracts and estates have been developed, most of them under the sponsorship of municipalities. In Canada, a certain number of estates are established near Toronto, Ontario, and Vancouver, British Columbia, and plans have been made, mostly by municipalities, for setting up estates in a number of localities in Ontario, Alberta and Quebec. A few small-scale industrial estates have been established in Belgium, Denmark, Finland, Sweden and Switzerland, and one is in operation in Ireland as part of the development of the Shannon Airport free zone; plans for setting up estates are being considered in France and Algeria, the Federal Republic of Germany, Iceland and Spain.

So far, only two under-developed countries - India and Puerto Rico - have given major emphasis in their industrialization policies to the establishment of industrial estates and have launched nation-wide construction programmes. In other under-developed countries, a few estates have been set up in recent years, in most cases on an experimental basis.

In India, the establishment of industrial estates is one of the most important measures aiming at promoting small-scale industry. Development of ten industrial estates was begun in 1955/56, that is, towards the end of the period covered by the first five-year plan. Greater impetus was given to the industrial estate programme under the second plan: in 1960, out of a total of 120 estates, forty were occupied, thirty-eight were completed or were being readied for occupancy by the end of the year, and forty-two were at the planning stage.

In the early nineteen-fifties, Puerto Rico began building a network of small industrial estates throughout the island; by the end of 1959, thirty "industrial subdivisions" were completed, and twelve additional ones were planned.

In Jamaica, British West Indies, an estate is in operation near Kingston. Three estates are being laid out in Trinidad. In Brazil and Mexico, a few "industrial cities" featuring improved sites are being developed. In Nigeria, a small estate was opened near Lagos late in 1958. In Ghana, construction of industrial estates at Accra and Tema is under consideration. In Israel, one industrial estate has been established in Jerusalem and

another in Bat-Jam near Tel Aviv; four others are being planned. In Pakistan, a large estate has been in operation at Karachi since 1947 and one at Hyderabad since 1952. Plans for building sixteen estates for small industries in East Pakistan are currently being made; six of these are to be built in 1960-61. Three industrial estate projects are under way in the Republic of China, one of them in connexion with the extension of the harbour of Kaohsiung. In a few other under-developed countries, in particular in Afghanistan, Burma, Ceylon, Jordan and Nepal, technical assistance advisers - particularly those of the United States International Cooperation Administration - have submitted recommendations for the establishment of industrial estates. Technical assistance is being given by the United Nations for the establishment of industrial estates in Indonesia and Singapore.

Thus, although the idea of the industrial estate was first formulated nearly seventy-five years ago,³ the impetus taken by this method of industrial organization is a purely contemporary phenomenon. Industrial estates originated, and were principally developed in already industrialized nations. However, broad organizational differences are apparent in the most recent projects, and standards and methods for planning, organizing and operating industrial estates are still being evolved in these countries. In most under-developed countries, application of this method is still at a very early and experimental stage, but some distinctive features conforming to the conditions prevailing there are apparent. In both cases, much remains to be learned about the value of industrial estates as a tool in policies of location and growth of industry, and about their economic and social effects. The relatively short period of time in which the device has been applied explains the paucity of appraisals of its value in achieving the objectives assigned to it. It also explains the relative scarcity, in all countries, of recent data and statistics on virtually all aspects of the subject - number and types of estates, factories and workers, acreage, development costs, sales and lease terms, and so on.

The present study rests in part on an analysis of information on the experience of selected countries and in part on evaluations of such experience by competent observers. It deals more with policies and principles bearing on the establishment of industrial estates than with the physical planning, technical and organizational problems involved, though some reference is made to these.⁴ Objectives and policies are examined in both

² It has been traced back to 1885, when plans were made for setting up the Clearing Industrial District in Chicago.

³ Social and physical planning aspects of industrial estates will be discussed in a report being prepared under this title by the Bureau of Social Affairs of the United Nations Department of Economic and Social Affairs. The report is based on a series of comparative case studies dealing with such aspects as location, relation to transport and communications, community facilities and services, housing and the like. One of the objectives of the study is to formulate physical and social planning principles which might provide some guidance for establishing industrial estates in under-developed countries.

Physical planning and technical and organizational problems are also discussed in Theodore K. Pasma, op. cit.; William Bredo, op. cit., which also contains a selected bibliography on, among others, industrial estates, industrial location, city planning and

⁴ United States Department of Commerce, *Organized Industrial Districts - A Tool for Community Development*, by Theodore K. Pasma (Washington, D.C., 1954); Stanford Research Institute, International Industrial Development Center, *Industrial Estates - Tool for Industrialization*, by William Bredo (Glencoe, Illinois, 1960); *A Report on the Dartmouth College Conference on Industrial Parks*, op. cit.; survey made by the *Journal of Commerce* (New York), published in the issue dated 3 April 1960. An analysis of current data is expected to be provided early in 1961 as a result of an inquiry carried out by the Urban Land Institute of Washington, D.C.

economically advanced and under-developed countries with a view to providing not only a frame of reference for comparison purposes, but also some guide-lines which would help in formulating and appraising policies in the latter group of countries. The study is addressed

physical planning and zoning: *Industrial Estates - A Device for Small Industries Development - A Study of Experience in Western Europe*, a joint publication of the Research Institute for Management Science, Delft, and the Netherlands Economic Institute, Rotterdam, the Netherlands, 1958; *Industrial Estates - Programme and Progress*, published by the Central Small Industries Organi-

zation, Ministry of Commerce and Industry, Government of India (New Delhi, September 1960), and a large number of pamphlets and articles in United States publications, a list of which appears in *Bibliography of Industrial Development, Material, and Supplement*, published by the American Industrial Development Council (Newark, Delaware, September 1958).

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Chapter I

OBJECTIVES AND POLICIES IN DEVELOPED COUNTRIES

In economically advanced countries, the objectives sought in establishing industrial estates, the methods adopted to plan and control them and the services provided to their occupants present appreciable differences, not only from country to country, but from one estate to another. All estates, however, present a common feature: they are venture undertakings where sites are developed and sometimes general-purpose "speculative" factories are erected, prior to an agreement of sale or lease with prospective manufacturers. Huge capital outlays, public, private, or both — are tied up for long periods of time in land purchase and development expenditures. In many cases, this is combined with promotional measures and incentives to induce manufacturers to establish themselves on the estate. Even in countries where promotion expenses account for a high proportion of total costs — as is the case in the United States — or where "steering" measures are in vigour — as in the United Kingdom — the rate of occupancy is usually slow: ten years or more may be required before an estate of average size is entirely occupied.¹

To minimize the risks involved in the establishment of an estate, the developing agency, private or public, generally undertakes an initial planning survey, sets forth entry standards and procedures, operating regulations and controls — in particular, restrictions to certain productions or processes — and introduces promotional programmes. The type of planning, including, if necessary, controls and inducements, will vary with the objectives sought in establishing the estates. These are either to make a profit for the private groups which own and operate them; to secure advantages of an economic and social nature to a community or a region; or to promote industrial development, frequently within the context of assistance to small-scale industry. Considerations related to decentralization or dispersal of industry, regional and town planning, urban renewal and slum clearance also frequently enter into the picture.

The objectives and policies bearing on the establishment of industrial estates will be discussed with reference to three industrial countries — the United States, the United Kingdom and Italy — where this device has been extensively applied. In each of these countries, estates have been established both in big cities and industrial centres and in rural and small town locations. In these countries, the degree of government intervention in the economy, both at the national and local levels, and the relationships between public authorities at all levels of government and the private sector differ widely. The

¹ In 1957, the average size of industrial estates in the United States was about 500 acres (202 hectares).

extent of intervention of the central Government in the establishment of industrial estates is very strong in Great Britain, much weaker in Italy, and practically nil in the United States; the action of local authorities is important in Italy and plays a modest role in the United States. It can be expected that the various forms taken by the industrial estates in these three countries would reflect the full range of conditions prevailing in developed economies based essentially upon private enterprise.

United States

According to a survey made in 1957 of 302 industrial districts in the United States,² 70 per cent were sponsored by profit-motivated private groups — industrial district corporations, railroads, industrial real-estate brokers, contractors, architects and landowners — 24 per cent by non-profit community organizations — industrial foundations, chambers of commerce, redevelopment and housing authorities, development commissions — alone or in co-operation with others, and 6 per cent by local governmental agencies — county or municipal governments, and port and airport authorities.

Developers in the first group generally seek their profits in the sale of improved land and provision of services to the occupants. Railroads, however, are mainly interested in indirect benefits afforded by industrial districts, and seek above all to ensure increased freight revenue; for that purpose, they frequently offer special inducements, such as low purchase prices, to freight-receiving and freight-generating industries guaranteeing a minimum freight traffic.³

Community-sponsored industrial district organizations look for the indirect benefits that industrialization brings to the community in the form of increased employment, payrolls, trade, services, and tax revenues.⁴ A variety of special advantages is usually offered to prospective occupants to induce them to settle on the estate.

² William Bredo, *op. cit.*, page 50.

The guarantee usually covers the shipment of a specified number of carloads of freight per month and per acre of land acquired.

³ In establishing industrial districts, certain residential communities sometimes seek to give employment to the local population and, at the same time, to hold down per capita real estate taxes. The underlying assumption is that the new industrial plants will increase local revenues without a proportionate increase in the population of the town — particularly the school-age group — or in the consumption of municipal services. Experience suggests that the benefits expected are likely to materialize in the short run only, since, once industrial growth has been induced, both considerations, particularly the latter, rapidly become invalid. See *A Report on the Dartmouth College Conference on Industrial Parks*, *op. cit.*, pages 52 to 54.

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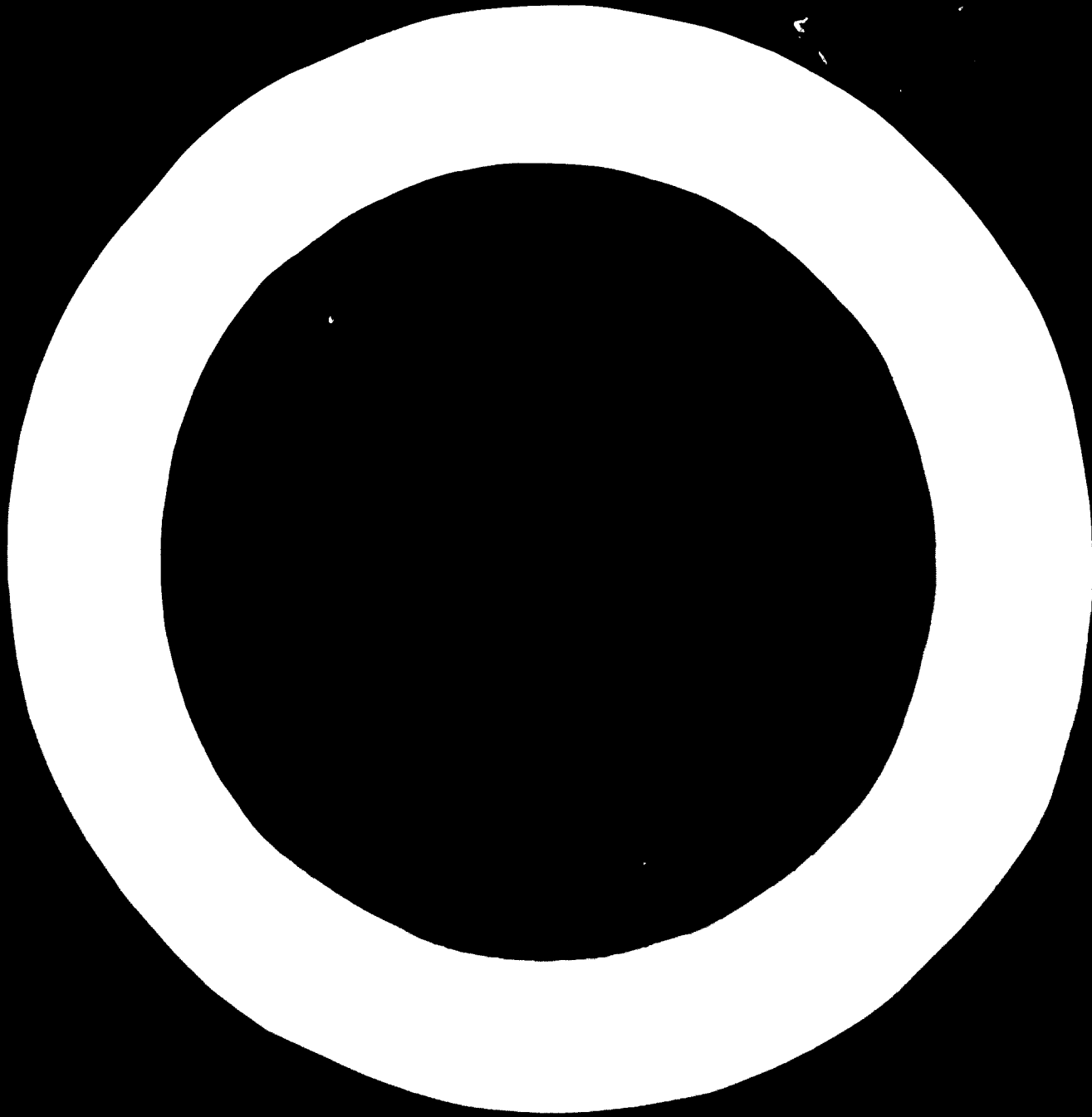
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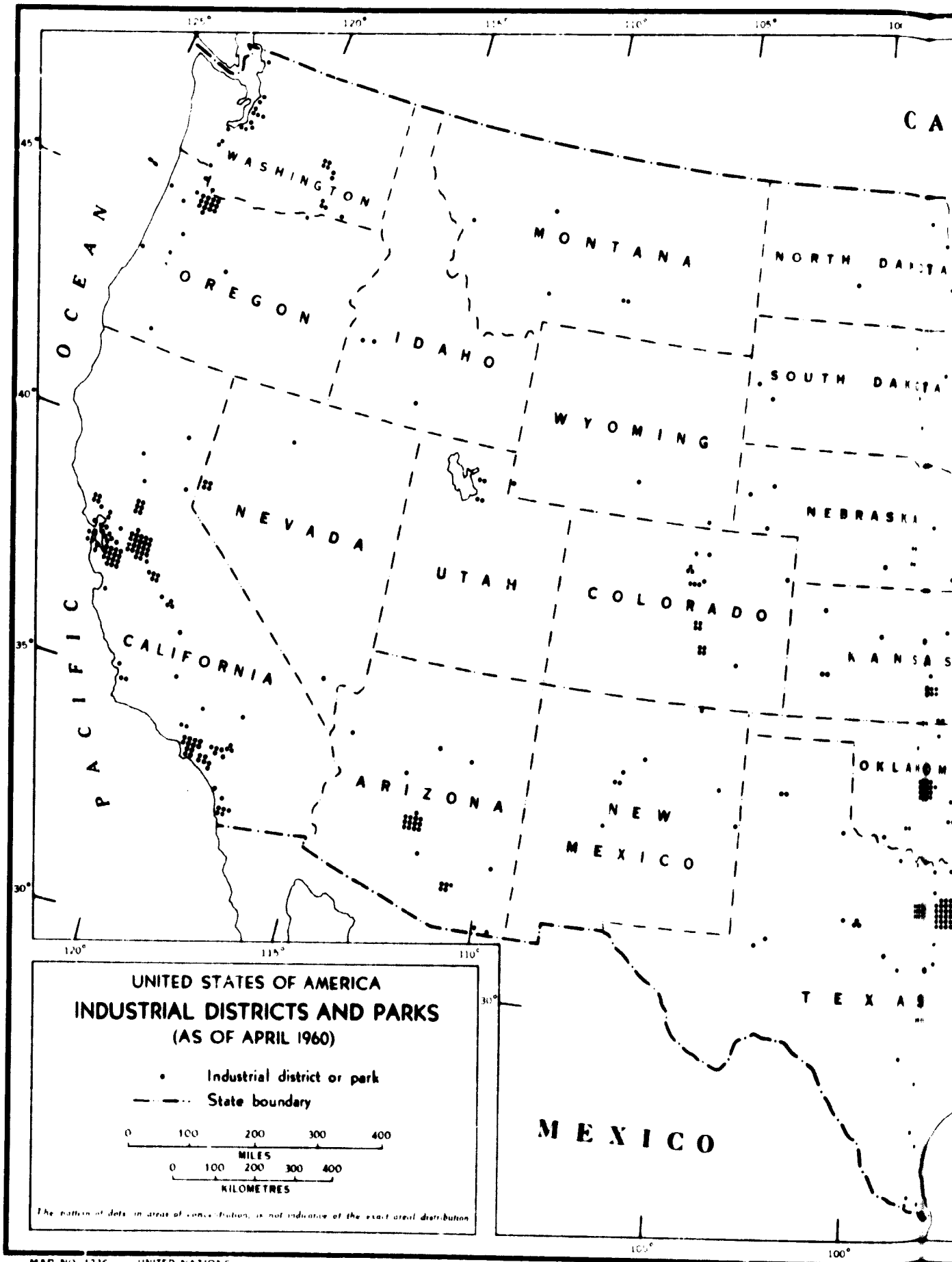
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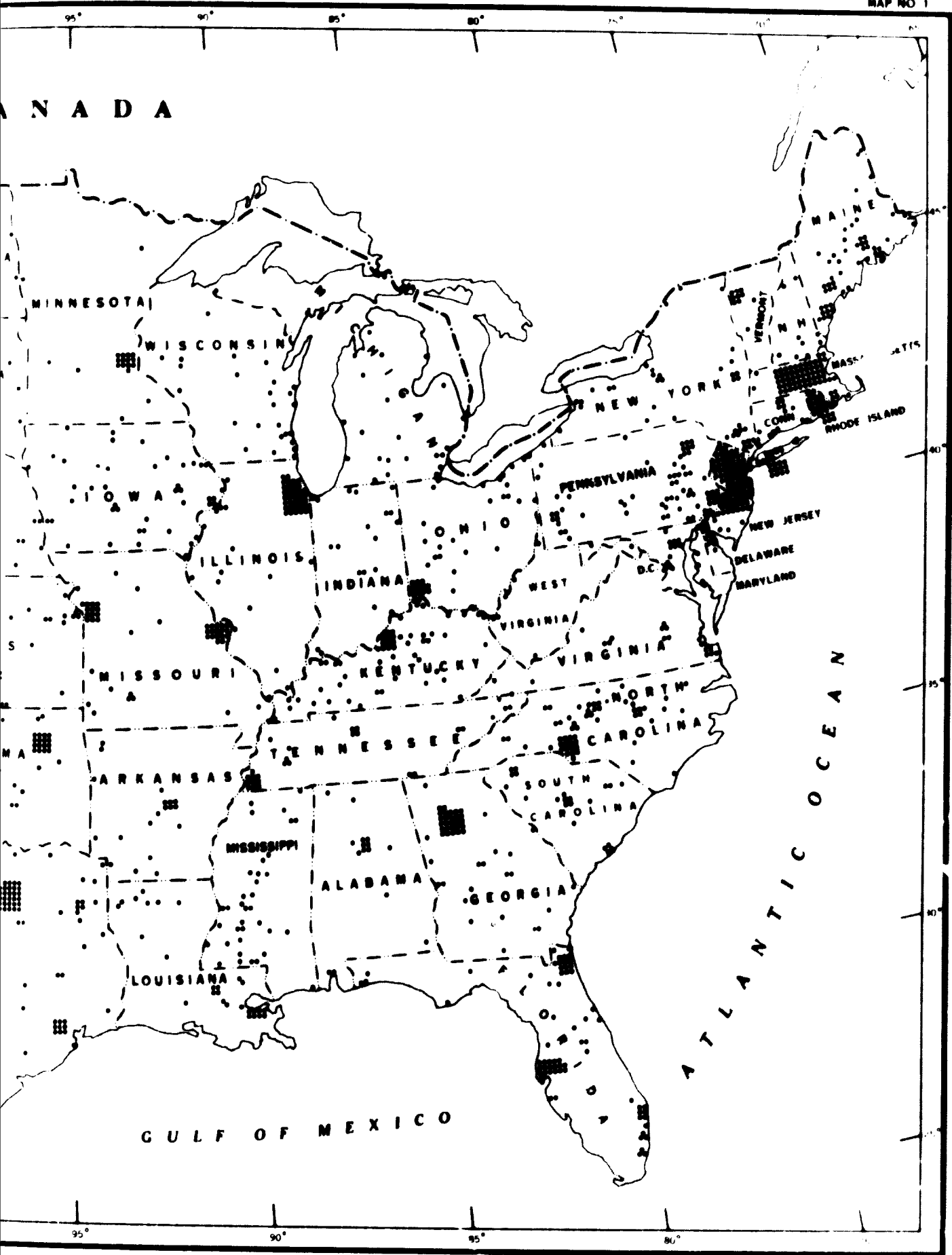
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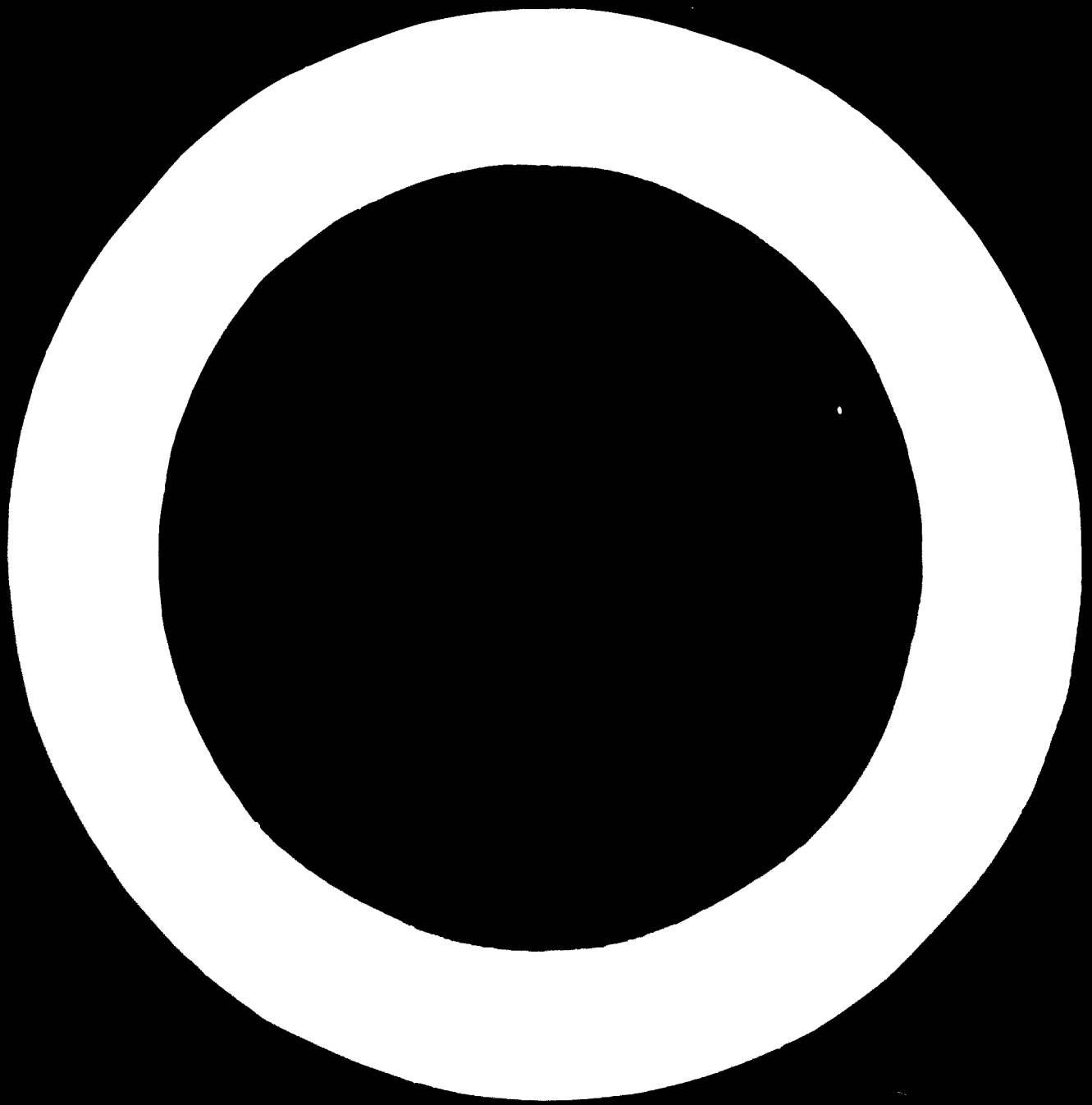
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Source: *The Journal of Commerce* (New York, April 6, 1967)
Industrial Development (Baltimore, Md., October 1958)



Districts operated by governmental agencies also seek principally the indirect benefits brought by industrial development. As in the case of railroads, port authorities seek industries requiring heavy shipping, but do not restrict occupancy to them. Sites on government-owned land are offered for lease only.

The development of industrial districts in the United States has taken place without the direct intervention of the Federal Government. It may, however, have been influenced to some extent by the 1951 presidential policy statement, motivated by strategic considerations, which called for dispersal of new industrial establishments. Reliance was placed, however, on private initiative and on the states and local communities to see that dispersal within their areas was properly carried out.

As may be seen in map No. 1, the areas of greatest concentration coincide, on the whole, with the old industrial regions of the country and particularly with the large industrial "conurbations" of the north-eastern Atlantic sea-board and the industrial centres of the Middle West. The map also indicates a correspondence between the establishment of industrial districts and the relatively recent development of industry in California and the South.

PRIVATELY SPONSORED INDUSTRIAL DISTRICTS AND PARKS

The considerable development of profit-motivated industrial districts and parks in the United States is related to a phenomenon which occurs in that country with particular intensity. In most industrial or industrializing countries, industry tends to "bunch up" in or around large cities which provide external economies in the form of trained labour, transportation and financing facilities and business contacts and various amenities. As the large cities grow larger and in-town industry-zoned land becomes scarcer and more expensive, new industry is forced to seek location in the outskirts of metropolitan areas or to settle in or near smaller surrounding cities affording the required markets, labour or raw materials.

In the United States, the outward spread of population and industry has, in recent years, taken on enormous proportions and has created serious new problems — economic, social and political. In its search for outlying industry-zoned sites, industry finds itself in competition and frequently in conflict with residential communities growing outward into the suburbs and semi-rural areas. Lengthy and complex negotiations and arrangements are involved between industrialists and landowners, real estate agents, municipal, county, and sometimes state authorities, utility companies and contractors, for assembling and developing new sites, opening roads, installing utilities, obtaining zoning protection, and so on. The fact that even small establishments today desire relatively large lots adds to the difficulties encountered. This requirement stems from the present preference for "horizontal-line" material handling and production and assembly methods involving one-floor layout; it is also due to the fact that while settlement in outlying areas is made possible by widespread private car ownership and availability of truck transport, land-consuming

off-street parking and loading and unloading facilities must be provided as a counterpart; in many cases, land must also be reserved for future expansion. To some extent also the recent emphasis on aesthetics in plant design and landscaping — both for integration with surroundings and for better working conditions — contributes towards increasing the amount of land required in relation to its use.

In such conditions, the offer of an immediately available improved site within commuting distance of a city, of protection against improper use in the adjoining areas, and, frequently, of a "package plan" providing legal, engineering and financial services for designing and constructing buildings and other facilities, is sufficient to induce an entrepreneur to locate in an industrial district. In privately developed districts, the costs of sites and services are usually higher than those which an industrialist would have to meet through independent action. It is considered, no doubt, that the difference in cost is fairly well offset by the advantages of avoiding difficulties and worries, reducing the time-lag between decision to locate and beginning of production and the protection afforded to investments by private covenants which are usually much stricter than city zoning regulations.

This explains the fact that occupancy of sites in such industrial districts and parks appeals not only to enterprises which have a sound financial standing, but are not large enough to have their own legal and location planning personnel, but also to large corporations with the necessary facilities and extensive financial resources; these frequently erect small or medium-sized plants or warehouses in districts, because satisfactory "independent" sites are not available in the areas selected. Very large factories do not find the generally limited district sites suitable for their purposes and heavy industry is as a rule excluded by the regulations.

Private developers usually have strict selection standards and look with greatest favour upon well-established, nationally-known firms possessing sound credit ratings, successful business histories, and proven managerial ability. Such companies are able to satisfy the credit requirements of institutional financial investors, mainly life insurance companies, which extend the mortgage-loan financing needed by the district's occupants. "As a result, few small or young companies have been able to obtain district properties, except in such subdivisions as Clearing [Industrial District] and Central [Manufacturing District] at Chicago, which carry their own purchase contracts."⁵ Establishment by nationally-known or locally-known corporations is also sought because it sets a standard which, when well publicized, will tend to attract other companies. Attractive sales prices are frequently offered to the first occupants.⁶ Promotional

⁵ University of Washington, College of Business Administration, *An Analysis of Planned Industrial Districts*, by Charles W. Hackett, Jr. (Seattle, Washington, 1956), page 40.

⁶ At the time a district is opened, prices are generally low and competitive with those of other industrial sites in the locality. As a rule, they rise sharply in the course of the first and second years, reflecting the increase in demand for sites and the increment in value resulting from the building of the first factories. Thereafter, prices increase at a slower rate, on account of such factors as urban growth, opening of thoroughfares and the like, apart

efforts include direct approach, advertising and employment of brokers. Expenditures on that account are, in general, sizable, and may be as high as 10 per cent of the sales price of improved sites. Restrictive covenants protect the investments of both developers and occupants and ensure compatibility between industries and between the districts and the surrounding community. Large tracts are usually developed in stages. Experience indicates that ten years or more are needed to dispose of all sites on the tract and, as a rule, several years elapse before profits appear.

Only a few privately operated districts in the United States have erected partially completed general-purpose factory buildings in speculative anticipation of occupancy. On the other hand, most of the large districts offer "package" or "turn-key" plans providing complete financing, legal, architectural and engineering services, as well as construction facilities. These services are supplied by the developer himself or through associated contractors, in consideration of a return or a commission. Other services provided include warehouse facilities, building maintenance, snow removal, police and fire protection, health services, banking services, and dining and recreation facilities. The special character of the inducements offered in railroad sponsored districts has already been noted.

The success of the profit-motivated districts is thus largely the resultant of the industrial and urban over-development of metropolitan areas. When located in or near large industrial centres, these districts are instrumental not so much in attracting industry, as in permitting it to satisfy an existing demand for a given location. The opening of such districts in lesser centres is due to the overcrowding of the large cities. Purchase of a site in these districts is proposed to prospective manufacturers as a move advantageous in itself; additional incentives are usually not considered necessary.

COMMUNITY-SPONSORED INDUSTRIAL DISTRICTS AND PARKS

It is in the states and cities relatively less developed, less attractive to industry, or economically depressed, that, upon the initiative of community groups, industrial districts have been established and promoted by a great variety of inducements to attract new industry.⁷ These inducements include low sales prices or rents, gifts of land and buildings, loans at low interest rates, temporary tax exemptions or abatements, provision of general-purpose factory buildings, and various forms of assistance and services. Encouragement and aid is often

from inflationary changes. See Stanford Research Institute, *An Analysis of Organized Industrial Districts*, by James P. Lee and Gilbert K. H. Wong (Menlo Park, California, 1958), and William Bredo, *op. cit.*

⁷ "It is not news to anyone that some of our original New England States were active in promoting new industry by such things as tax abatement, community funds, and (perish the thought) lotteries and raffles." Association of State Planning and Development Agencies, "Inducements to New Industries — Bait, Gadgets or Necessary Help?", *Proceedings of the Tenth Annual Convention* (Washington, D.C., 1955), page 153. See also "A Report on Recent Changes in State Legislation to Attract New Industry", by Albert E. Redman, *Proceedings of the Eleventh Annual Convention*, 1956, pages 39 to 50.

given to new small industries. While restrictive controls exist, they are, as a rule, less rigid than those prevailing in private districts. Funds are usually raised by the business community and, occasionally, by public subscription. Non-profit community districts are exempt from federal corporate income tax and may be financed at very low interest rates through the issue of tax-exempt municipal bonds.

In the opinion of some American observers,⁸ differential advantages are mostly of marginal importance in attracting industry to specific locations. Many corporations look with disfavour on tax differentials, for public relations reasons; some would disregard offers of unimproved free sites because these account for only a small part of total plant costs. These and the fringe advantages, such as climate, recreation facilities and various amenities, which are often emphasized in promotional literature, appear to influence selection of location only in the last stage of analysis, after the manufacturer has been satisfied that he can fulfil in the area his primary location requirements — markets, materials or labour, as the case may be. Equally, if not more, important to the prospective manufacturer is the assurance that the host community is willing and able to supply the general services contributing to the development of external economies for which it is responsible — efficient public administration, development of roads and utilities, public transportation, fire and police protection, schools, hospitals, shopping areas, recreational and residential facilities, and so on.

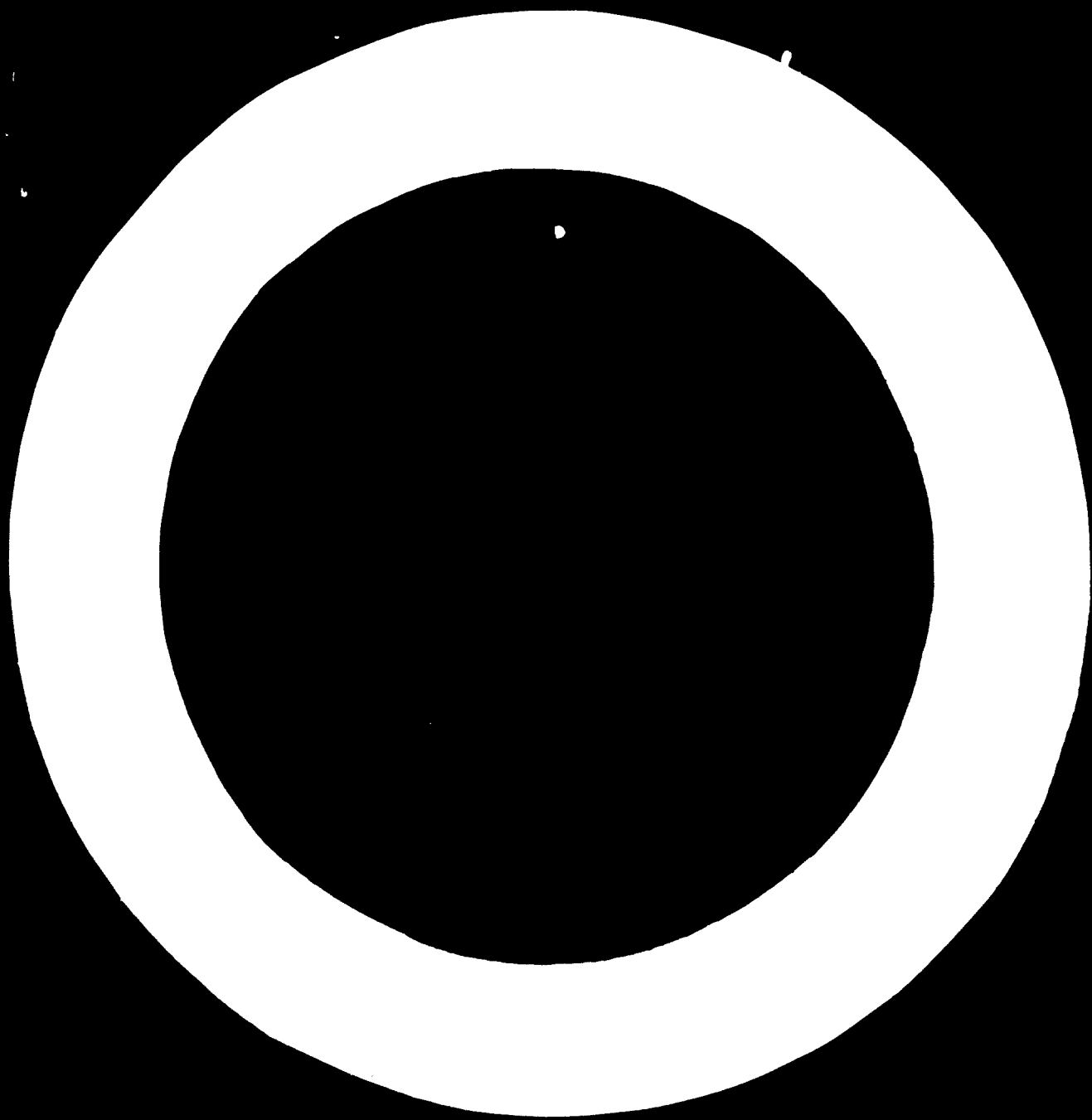
Community-based efforts in the United States have been particularly successful when local resources have been brought to the fore through the creation of industrial districts combined with broader developmental measures; the offer of general-purpose, "shell-form" factories for sale and sometimes for lease has been an important contributory factor. Subsidization by various means appears to have played a secondary role; while it may have facilitated the establishment of many new concerns with limited financial resources, it does not appear to have been a necessary condition either for their foundation or for their location in a specific area.

United Kingdom

In the United Kingdom, a certain number of industrial estates are privately owned and operated on a commercial basis. Trafford Park Estates, Ltd., and Slough Trading Estate — which are the oldest estates in the country — are private joint-stock companies, and the most important in this group. All such estates are located in the vicinity of large cities; four of the largest are in the Liverpool-Manchester area and five in the London area. Their income arises from rental of sites and buildings⁹ and from the supply of utilities and services;

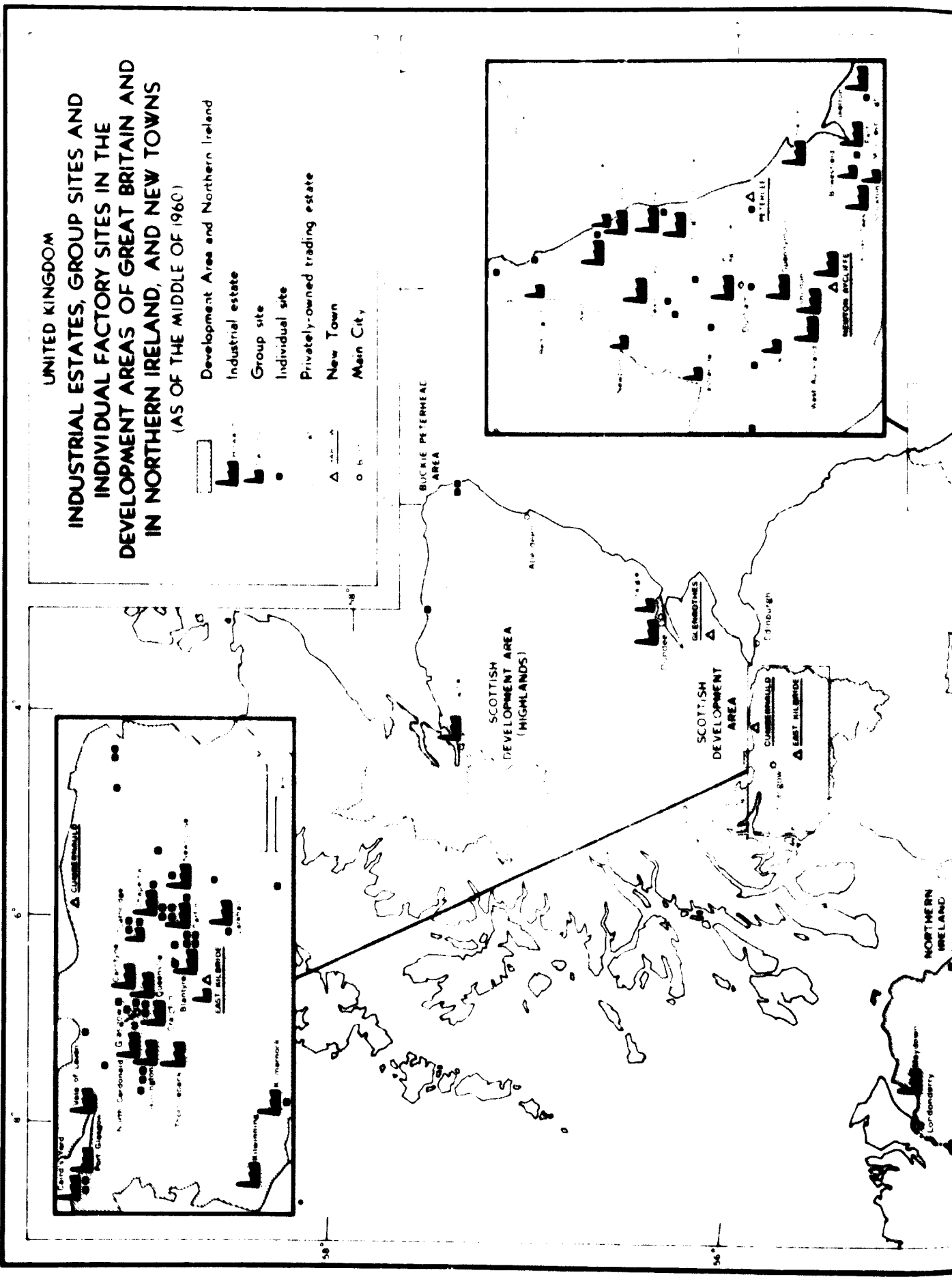
⁸ *Ibid.*, *Proceedings of the Tenth Annual Convention*, pages 153 to 176; Dartmouth College Conference, *op. cit.*, *passim*; William Bredo, *op. cit.*; National Planning Association, *Why Industry Moves South — A Study of Factors Influencing the Recent Location of Manufacturing Plants in the South*, by Glenn E. McLaughlin and Stefan Robock (Washington, D.C., 1949), and *Depressed Industrial Areas — A National Problem*, by William M. Miernyk, Planning Pamphlet No. 98 (Washington, D.C., 1957), *passim*.

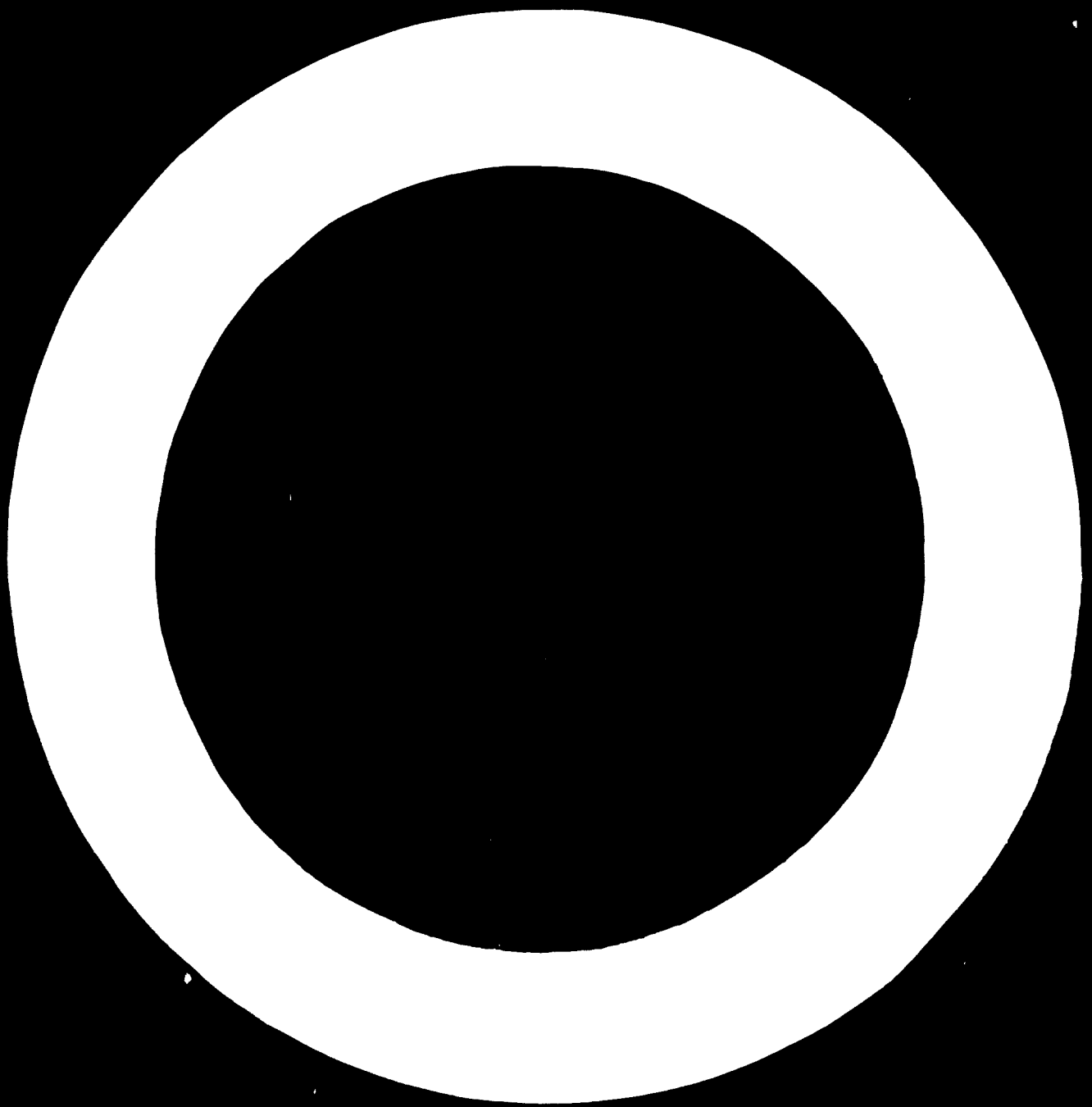
⁹ Factories built by tenants are bought by the estate company when the tenant moves out.



UNITED KINGDOM INDUSTRIAL ESTATES, GROUP SITES AND INDIVIDUAL FACTORY SITES IN THE DEVELOPMENT AREAS OF GREAT BRITAIN AND IN NORTHERN IRELAND, AND NEW TOWNS (AS OF THE MIDDLE OF 1960)

- Development Area and Northern Ireland
- Industrial estate
- Group site
- Individual site
- Privately-owned trading estate
- New Town
- Main City





they receive no assistance from the Government. Light engineering industries predominate in these estates, with the exception of the one at Trafford Park, where both heavy and light industries are established.

The majority of the estates in the United Kingdom were started upon the initiative and with the assistance of the Government.¹⁰ Construction began before the Second World War under the Special Areas legislation of 1934 and 1937, and gathered momentum after the war under the Distribution of Industry Acts of 1945 and 1950, and the Town and Country Planning Acts of 1947 and 1954.

THE PRE-WAR PERIOD

Before the war, establishment of industrial estates was one of the devices used by the Government to rehabilitate certain areas in England, Wales and Scotland — the "Special Areas" — which were particularly depressed and where unemployment rates were very high. Employment in these areas depended largely upon the coal, steel and shipbuilding industries, which were already declining by the late nineteen twenties and were particularly hit by the depression of the nineteen thirties. Two commissioners appointed by the Government were given power to take "measures designed to facilitate the economic development and social improvement" of the Special Areas. The measures adopted tended to promote the general economic and social rehabilitation of the Areas more than their industrial development — a policy which, as will be seen in the next section, presents analogies with the action carried out until 1957 by the Italian Government for the development of southern Italy. Of the £21 million spent in the period 1934-1938,¹¹ about £15 million were for investment in overhead facilities and relief,¹² and about £6 million for industrial development. Industrialization was promoted by non-profit "trading estates companies" set up by the commissioners. These companies, between 1936 and 1938, established six industrial estates in England and Wales, and one in Scotland where site work was also begun on three other estates. They built over 300 factories on the estates, ranging from 2,000 to over 100,000 square feet in area (186 to over 9,290 square metres), most of them general-purpose plants erected in advance of demand; they also constructed a certain number of factories on individual sites. All factories were offered for rent.

In the opinion of the commissioners, the availability of these factories proved to be particularly effective in inducing industrialists to settle in the Areas. Grants, loans at low interest rates, and temporary relief from

rent and from certain state and local taxes and rates were also available, but were judged to be less valuable.

" [The] power to provide factories has been of the greatest value ", stated the Commissioner for England and Wales.¹³ " It is, of course, an indirect form of capital assistance as it frees funds which would otherwise be required for buildings, and is therefore of more lasting benefit than the contributions towards rents, rates and taxes for a short period of years, which I was also empowered to make under the Act of 1937. [The latter] inducement has, however, been of special use in attracting industry to the smaller sites."

These views were echoed by the Commissioner for Scotland. " The Hillington Trading Estate is the most significant development in the Scottish Area . . . It is charging economic rents and most of its tenants have had no special inducement [that is, grants] from the Special Areas Fund . . . Most of the factories would not have been in existence at all if Hillington had not been there. . . . I have been particularly struck by the value of having factories ready and available for the prospective tenants. In some cases tenants have been lost because factories were not completed and ready for occupation at the time of application. . . . The trading estates owe much of their success to building in advance of orders."¹⁴

He suggested that, to be of value, remissions from rent, rates and taxes should be " confined substantially to the worst part of the Areas ". After reviewing the results achieved in his Area, the Commissioner noted that, in the period 1934 to 1938, new industry had continued to locate predominantly in the already congested industrial centres of the country, and concluded that " if inducements are to be seriously used as a means of attracting industry to any part of the country, they must be big enough to produce results, unless they are counterbalanced by restriction upon the establishment of new enterprises in other districts."

THE POST-WAR PERIOD

During the war-time years, the industrial resources of the whole country, including the Special Areas, were fully mobilized. After the war, in anticipation of an industrial construction boom which was expected to concentrate, as in the past, in the large urban centres and the already industrialized areas, the Government adopted a policy of regulating industrial location in order to counteract this trend. The Distribution of Industry Act, 1945, entrusted the Board of Trade with the task of inducing industrialists to set up or expand industrial undertakings in the Development Areas.¹⁵ The inducements included financial assistance and provision

¹⁰ Also, a certain number of estates have been set up by local governments, mainly municipalities.

¹¹ Assistance was also provided by the private trust fund established by Lord Nuffield in 1936. Part of these funds was used to finance new industry in the form of minority contributions to risk-bearing capital.

¹² Of this £15 million, about £7.5 million was spent on building hospitals, providing water supply and installing sewers; £3.25 million on holding and allotment schemes for encouraging small-scale gardening; £1.75 million on housing; and about £2.5 million on social services and relief, clearance of derelict sites and other purposes.

¹³ United Kingdom, *Report of the Commissioner for the Special Areas in England and Wales for the Year ended 30th September 1938*, Cmd 5896 (London, 1938), paragraph 4.

¹⁴ United Kingdom, *Report of the Commissioner for the Special Areas in Scotland for the Period 1st September 1937 to 30th September 1938*, Cmd 5905 (London, 1938), paragraphs 222 and 224.

¹⁵ The Development Areas include the former Special Areas and some additional regions. They cover parts of Scotland, the north-east of England, West Cumberland, South Wales and Lancashire (see map No. 2).

by the trading estates companies¹⁶ of sites or buildings in the Areas.

In 1947, full location control was introduced with the passage of the Town and Country Planning Act. The Board of Trade assumed responsibility for controlling the location of all industry—small and large, old or new—throughout the country. No factory could be built anywhere at any time without an "industrial development certificate" delivered by the Board of Trade, which stated that the proposed location was consistent with the "proper distribution of industry". "planning permission" and building licences for projects of over 5,000 square feet (464 square metres) could not be obtained without it.

While the "proper distribution of industry" was never officially defined, industry was, in practice, barred from locating in heavily industrialized and populated areas, except in unusual circumstances, and was steered towards the Development Areas, the Unemployment Areas, the New Towns and Northern Ireland. Local expansion of existing industries or establishment of new industries in areas other than the main urban centres and the development regions was, however, not prevented.

The Development Areas were mapped out according to their size in terms of area and population,¹⁷ their present and potential resources and the possibilities of trade both within the Areas and between them and other sections of the country. Within each Area, a trading estates company supplied improved sites and factories for rent on industrial estates, on smaller "group sites"

where no common services were provided—or on individual industrial sites (see map No. 2). All tracts of land were acquired and owned by the Board of Trade and leased without charge to the estate company; the company, in turn, leased plots and factories built on such plots to manufacturers in advance of, or upon demand. Financing was provided to the companies by the Treasury through the Board of Trade and any surplus of income over expenditure was paid back to the Government.

The Unemployment Areas¹⁸ included a number of towns and some rural areas in England, Wales and Scotland which did not fit the criteria applied in scheduling the Development Areas. Unemployment in these areas was high and persistent. The majority of the unemployed lacked industrial skills, and, in spite of efforts by the Board of Trade and a special Development Commission which built a few government-owned factories in rural localities, industry was generally reluctant to settle in the Unemployment Areas.

As the number of areas suffering from a high rate of unemployment continued to grow, grants or loans were

¹⁶ The companies were government-sponsored but semi-autonomous institutions. Four of them were in existence before 1945 and were taken over by the Board of Trade from the Commissioners for the Special Areas, the fifth company—covering the Lancashire and Merseyside Areas—was set up after that date.

¹⁷ With two exceptions—the Highlands and Wrexham—no Development Area has a working population of less than 50,000.

¹⁸ The Unemployment Areas are now superseded by the Development Districts. A list of the Unemployment Areas was published in the *Board of Trade Journal* (London), vol. 176, No. 3234, 23 January 1959. Some of them coincided with parts of certain Development Areas.

made available, under the Distribution of Industry (Industrial Finance) Act, 1958, to encourage the development of industry and other economic activities.

This was followed, in April 1960, by the adoption of the Local Employment Act¹⁹ which empowered the Board of Trade to assist "any locality in Great Britain in which, in the opinion of the Board, a high rate of unemployment exists or is imminent and is likely to persist (whether seasonally or generally)". Under the Act, any undertaking—large or small factories, banks, insurance companies, hotels, office organizations or the like—which would reduce unemployment in such localities—called Development Districts²⁰—may be eligible for various forms of help. Special attention is paid to attracting manufacturing establishments. The Board of Trade is enabled to acquire land by agreement or, if so authorized, compulsorily, and to erect factories for rent at favourable rates or for sale on deferred terms. Management of the Board's properties is entrusted to three Industrial Estates Management Corporations for England, Scotland and Wales, respectively, which replace the trading estates companies. The jurisdiction of these corporations extends over each region as a whole, and is not limited to the Development Areas as in the case of the estate companies. Manufacturers who prefer to build their own premises may be eligible for a grant of 85 per cent of the difference between the estimated cost of providing a factory and the value such a factory would have on the market. Factory values in these areas tend to be significantly depressed; in some cases, such a grant may amount to as much as a quarter of the cost of putting up a building. Loans may be made for the acquisition of premises, plant, machinery and equipment of all kinds, and for working capital. Repayment can be spread if necessary over ten years or more; in the case of a new establishment, interest may be deferred for a time or even be remitted altogether for the first year or two.

Thus, under the Act, the Government's powers for controlling the distribution of industry are considerably extended and strengthened and government action is mainly directed towards the development of areas of unemployment. Promotion of industry appears to be the principal tool of this policy, and the provision of industrial estates is likely to play a significant role in this connexion.

Most of the New Towns, fifteen of which have been established under the New Towns Act, 1946, are situated in the broad areas surrounding large urban centres, chiefly London and Glasgow (see map No. 2). Their purpose is to divert and even shift industry and population from these centres,²¹ without, however, becoming too large themselves. They are intended to become self-sufficient towns, not suburbs of larger cities. Their population is scheduled to range from 10,000 to 80,000.

¹⁹ The Act repeals the Distribution of Industry Acts, 1945, 1950 and 1958 and parts of the Town and Country Planning Acts.

²⁰ A list of Development Districts is published in the *Board of Trade Journal* (London), vol. 178, No. 3289, 1 April 1960, and No. 3290, 8 April 1960.

²¹ Some of them have been set up for meeting the special needs of certain areas, and are not intended to receive new industry; for instance, Corby was built to provide housing for the employees of a large steel mill in the neighbourhood.

As of the middle of 1959, their aggregate population was around 350,000. In most of them, one or several industrial estates are owned and operated by the Development Corporation — appointed by the Ministry of Housing and Local Government — in charge of the administration of the Town. The Government lends the necessary funds at current interest rates for a period not in excess of sixty years, and the corporation leases sites and buildings to industries at cost. The total outlay on the construction of the New Towns has amounted, so far, to about £258 million.

In the immediate post-war period, a number of general-purpose factories, usually ranging from 25,000 to 50,000 square feet in area (2,322 to 4,645 square metres)²² continued to be built in advance of demand on the estates in the Development Areas, as an inducement to manufacturers wishing to get into production quickly. Except for a few standard factories built in some of the New Towns and six factories currently being built as an experiment in Development Districts in England, Wales and Scotland,²³ none have been authorized since the economy measures of 1951/52 which permitted expenditure on factory buildings only against a known demand; as will be seen below, "advance" factories are still being built in Northern Ireland.

The only special benefit provided at the present time in the industrial estates is low rent, made possible by the non-profit policies of the estate corporations. In the immediate post-war period, rental rebates and preference in supplies of scarce raw materials subject to allocation schemes were given to firms in the Development Areas. These inducements are no longer considered necessary. The use of tax concessions was abandoned after the war.

Restrictive covenants are incorporated in lease contracts on all estates. The restrictions are similar to those in practice in the United States, but usually provide for lower land use ratios. The Board of Trade furnishes detailed locational information to the prospective manufacturers, and the estate corporations assist them in solving installation problems, such as hiring manpower, securing housing, and the like. Competitive advertising between Development Areas is discouraged as being inconsistent with the planned distribution of industry. Promotion is made only to attract foreign firms, principally those from the United States.

As mentioned earlier, the power of making loans and grants, which already existed under the 1945 legislation,²⁴ was extended by the 1958 Act to industrial and non-industrial undertakings likely to reduce unemployment in any locality listed as eligible for such assistance and

²² Small "nest" factories of 4,800 and 6,000 square feet in area (446 and 557 square metres), divisible into four sections, were also built in certain estates in Scotland and the north-east of England. Also, seven buildings are being converted for industrial use in Scotland.

²³ The purpose of the experiment is to see if, in today's circumstances, readily available factory space is a significant factor in attracting new industry to unemployment areas.

²⁴ In the financial years 1945/46 to 1958/59, the amount of loans and grants to industrial undertakings being set up, or already established, in the Development Areas totalled just over £9 million.

is again one of the inducements offered by the Local Employment Act of 1960.

In the Development Districts, firms are given opportunities to tender for government contracts which are placed according to a firm's capacity if its tender price is competitive; if not, the firm is offered a proportion of the business at the successful tender price.

By the middle of 1960, thirty-nine industrial estates, forty-two group sites, and about 100 individual sites, containing a total of more than 1,000 factories, had been established by the trading estates companies in the five Development Areas. From 1945 to 1959, the total capital expenditure on provision of factory premises in the Areas amounted to about £70 million. Between 1948 and 1958, the total ensured population in the Areas grew from about 3,700,000 to about 3,900,000, mostly on account of a rise in industrial employment. The average number of registered unemployed in all Development Areas fell in 1955 to 80,000 as against 128,500 in 1950 and 300,000 in the Special Areas before the war.²⁵ The subsequent rise in the unemployment figures — 160,400 in 1959 — paralleled the increase in unemployment in the country as a whole.²⁶

In the case of Northern Ireland — which is short of raw materials, power and skilled labour, and has an even higher level of unemployment than the Development Areas — the steering effort of the Board of Trade is complemented by the action of the government of that region. This is largely based on inducements; the Northern Ireland Government offers to industrialists grants, loans, "advance" factories at low rent, ten-year rental rebates, and subsidies to equalize the cost of coal, which must be shipped from Great Britain. In order to spread industry as widely as possible, the advance factories are built principally on individual sites; factories are also erected on several industrial estates — five of these are now in operation in the vicinity of Belfast, one in the northern part of the region, and construction of two others is being planned. Since the war, 141 plants have been built in the Belfast area, providing employment to about 38,000 people.²⁷

In the view of a British observer,²⁸ "but for Government intervention, the growth of industry in London, the South of England and the Midlands would probably

²⁵ In the Special Area of England and Wales, 234,000 and in the Scottish Area, 63,000. It is estimated that, between 1934 and 1938, about 50,000 people had obtained employment in new industry in the Special Areas.

²⁶ For a discussion of these trends, see United Nations, *World Economic Survey*, for 1957 (Sales No.: 58.II.C.1), pages 144 and 145 for 1958 (Sales No.: 59.II.C.1), page 191, and for 1959 (Sales No.: 60.II.C.1), page 146; and "Employment and Unemployment in Regions and in the Development Areas", by Joseph Sydes, in *Scottish Journal of Political Economy*, vol. VI, No. 3 (Edinburgh), November 1959. Unemployment rates in the Development Areas have been consistently higher than in the United Kingdom as a whole.

²⁷ *The New York Times*, 16 March 1960.

²⁸ *La politica inglese di localizzazione dell'industria (1934-1959)*, by Alix Meynell, D.B.E., former Under-Secretary of the Board of Trade. This report has been published in Italian by the Associazione per lo sviluppo dell'industria nel Mezzogiorno (SVIMEZ) (Rome, 1960); it is being published in English by the Center for International Studies of the Massachusetts Institute of Technology, Cambridge, Massachusetts.

have continued quite as strongly in the post-war years as in pre-war years... Without the Industrial Development Certificate control to force some industry out of London fairly rapidly, it is very doubtful if the conception of building a New Town would have been realisable." The same applies, according to that observer, to the efforts on behalf of the Development and Unemployment Areas.

Thus, an important shift occurred in the Government's policy between the pre-war period and the post-war years. The policy first tended to further development of economic and social overhead and to extend inducements aimed at attracting industry for rehabilitating depressed regions. It now provides for direct control of industrial location throughout the country and for measures of assistance to industrialists settling in the various development regions and localities. Provision of sites, factories and services in the industrial estates has been an essential feature of both types of policy.

Italy

All but two of the nine industrial zones now in operation in Italy are located in the economically developed northern part of the country. All zones but one were created before 1950 upon the initiative of local groups - municipalities, chambers of commerce, associations of industrialists organized in public, semi-public or private agencies - with a view to promoting local economic, social and, sometimes, political interests. The zones were established under a variety of special state laws and local administrative enactments, and differed considerably in their organization, operation and policies. In 1953, laws permitting the establishment of industrial zones were enacted by the regional governments of Sicily and Sardinia; these laws departed from those adopted earlier on the mainland, inasmuch as they assigned to industrial zones the role of a tool for overall economic and social development of each region, set forth uniform rules for their establishment, and provided for a central co-ordinating organ - the regional government. Only one zone has been established under a regional law - that of Catania, Sicily, founded in 1953. Between 1941 and 1957, independent and unco-ordinated proposals were made for the establishment of about forty zones in both northern and southern Italy, including the islands; basic improvement work was started in fifteen zones, but the rest of these projects remained in abeyance. In 1957, by a law extending the duration and increasing the resources of the *Cassa per il Mezzogiorno*,²⁹ the central Government recognized the role of industrial zones as an instrument for location and development of new industry in southern Italy, and set forth general procedures for financing and organizing zones under the control of the central authorities. The law still leaves the initiative for the establishment of industrial zones to local authorities and groups - provinces, communes, chambers of commerce and other interested agencies - but provides that these are to be

²⁹ Law of 29 July 1957, No. 634, amended by law of 18 July 1959, No. 555. The *Cassa per il Mezzogiorno* (Fund for Southern Italy) was created by law of 10 August 1950, No. 646, to finance the basic economic development of that region.

organized in "consortia" responsible for establishing, developing and managing the zones. The consortia - a number of which were set up prior to the 1957 law - are public law associations whose statutes and creation must henceforth be approved by the Government, after deliberation of the Committee of Ministers for the Mezzogiorno, and whose action is to be supervised by the Ministry for Industry and Commerce. As will be seen below in more detail, in 1959 the Government decided to support the action of consortia formed to promote large "areas of industrial development" rather than small industrial estates. In 1960, however, it ruled that, under certain circumstances, the latter could also be established and would be entitled to the measures of assistance provided for by the 1957 law.

By the end of 1960, thirteen zones of the old type, that is, to which the provisions of the 1957 law do not apply, were in existence in northern Italy, of which seven were in operation, and six under construction. In southern Italy, two zones of the old type were in operation and nine under construction; in addition, four large areas of industrial development and one zone authorized under the 1957 law were being actively planned (see map No. 3).

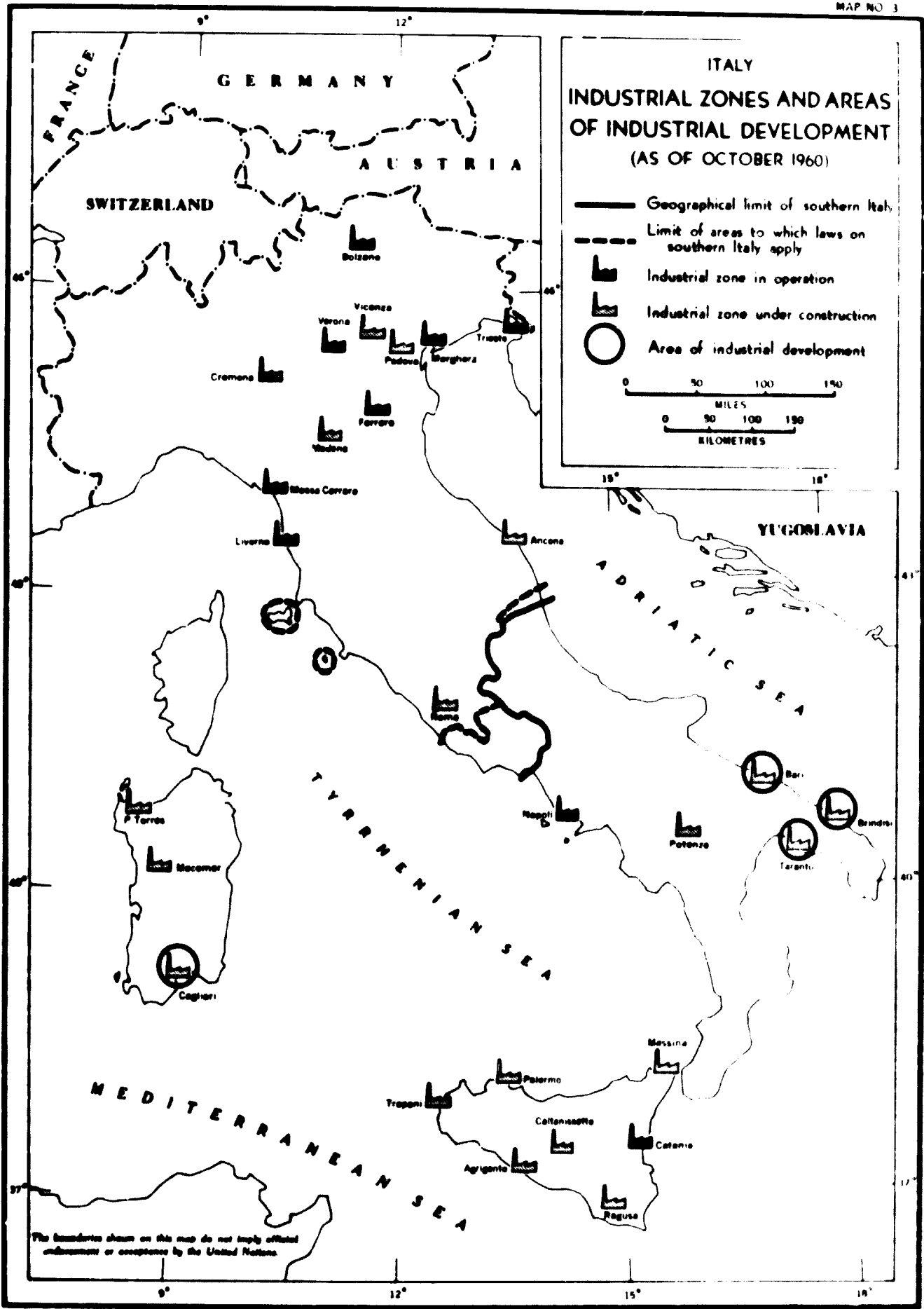
Of these zones, only two are located in centres with more than one million inhabitants; four are in or near cities with a population between 200,000 and 500,000, and nineteen in or near cities with less than 200,000 inhabitants. The population of the group of communes included in the area of industrial development of Bari exceeds 300,000, that of Taranto, 200,000 and those of Brindisi and Cagliari, 100,000.

INDUSTRIAL ZONES IN THE PERIOD PRECEDING THE 1957 LAW

In most of the zones established prior to the 1957 law, the land was acquired through expropriation procedures. In a few cases, part of the land was transferred to the managing agency by allotment of communal property, and, even less frequently, by direct purchase. The improved sites are usually offered for sale at cost to prospective occupants; lease agreements are exceptional. No general-purpose factories have ever been provided.

These zones have obtained their financing from various sources. Those established by special state law have obtained government grants or low-interest or interest-free loans; they have also charged to the budget of the central Government - or to that of the regional government, as the case may be - the cost of certain improvement works. Those organized in consortia have received contributions in cash or kind - for instance, clearing or grading sites or installing utilities - from the member agencies. In all zones in operation, the acquirer of a site has made, upon taking possession, a payment additional to the purchase price, and proportional to it, the proportion ranging from 10 to 70 per cent. Many zones receive from the occupants an annual contribution which, in general, does not exceed 0.05 per cent of the corporate income as assessed for tax purposes.

In all zones established prior to the 1957 law, a large number of inducements were offered to attract industry. Occupants could benefit from tax exemptions and abate-



ments, loans at low-interest rates, grants, rate reductions on railroad freight, water and electricity, exemption from customs duties on imported machinery and building materials, government procurement contracts and various subsidies. Some of the most important incentives—concessions on state taxes and financing facilities—have been available in zones throughout the country. The number and scope of the other inducements varied from zone to zone, as adoption of most of them depended upon the local community. On the whole, however, the benefits extended did not appear to vary significantly as between zones, either within the northern region or between the North and the South. The weakness of the differential advantages suggests that the incentives offered

in any given zone were more likely to induce local industrial initiative than an inflow of industrial capital from other parts of the country.

Some data concerning the zones now in operation are presented in the following table. Although the data in columns 4 and 8 are not strictly comparable because of time-lags and differences in coverage, the ratios in column 9 relating to Marghera, Bolzano, Ferrara and Massa Carrara suggest that the industrialization of these cities is largely due to the existence of the zones. Massa Carrara and Leghorn (Livorno) were destroyed during the war and are being rebuilt. The zones of Trieste, Verona and Catania are at relatively early stages of development. The zone of Naples is almost fully occupied.

ITALY: INDUSTRIAL ZONES IN OPERATION BY 1 AUGUST 1957

Zone	Year of establishment	Area hectares	Number of factories	Number of workers	Average number of workers		Neighbouring town		Employment in zones compared to total employment in industry (percentage) (A): (B)
					per factory (5)	per hectare (6)	Total population ^a	Total employment in manufacturing and mining ^a	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Naples	1904	800 ^b	70 ^b	1,010,550	92,326	...
Marghera (Venice)	1917	1,130	208	28,000	135	24.8	316,891	35,452	79.0
Leghorn (Livorno)	1929	450 ^b	33	3,264	99	7.3	142,333	15,739	20.7
Bolzano	1935	300	41	6,966	170	23.2	70,898	9,465	73.6
Ferrara	1937	400	38	9,118 ^c	240 ^c	22.8 ^c	133,949	14,071	64.8 ^c
Massa Carrara	1938	900	50	6,429	129	7.1	118,819	17,119	37.6
Verona	1948	600	37	1,601	43	2.7	178,594	21,499	7.4
Trieste	1949	530	41	3,192	78	6.0	289,966	34,355	9.3
Catania (Sicily)	1953	300	11	950	86	3.2	299,629	21,512	4.4
TOTAL		5,410	529	59,520	130	12.9	2,561,629	261,538	22.7

Source: Associazione per lo sviluppo dell'industria nel Mezzogiorno (SIVIMI Z), *Il problema delle zone industriali in Italia*, by A. Molinari and C. Turco (Rome), December 1958.

^a 1951 census.

^b Estimate.

^c Maximum seasonal employment.

On the average, three-quarters of the factories in the zones have less than 100 workers. However, in Marghera and Bolzano, a number of larger factories (some with more than 500 workers, and some with more than 1,000 workers) are established. Heavy metal-fabricating and engineering industry predominates in Bolzano. Light engineering, chemical, building materials and food-processing industries are found in all zones. Textile, clothing, leather and other industries are established in many of them.

In some cases incentives are used to influence the type of industries on the estate. In the Verona zone, certain special benefits are reserved to vegetable and fruit-processing industries. Another zone—that of Modena, now under development—is reserved to small industries with not more than seventy-five workers and 100 million lire in capital.

In most of the zones, branches of nationally known large-scale concerns have been set up. This is likely to have been caused more by the appeal of certain natural advantages of the zones—access to markets, transpor-

tation facilities (in particular, port installations) and availability of raw materials—than by the offer of special benefits. In Italy, as in other countries, the location policies of the larger concerns are likely to be influenced more by the former than by the latter.

INDUSTRIAL ZONES AS A TOOL FOR THE INDUSTRIALIZATION OF SOUTHERN ITALY

The Government's action on behalf of the relatively under-developed South consists principally of financing, through the Cassa per il Mezzogiorno, a public investment programme in irrigation, reclamation, reafforestation, road building and other "overhead" facilities. Complementary financial assistance is extended by three regional credit institutes—one for the mainland, one for Sicily and one for Sardinia.³⁰ The Government's action has been credited with stimulating some private

³⁰ Istituto per lo sviluppo economico dell'Italia meridionale (ISVEIMER), established in 1938, and reorganized in 1953; Istituto per il finanziamento alle industrie in Sicilia (IRFIS) and Credito industriale sardo (CIS), both founded in 1953. These institutes principally extend medium-term credit.

investment, raising production levels in agriculture and industry, and narrowing somewhat the gaps in investment and income levels between northern and southern Italy, in the period from 1950 to 1957.³¹ It is recognized, however, that this action has not, so far, set into motion a cumulative and self-sustaining process of industrialization in the Mezzogiorno. Industry has continued to locate predominantly in the already industrialized North, taking advantage of the external economies as well as of the facilities and benefits available there, in particular those provided in industrial zones situated near some of the larger Italian cities.

Under the 1957 law (as amended in 1959), the Government's policy on behalf of southern Italy remains focused on measures to develop overhead facilities. However, important steps are also taken to give support to initiative — by individual manufacturers or local communities for the creation of new industries.

On the one hand, encouragement is given to individual entrepreneurs to establish small and medium-sized industries in communes with less than 200,000 inhabitants in which there is a lack of industrial activity. The Cassa is empowered to grant up to 20 per cent of the expenditures involved in building factories, installing machinery and making connexions to streets, railroads, aqueducts, sewers and utilities, and up to 10 per cent for the purchase of domestically produced machinery (or up to 20 per cent if the machinery has been manufactured in southern Italy). The communes may sell or lease to manufacturers individual sites and buildings, some on ninety-nine-year leases, and may grant ten-year exemptions from local corporate and excise taxes.

On the other hand, the law encourages the formation of consortia for establishing industrial estates in areas where concentration of new industry may reasonably be foreseen. The consortia approved by the Government may receive grants of up to 50 per cent of the site improvement and factory building costs from the Cassa, medium-term loans from a variety of government financial institutions, and facilities for the execution of public works from regional or local agencies.

Wide discretionary powers are granted to the consortia which enable them not only to plan, build and manage the utilities needed for the zone and to improve, sell or rent sites, but also to build factories for sale or lease. Land and existing buildings may be expropriated and then sold or rented to promote the establishment of new industries.

The occupants are entitled to the partial exemptions from corporate income tax granted to new and expanding industries in southern Italy for a five-year period. Some new tax concessions, reserved to that region, are also provided by the law.

After the passage of the law, some misgivings were expressed by Italian observers concerning the Govern-

ment's policy in respect of industrial zones as a tool for the industrialization of the South.³² These observers recognized that, in areas which might be designated as areas "of spontaneous expansion" — that is, principally, already industrialized regions surrounding large urban centres — the existing industrial zones had definitely shown their value as an incentive to further location and development of industry. However, with one or two exceptions, their effect on economic development had been limited, both functionally and geographically. "The industrial zones have had only scant results if comparison is made with the economic objectives it was claimed they would achieve at the time their creation was being advocated",³³ such as solving the problems of excess agricultural manpower, of seasonal unemployment or chronic under-development, and other issues which plague economically depressed areas. Industrial zones as planned now are only small "nuclei" which will concentrate industry and induce it to grow in a relatively narrow geographical area. In the surrounding area — township or commune — they may also induce secondary economic growth and some new investment in economic and social overhead — trade, transport, housing, schools, health services and the like — in a haphazard way. In the absence of broader criteria and more comprehensive planning, they will not bring about a development drive of broader scope.

These observers considered that, to be effective in promoting industrialization in the South of Italy, industrial zones should be planned having regard to two sets of considerations.

(i) In the first place, the region should be subdivided into "homogeneous" areas, from the standpoint of present and potential natural resources and population density. The priority of industrialization in regard to other forms of economic development and its intensity would vary from one area to another.

Accordingly, it was suggested that the Mezzogiorno be subdivided into the following three types of areas³⁴ (see map No. 4):

(i) Areas lending themselves to "further development" (*aree di sviluppo ulteriore*), which normally surround large urban centres, where population density is very high (857 inhabitants per square kilometre, about six times the average density for the Mezzogiorno as a whole), exploitable natural resources are scarce or non-existent, some industrial development has already taken place, and where capital may be raised locally or attracted from other regions. The development of industry and tertiary activities should be actively promoted in such areas.

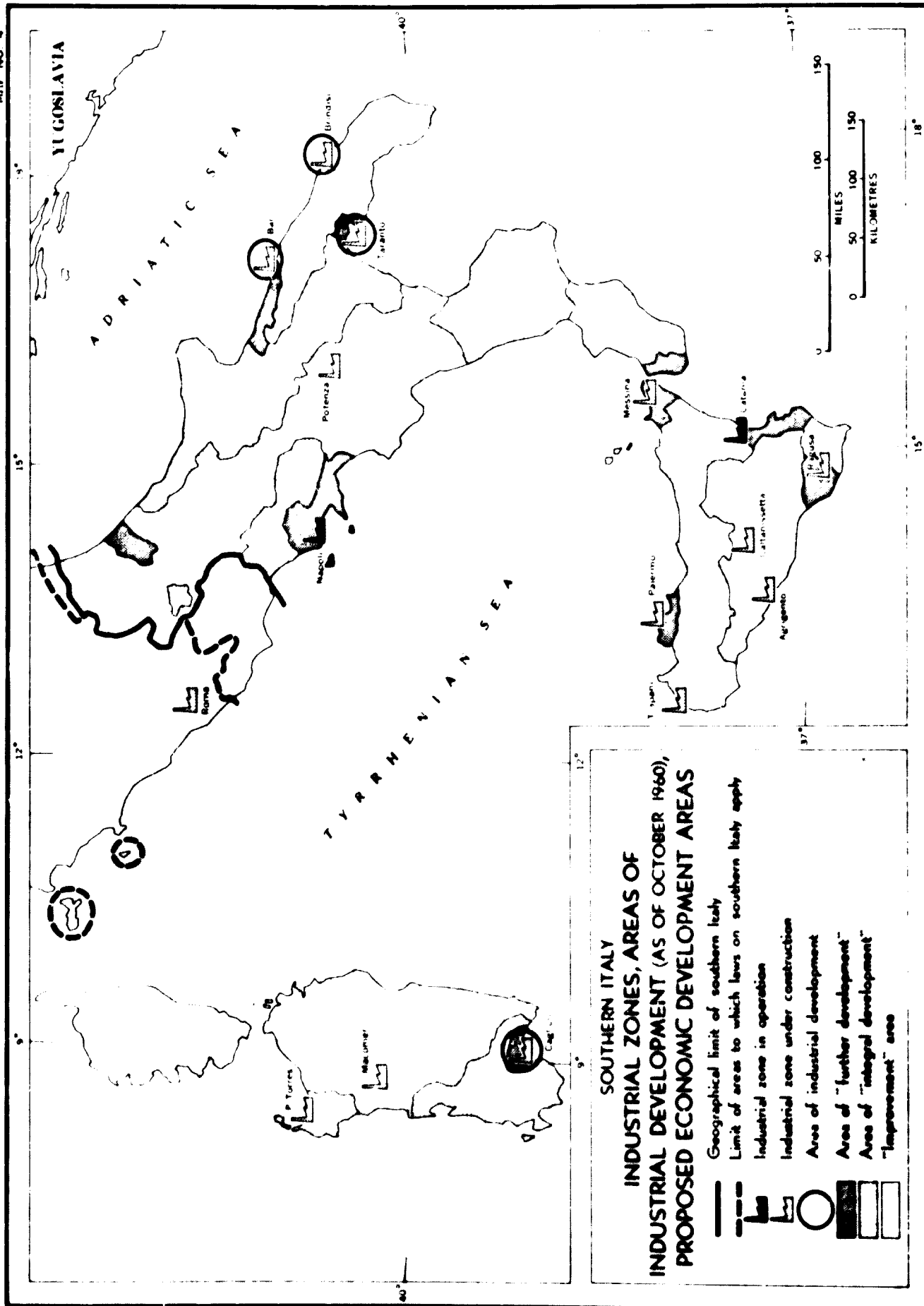
(ii) Areas of "integral development" (*aree di sviluppo integrale*), where population is of average density or somewhat below it (113 inhabitants per square kilometre), considerable natural resources exist but are not

³¹ A. Molinari, "Gli effetti della politica di sviluppo del Mezzogiorno sull'economia nazionale" in Banco di Roma, *Review of the Economic Conditions in Italy* (Rome), special issue, January 1959. For a less optimistic appraisal — though more qualitative in approach — see Friedrich Vöchting, "Considerations on the Industrialization of the Mezzogiorno" in Banca Nazionale del Lavoro, *Quarterly Review* (Rome), September 1958.

³² Associazione per lo sviluppo dell'industria nel Mezzogiorno (SVIMEZ), *Il problema delle zone industriali in Italia*, by A. Molinari and C. Turco (Rome), December 1958.

³³ *Ibid.*, paragraph 20.

³⁴ SVIMEZ, "The Problem Areas in Italy", report submitted by SVIMEZ to the European Seminar on Social Research and Community Development held in Palermo, Sicily, under the auspices of the United Nations, 8 to 18 June 1958.



Source: Associazione per lo sviluppo dell'industria nel Mezzogiorno (SIVIMEZ)

yet sufficiently exploited, and some capital investment has already been made, principally in "infrastructure" facilities and the agricultural sector. Large-scale development of agriculture and, to a smaller extent, promotion of manufacturing and service industries, should be carried out in such areas.

(iii) "Improvement" areas (*aree di sistemazione*), where population density is lower than average (103 inhabitants per square kilometre), but still excessive in relation to the area's limited potentialities in natural resources and capital. In such areas large parts of which consist of mountainous terrain measures of promotion may have to be limited to development of land and water resources for agriculture; in addition, promotion of emigration to other parts of the country or abroad may be necessary.

(2) In the second place, it was recommended that the concept of the industrial zone which had so far prevailed in Italy — which corresponds to the industrial estate in the narrow sense — be abandoned, and a broader concept — that of the "area of industrial development" — be substituted for it. The area of industrial development should be a relatively large and homogeneous territory. It would comprise several communes, which might belong to different provinces, but which, for planning and operational purposes, would be under the jurisdiction of a single agency — for instance, the consortium. Within these industrial areas, industrial "nuclei" — that is, industrial estates and also single plants on individual sites — would be established, following in this respect the practice adopted in the United Kingdom. The areas of industrial development would be established in the areas of further development and of integral development, preferably around centres already providing some external economies, but their number, size and scheduling would vary from one to the other.

Large-scale development of industry involves complementary investments in economic and social overhead. A recent Italian study suggests that the costs of social fixed investments made necessary by the addition to a locality of one new worker employed in a new industry may be high and may increase in direct proportion to the size of the population centre in which the industry has been established.³⁶ The costs to be supported by State, province and commune for urban public services in the widest sense — streets, lighting, sewers, schools, hospitals, police, communications — and by public and private authorities providing services and utilities — city transportation, gas and electricity for domestic consumption, and telephones — are estimated in this study to vary from 123,000 lire (\$US107) in centres of 30,000 inhabitants, to 194,000 lire (\$US310) in centres having between 30,000 and 200,000 inhabitants, and to 357,000 lire (\$US571) in centres of more than 200,000 inhabitants. These costs are further increased if housing is included in the calculation.

³⁶ SVIMEZ, *La localizzazione industriale ed i costi "sociali" dell'insediamento di nuove unità lavorative*, by A. Molinari (Rome, May 1957). However, this finding is not corroborated by similar investigations in other countries, in particular, in the Netherlands.

These relationships are of considerable importance for selecting, within the broad economic development areas, the optimum location, size and number of the areas of industrial development and for planning simultaneously their development and that of the related investment in economic and social overhead.

On 30 July 1959, the Committee of Ministers for the Mezzogiorno issued a statement on "conditions and minimum requirements for the creation of areas of industrial development"³⁶ which, on the whole, endorses the above proposals. The main features of the policy which it sets forth are as follows:

(i) "Broad and homogeneous areas of industrial development", including an adequate number of communes — contiguous or located within a twenty-five-kilometre radius from the main commune and, if necessary, belonging to different provinces — are to be mapped out. Within these areas, industry will be located in "industrial nuclei". These are defined as one or more establishments situated at various points within the area.³⁷ Enterprises are free to choose their location in the area, but are to be subject to the jurisdiction of the consortia referred to in the law of 29 July 1957.

(ii) The prerequisite for establishing an area of industrial development and a consortium is that the potentialities for setting up a minimum number of industries immediately or in the near future should be ascertained. In principle, this minimum would be measured by the number of workers to be employed by these industries and would amount to 5 per cent of the industrial employment in the area, as shown by the 1951 census. The latter condition, however, is not absolute; thus, in some cases, it may be sufficient to produce evidence that the changes in industrial employment since 1951 show a trend towards concentration of industry in the locality concerned. The minimum population of the main commune should be 100,000 (as of 31 December 1958), and that of the area as a whole, 200,000.

(iii) Other requirements include: availability or possibility of development of energy resources, especially water, and other natural resources, of railroads, highways and port installations, and complementarity between the economy of the main commune and that of some of the surrounding localities.

On 8 June 1960, the Committee of Ministers for the Mezzogiorno ruled that in certain areas which did not meet the above conditions, small "industrialization nuclei", that is, industrial estates in the narrow sense, could also be established under certain circumstances, and be entitled to the benefits provided by the 1957 law.³⁸ The Committee noted that there was a tendency towards

³⁶ The statement was followed, in September 1959, by an explanatory circular to all prefectures and local agencies of southern Italy, signed by the President of the Council of Ministers for the Mezzogiorno. Both documents are published in *Mondo Economico* (Milan), No. 44, 31 October 1959.

³⁷ The statement specifies that the expression "area of industrial development" is to be substituted for "industrial zone" as used in the law of 1957. The "nuclei" include industrial estates as well as individual plants.

³⁸ Comitato dei Ministri per il Mezzogiorno, "Istituzione di 'Nuclei di Industrializzazione' nel Mezzogiorno", circular to all prefectures and local agencies of southern Italy, dated 8 June 1960.

the concentration of a small number of industrial establishments in certain localities of southern Italy: the industries concerned were generally small-sized and processed local raw materials and supplied local markets; the localities were not as densely populated or as well endowed in resources as those where areas of industrial development could be established. The Committee considered that every effort, however small, tending to accelerate the industrialization of the South deserved to be encouraged and supported; at the same time, such efforts should be subjected to a common discipline. The Committee decided that the basic prerequisite for the creation of such "nuclei" was to ascertain positively the existence of a tendency towards industrial concentration in the locality concerned. Evidence should be provided, in the form of concrete and reliable plans, including technoeconomic or financial proposals, that establishment of new industrial undertakings in given localities was being actively considered. While it would be desirable that industrial enterprises should be already established in these localities, this would not be an absolute prerequisite for the formation of a consortium and an indus-

trial nucleus. However, requests for such formation would be much more closely scrutinized than those for the creation of areas of industrial development, since the prospects for industrial agglomeration would, as a rule, be more uncertain and more limited in the former case than in the latter.

In October 1960, the Italian Government announced a study of a pilot project aimed at setting up some medium-sized factories in the four areas of industrial development and in the "industrial nuclei" when these are established.³⁹ These undertakings—mainly engineering and food-processing industries—would be joint ventures between state and private investors. The project would involve an investment of about 120 billion lire (81,5194 million), most of which would be financed by the State. During the first stages, the management of the factories would be under state majority control; subsequently, the state-owned shares would be sold to private investors. The funds thus recovered might be used for further operations of this type.

³⁹ Establishment of a "nucleus" at Potenza (Lucania) was authorized in the same month.

Chapter 2

OBJECTIVES AND POLICIES IN UNDER-DEVELOPED COUNTRIES

This chapter is mainly devoted to a discussion of the policies followed in India and Puerto Rico where nation-wide programmes of construction of industrial estates have been undertaken. Particular attention is paid to the policies of India, which, for reasons which will become apparent later, appear to be more typical of those which would usually prevail in the less developed countries. Brief references are also made to industrial estates projects in a few other countries.

India

THE GOVERNMENT'S INDUSTRIAL ESTATES PROGRAMME AND ITS IMPLEMENTATION

The establishment of ten industrial estates was sanctioned by the Indian Government under the first five-year plan in 1952/53. Only one estate — Okhla, near New Delhi, was partially constructed at the time the second five-year plan came into being — April 1956 — and construction of the nine others was undertaken in the first years covered by the second plan. It was during the period from 1956 to 1960 that the large programme of construction of estates throughout the country was devised and implemented.

The objectives and policies relating to the establishment of industrial estates were set forth as follows by the Planning Commission of the Government of India in the report containing its proposals for the second five-year plan, under the heading "Small-scale Industries":

"A provision of Rs.10 crores¹ has been made for setting up industrial estates in the second five-year plan with a view to providing conditions favourable to working efficiency, maintenance of uniform standards in production and economic utilisation of materials and equipment. The principal objective is to enable a number of small-scale units to have the advantage of common services and other facilities, such as a good site, electricity, water, gas, steam, compressed air, railway sidings, watch and ward, etc. Being located near one another, some units may be better able to use the goods and services of others, so that they become interdependent and complementary. Two types of industrial estates, large ones costing from Rs.40 to 50 lakhs and small ones costing from Rs.20 to 25 lakhs, are expected to be established. It is proposed that the responsibility for construction

and management should vest in the state Governments but that the Central Government should advance to state Governments the entire cost of the estates in the form of loans. State Governments will run the estates through corporations or such other agencies as they may decide to set up. Sites in the estates will be sold outright to industrial units or given to them on hire-purchase terms. In some cases buildings will be erected on sites and let out on a rental or a rent-cum-purchase basis or, if necessary, sold outright.

"The Village and Small-scale Industries Committee expressed the view that industrial estates should be located in such a way that they do not encourage further concentration of population in large urban centres. In deciding the location of the estates, especially the smaller estates, this consideration should be kept in view so that preferably they are developed in or near towns of comparatively small size."²

A number of characteristics not found in the industrial estates of more advanced countries are evidenced by this statement. First, industrial estates in India are specifically devised to foster the development of small-scale industries. These are defined as undertakings employing fifty workers or less per shift when power machinery is in use, or one hundred workers or less per shift when power machinery is not used, and having a capital investment not in excess of 500,000 rupees. The majority of such enterprises work on a one-shift basis. In the developed countries, occupancy is offered to medium-scale industries as well as to small ones, the latter concept applying to concerns appreciably larger than those covered by the above definition.

Second, industrial estates are relied upon to provide conditions favouring the achievement and maintenance of a high level of productivity in the factories established therein. The grouping of factories makes it possible to provide assistance and, in some cases, to exercise control with a view to improving productivity, in a particularly effective way. These measures will be examined later in more detail. In the advanced countries, the developers of estates extend certain services and exert certain controls in accordance with the sale or lease agreements, but do not concern themselves directly with the management or production problems of the occupants.

Third, the Indian authorities endeavour to create relationships of interdependence and complementarity among at least some of the industries located on an estate. In the advanced countries, as noted earlier,

¹ One crore = 10 million rupees; one lakh = 100 000 rupees; one rupee = \$US 0.21.

² Government of India, Planning Commission, *Second Five-Year Plan* (New Delhi, 1956), chapter XX, paragraph 45.

developers aim only at ensuring some degree of compatibility between the industrial activities of the occupants.

As a corollary to the last two features, considerably greater emphasis is put on the provision of common services in the industrial estates of India than in those of the developed countries. This aspect will also be examined more closely below.

The initiative for creating industrial estates throughout the country was taken by the central Government, which also set forth basic policies and provided financing for their establishment. Responsibility for construction and management was, however, left to the state governments, with two exceptions, referred to below. Private sponsorship, even in co-operative form, was not considered at the time the programme was initiated. To vest the responsibility for the estates with the state governments was in agreement with India's planning philosophy which tends, whenever possible, to decentralize economic development programmes. Decentralization was particularly indicated in the case of industrial estates set up to promote small industry, as the states are vested with special responsibility for this sector. Moreover, the planning and operation of a great number of industrial estates scattered throughout a large country could not be carried on efficiently by central authorities. Under the management of the states, a more effective scheduling of work and supervision of operation of the estates could be ensured. Also, it was possible to obtain a better integration of the development effort induced at the local level through the creation of industrial estates with development policies of broader scope.

An exception to this rule was made in the earliest stages of the implementation of the programme. Responsibility for building and managing the very first estates — Okhla, near Delhi, and Naini, near Allahabad — was given to an agency founded and controlled by the central Government — the National Small Industry Corporation — in order to expedite planning and set a pattern for the establishment of estates throughout the country.

After the programmes were well under way, private parties were induced, in a few cases, to start industrial estates both as private corporations and as co-operatives. This was done, in particular, in Madras State — at Coimbatore, Pollachi and at a location near Madras. In 1960, in view of the growing demand for industrial estates in many parts of the country, the Government decided to stimulate development of industrial estates by private groups.³

The financial contribution of the central Government consists of extending loans to the state governments to cover the entire cost of the estates. The loans carry interest at 4.5 per cent per annum; they are granted for a period of twenty years to acquire land and erect factories, and for thirty years to cover development expenditures, such as clearing, grading, road building, installation of utilities and sewers and so on. The cost of preparatory work — engineering and architectural surveys, plans and layouts, cost estimates and the like — is borne by the central Government in the form of grants to

³ The financial arrangements adopted for that purpose are described below.

the states. A provision is made that, should the demand for industrial estates increase at some later stage, the central Government would then consider requesting the state governments to share part of the costs involved; a 25 per cent contribution is envisaged.

A loan of 5.8 million rupees was granted to the state governments under the first five-year plan to finance construction of the first ten estates. For the second plan period, 100 million rupees were originally earmarked to establish a country-wide network of estates, an amount which was subsequently raised to 150 million rupees — and, in 1959, reduced to 111 million rupees, after reappraisal of plan resources. The latter amount was to finance construction of ninety estates which, when fully occupied, will contain 3,600 factories giving employment to 50,000 persons — a figure to be compared with the target of 160,000 employment opportunities in small-scale industry set for the period covered by the second five-year plan by the so-called Karve Committee.⁴

The total number of estates sanctioned by the Government was thus 100 by the end of 1959. Their cost was estimated at 128 million rupees and the expenditure to be incurred during the second plan period was 115 million rupees. In 1960, construction of twenty additional estates for "backward" areas was authorized.

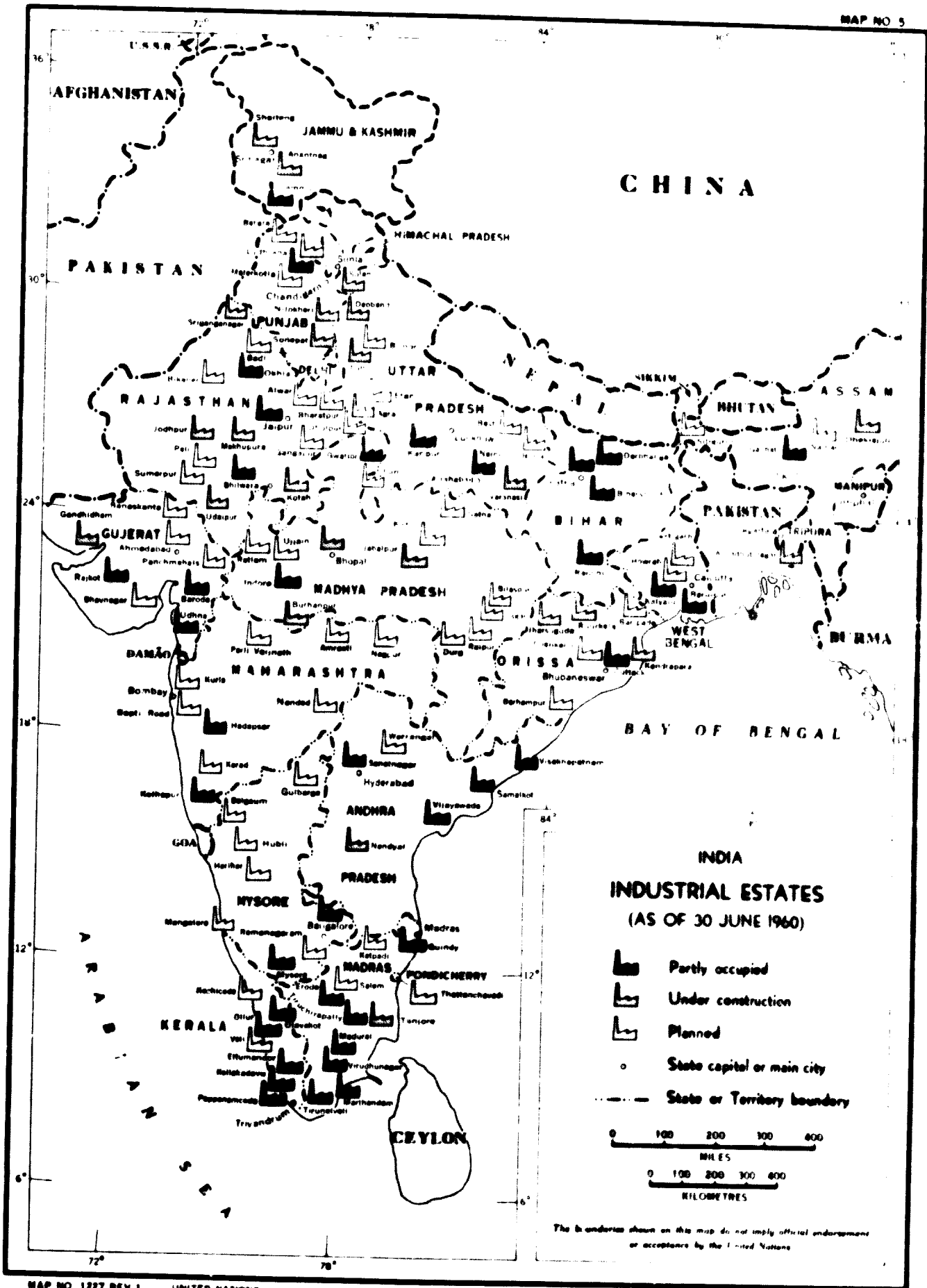
By 30 June 1960, of these 120 estates (see map No. 5), forty were in operation. On them, 1,343 factory sheds were completed, 1,272 of which were allotted and 1,087 occupied by 596 enterprises; these employed 14,000 to 15,000 workmen and produced goods estimated at 120 million rupees per year. The average number of workers per enterprise was twenty-three.

Nine estates were completed but not occupied; these included 132 sheds, seventy-five of which were allotted. Twenty-nine other estates were under construction and were expected to be completed by the end of 1960. Construction had not started in twenty-two estates. As mentioned above, construction of twenty other estates had been authorized.

The Indian Government is now considering recommendations by the Planning Commission for the third five-year plan⁵ which contain, among other things, a proposal to set up 300 industrial estates during the period. This figure includes the forty-odd estates which were not constructed during the second plan period. The new estates will be located, as far as possible, in small and medium-sized towns and selected rural areas where such facilities as power, water supply and transport are available. Care will be taken "to locate rural industrial estates in areas where there is a sufficient number of artisans and craftsmen and where improvement in economic conditions provides opportunities for the use of improved techniques and better tools". The total number of industrial estates in India will thus be about 380 by the end of the third five-year plan period, and the total cost around 500 million rupees.

⁴ Government of India, Planning Commission, *Report on the Village and Small-scale Industries (Second Five-Year Plan) Committee* (New Delhi, 1955), page 80.

⁵ Government of India, Planning Commission, *Third Five-Year Plan - A Draft Outline* (New Delhi, June 1960).



In its report, the Planning Commission recommended the following procedure for planning small-scale industry schemes

" In proposing schemes for developing various small-scale industries, conditions of demand, availability of raw materials and other relevant factors have to be studied carefully. It could be useful to select for different regions the industries for which favourable conditions exist and which should, therefore, be specially promoted and assisted. In preparing departmental schemes and in scrutinizing the applications from private persons for loans and other assistance, reference to lists of selected industries could be of much assistance. Exploratory surveys as well as intensive studies are needed for their preparation and for the necessary modifications in the light of changing conditions. A programme of investigations has already been initiated by the Small-scale Industries Board and a team has completed reports on four industries in the northern region, namely, sports goods, sewing machines and parts, bicycles and parts and leather footwear, and one industry on an all-India basis, namely, automobile batteries for the northern region. Similar teams for the eastern, southern and western regions have also started working. Pending the completion of these studies, tentative lists of industries could be drawn up by State Industries Departments on the basis of their own experience and judgement, so that a measure of direction and guidance can be given to developments in this field." *

Determination of the appropriate types of enterprises is obviously called for at the time an estate for small industries is planned, if relationships of interdependence and complementarity are to be established among occupants, or between them and large industries, and if common services are to be provided to them economically and efficiently, as recommended by the Planning Commission. The Commission's policy involves considerably more planning and research work for establishing industrial estates than is usually done in the developed countries. Determination of the appropriate types of industries would be based on a survey of needs and potentialities in the area, and would influence the location, size (allowing for possible future expansion) and industry composition of the estate. It would affect the type and size of pre-constructed factory buildings and indicate the need for special installations, for instance, railway sidings rather than, or in addition to, trucking facilities. It would also affect the type of common facilities to be established on the estate. Setting up workshops for forging, casting, case hardening, enamelling, electroplating, heat treatment, metal testing, dyeing and others would be justified only if sufficient demand for such services permitted costs to be cut through economies of scale. The main advantage expected from inter-servicing and inter-trading among occupants is a reduction of production costs. This cannot be obtained by occasional job lot orders, but requires a stable and adequate volume of demand. Investigation of the type of industries desired is also useful if co-operative organiza-

* *Ibid.*, chapter XX, paragraph 48.

tions for procurement of raw materials or marketing of finished goods are to be established.

In practice, implementation of the Planning Commission's recommendations met with difficulties. A survey team appointed by the Committee on Plan Projects of the National Development Council to evaluate factory buildings projects in industrial estates reported that, in the estates which it had visited, only " preliminary surveys of a very limited character appeared to have been carried out, more from the point of view of making an assessment of the potentiality of finding suitable tenants rather than for the purpose of ascertaining the type of new enterprises or industries that could be established to ensure co-ordinated development as envisaged in the plan." In many cases, the estates were planned on the basis of requirements expressed in applications which small entrepreneurs were invited to submit as soon as the decisions to set up the estates were taken.

As has been mentioned above, the Planning Commission recommended a flexible policy for disposing of the sites, either through sale or hire-purchase, and contemplated, in some cases, the erection of buildings on the sites, to be leased, rented with option to purchase, or sold. When launching the industrial estates programme, the Government suggested that entrepreneurs taking sites on a rental basis should be encouraged to change over in the course of time to the hire-purchase system; this would involve an initial payment of 20 per cent of the price, and equal instalments of the balance over a period of twenty years. In actual fact, the erection of general-purpose buildings on the sites and their offering for rent only have become the rule rather than the exception, following in this, as in other aspects, the practice in the British trading estates. In the estates of Madras State, individual ownership is deliberately discouraged; buildings are offered only for rent in order to maintain the corporate character of the estates.⁸ Additional charges are made for provision of utilities and services.

The same flexibility characterizes the policy followed in regard to sites and buildings. Each estate provides these in different sizes, both to meet the individual needs of prospective manufacturers and to permit expansion, in the course of time, of concerns already

⁸ Government of India, Committee on Plan Projects, *Report of the Selected Buildings Projects Team on Industrial Estates* (New Delhi, 1959), paragraphs 4.1 and 4.2. The team visited the following estates: Gundy, eight miles from Madras; Okhla, six miles from New Delhi; Rajkot, 1.5 miles from Rajkot City (Gujarat); Sanatnagar, adjacent to Hyderabad City (Andhra Pradesh); Papanamcode, four miles from Trivandrum (Kerala); and Bauripur, in a rural area near Calcutta (West Bengal).

⁹ For the same reason, rental was preferred to hire-purchase by participants in the first All-India Seminar on Industrial Estates, held in Madras from 20 to 25 September 1960. Opinion was divided on the question whether improved sites only should be made available to small-scale industries. One view was that such sites need to be provided only to large and medium-sized industries; built-up accommodation would be necessary for small concerns. The other view was that improved sites should be made available to all industries, including small enterprises, in areas where industry is willing and able to put up its own buildings. The consensus was that, where sites are provided for small industries, this should be done in the form of long-term lease and not of outright sale.

established in the smaller factory buildings. As an example, the Indore industrial estate, in the State of Madhya Pradesh, provides work-sheds ranging from 900 square feet to 6,000 square feet in covered area (84 to 557 square metres), and that of Okhla, near New Delhi, offers buildings ranging from 2,081 to 10,810 square feet (193 to 1,004 square metres). The largest buildings seldom exceed 10,000 square feet (929 square metres), and are found in only a few estates; the smallest — 300 square feet in area (28 square metres) — are in the Ludhiana estate in Punjab. On the basis of information relating to fifty-odd estates, the average size of the largest buildings is 3,800 square feet and that of the smallest, 1,300 square feet (353 and 121 square metres, respectively). In certain estates, in particular those in Madras State, plots are maintained in reserve to accommodate industries which have outgrown even the largest buildings available; these industries will be given the possibility of erecting their own factories on these plots.⁹

LOCATION AND OCCUPANCY OF THE ESTATES

A result expected from the creation of industrial estates is that this would contribute to discouraging further concentration of industry and population in large urban centres, a notoriously serious problem in India. Whether substantial results in this direction would be achieved by developing estates in or near small towns, as recommended by the Planning Commission, is yet to be seen, since, in the absence of a nation-wide policy of distribution of industry of the British type, new or existing enterprises are not likely spontaneously to settle in estates in rural areas or to move there from large towns. Estates established near large cities might, however, have the effect of regulating the influx of new industries to those cities, and of facilitating slum clearance by offering sites to displaced shops or factories. The estates located near small towns where little industry exists would serve as nuclei for further growth.

The establishment of the estates was guided to a large extent by the recommendation of the Planning Commission. Most of the estates were established in or near small towns, within commuting distance of neighbouring villages. Of the present 120 estates, 25 are located in urban centres with a population of less than 20,000 inhabitants; 25 in centres with between 20,000 and 50,000;

⁹ A sub-committee of the Plan Projects Committee has recommended a certain number of norms for layout and design of buildings in industrial estates; its recommendations (which are published in *Industrial Estates — Programme and Progress*, op. cit.) were adopted in 1960 by the Small-scale Industries Board. It is recommended, among other things, that the largest factory plots on large and medium-sized industrial estates should not exceed 15,000 square feet (1,393 square metres), of which 9,000 to 12,000 square feet (836 to 1,115 square metres) should be in covered area. The smallest plot could be 2,000 square feet (186 square metres), of which 400 to 1,000 square feet (37 to 93 square metres) could be covered area. On small and rural industrial estates, sizes of plots would range from 1,000 to 4,500 square feet, and covered areas from 200 to 400 square feet for the smallest plots, from 2,000 to 3,000 for the largest ones (93 to 418, 19 to 37, and 136 to 279 square metres, respectively). The size of a large estate would be over 30 acres (12 hectares); a medium-sized one, between 30 and 10 acres; a small and rural estate, under 10 acres. "Work-shed" estates in small villages would be under 2 acres.

21 in centres with between 50,000 and 100,000; 39 in centres with between 100,000 and 200,000; 5 in towns with more than 500,000 persons and 5 near cities with populations exceeding one million.

Twenty of these estates are being established in the "community development blocks", which are the operational units under the community development and national extension programmes.¹⁰ On the average, a block covers 100 villages with a population of 60,000 to 70,000 persons spread over an area of 150 to 170 square miles. Nine other estates are in such blocks known as pilot project areas, where special centres and workshops have been set up to serve as models for certain manufacturing operations, provide standardized parts to certain industries, improve quality, train repair and maintenance workers, and so on.¹¹ Twenty other estates are to be set up in "backward" rural areas. In some states, particularly in Madras, the smaller estates in rural areas are known as industrial colonies; community workshops, which are still smaller estates, are also established in these areas.¹²

The Government's policy is thus to settle the estates with existing industries shifted from congested parts of a town, with extensions of existing industries and with new ones. Preliminary data on occupancy of factories suggest that in estates located in or near the larger cities the rate of occupancy was relatively fast,¹³ a large proportion of the sites having been taken by existing firms which had either branched out into the estate or had moved there from their old premises. In estates located in smaller towns, the rate of occupancy has been slower, but the proportion of new enterprises appears to be larger than that of old concerns.

Ready demand for sites and factories on estates located near large cities is explained by the prevalence there of larger numbers of small industrialists, usually huddled in blighted premises, and the greater availability of entrepreneurial talent, skilled labour, financial resources, organized markets, and other external economies than in the smaller towns. Eagerness to settle on the estates is stimulated by the generally advantageous lease conditions offered to all comers. The manner in which the estates located near some of the largest Indian cities were occupied elicited some criticism on the part of the survey team referred to above.

¹⁰ In this connexion, see *Second Five-Year Plan*, op. cit., chapter XI.

¹¹ As of 30 June 1960, two out of twenty estates in community development blocks had started functioning. Fourteen other estates in community development blocks were completed or ready for occupancy by the end of 1960; construction of the four others had not begun. As of the same date, four out of nine estates in pilot project areas in the states of Maharashtra, Kerala, Madras and West Bengal were being occupied by a total of fifty-one enterprises with 532 workers; the total number of sheds completed was eighty-three, all but one of which had been allotted.

¹² Industrial co-operatives have also been developed in rural areas; they are engaged mainly in hand-loom weaving, palm-gut production, tanning and sericulture.

¹³ There are, however, a few exceptions. The differences in rates of occupancy were discussed by participants in the first All-India Seminar on Industrial Estates, without any definite conclusions being reached. Differences in promotion and servicing by state administrations may account for some of the disparities. Further study of this important question might perhaps indicate the need for special incentives in certain areas.

" In most of the cases, the factory units have been allotted to industrialists who have shifted their establishments from other parts of the city. One of the objects in setting up such industrial estates was to give opportunities to new entrepreneurs. The number of such new industries which have come up in these industrial estates is unfortunately limited.

" It appears that the existing industries have availed themselves of the facilities now provided. Thus, to a large extent, the projects have been more of the nature of re-housing or expansion of the existing small industrial units. Most of the authorities concerned appear to have been satisfied with utilizing the funds allotted for the industrial estates, without fulfilling the specific objectives of the Plan.

" In the case of allotment of plots to established industries, there appears to be no justification for any concession in the scale of rent which, in such cases, should be the economic rent from the very start."¹⁴

The team warned that establishment on industrial estates of branches of existing enterprises might not relieve urban congestion and slum conditions:

" There is a danger that the entrepreneur, while availing himself of the new accommodation, will continue to function in the congested part of the town as well, thus enjoying a new facility without giving any relief to the social problem of slum clearance."¹⁵

On the other hand, the team recognized that, while it was desirable to create employment opportunities for rural manpower by establishing industrial estates in the countryside, and while some advantages, such as cheap land and easy commuting, were to be found there, " the location of industries in rural areas [was] not an easy proposition ". Nevertheless, it recognized the merits of the policy set forth by the Government and recommended that, " as far as possible, large urban centres should be avoided and the industries should be located near small towns having a population of about 50,000 ". It cautioned, however, that such estates should be established on an experimental basis, that their development should be carefully watched and that they should be extended only if successful. While the team seems to consider that addition to the productive capacity of the country by creation of new enterprises is more important than decongestion of crowded or blighted areas, it did not recommend explicitly that priority in allocation of sites and factories be given to the new concerns, presumably because of the dual objective of the government policy. It did state, however, that " the setting up of new industries should not suffer because of the ready demand from established industries " ¹⁶ and suggested that the latter pay market rents, subsidized rates being thereby reserved to new firms.

¹⁴ *Report of the Selected Buildings Projects Team on Industrial Estates*, op. cit., paragraphs 10.2.1 to 10.2.3.

¹⁵ *Ibid.*, paragraph 10.1.2.

¹⁶ *Ibid.*, paragraph 5.1.2. The All-India Seminar on Industrial Estates recommended that " new industries should be preferred as against industries existing in some other area and seeking to shift to the industrial estate ". It did not oppose re-housing of local concerns. It also recommended that accommodation be provided to industries unable to expand in their own premises.

In connexion with the prevailing practice of offering ready-built factories for rent, the team recommended that more consideration be given to selling sites to manufacturers willing to construct their own plants, with a view to spreading the funds allocated to the industrial estate programme over a greater number of estates. For the same purpose, it recommended that construction and operation of estates should also be undertaken by co-operatives which would finance their cost to the extent of 40 to 50 per cent, the balance being granted by the Government.¹⁷

The team criticized what it considered to be an excessive range of sizes of work-sheds and an excessive number of large-size buildings in the estates it visited. On one of them the smallest building had an area of 2,120 square feet (197 square metres), which was " likely to prove too big for a man of limited means ". The team recommended a range of buildings of from 600 to 6,000 square feet in covered area (56 to 557 square metres), with plot area twice the size of the smaller sheds, and $1\frac{1}{3}$ to $1\frac{1}{2}$ times that of the larger ones, to ensure economic and efficient use of land, in particular to provide open working areas where necessary and to allow for future expansion and avoid overcrowding.

In certain estates, admission rules reserve occupancy to new industries. This is the case of the Guindy estate near Madras, which is almost entirely occupied by new firms manufacturing new products. Occupancy is open only to: (a) light engineering industries, including electrical engineering, which manufacture, with the aid of modern machines and power, essential consumer goods or other articles for which there is a strong demand and which (i) are at present imported from abroad; (ii) are in short supply in the country as a whole or in the local area and therefore have to be transported over long distances; (iii) have a good export market, and (iv) can anticipate a growing demand consequent on over-all development and rising income; and (b) ancillary industries which manufacture parts needed by larger concerns or accessories to supplement products of the latter. A further important condition for admission is that such manufacturing industries should require special aid and encouragement both to organize themselves and grow. Industries which can start and develop by their own means and which, even if useful, do not come within the above categories, are not allowed to settle in the estate. Attention is drawn to the requirement of employing modern machinery, which implies control by the estate's management over the quality of equipment with a view to maintaining a high level of productivity. Anticipating the discussion of this aspect, it will be noted that use of modern machinery as a formal condition for admission appears to be a unique feature of the Madras estate.¹⁸

Light engineering and chemical industries, especially plastics, predominate among the 596 enterprises now operating, together accounting for over 80 per cent of the total. Many of these enterprises are new to India

¹⁷ For more details, see chapter 4.

¹⁸ See below, page 25. On certain estates, in particular at Okhla, preference is given only to " applicants willing to install graded machinery and producing standard goods ".

or to the region in which they are set up. The more traditional trades — textiles, ceramics, wood and leather products, food products and beverages — are in the minority, only 10 per cent of the enterprises belonging to this group. Only thirty-seven enterprises (6 per cent of the total) are organized as industrial co-operatives and most of these are engaged in traditional occupations, in particular making furniture and other kinds of wood-work.¹⁹

In 1960, the Indian Government decided to promote new forms of industrial estates. In addition to the existing estates, which accommodate a wide variety of small-scale industries, a certain number of "functional" industrial estates for specific industries will be set up. Industries on these estates will produce parts and components for an assembling unit which will also be located on the estate. Efficiency, mutual help, lower costs, guaranteed markets and other advantages and savings would be made possible by such specialization. It is envisaged that four such estates will be set up in various states to produce automobile parts, three others will be established for light machine tools, three for instruments, three for radios and three for time-pieces, clocks and watches; it may be noted that these industries are relatively insensitive to slumps.

"Ancillary" industrial estates are a variant of the foregoing. They will be established by large industrial concerns — public and private — to manufacture parts and components on a subcontracting basis. The first estate of this type is being organized in Bangalore by the Hindustan Machine Tools Factory — a government concern — on a site adjacent to its plants, at a cost estimated at 1.6 million rupees.

"Work-shed" industrial estates will be established for local craftsmen in villages with less than 5,000 inhabitants.

"Staggered" industrial estates will consist of a few factory units which will eventually grow into a full-fledged industrial estate; they will be set up, at the request of local or other entrepreneurs, in undeveloped areas where prospects for industrialization are in view.²⁰

Special industrial estates will be set up near institutions for higher education to enable students to gain practical factory experience. Five such estates will be established near universities, and five others near rural institutes.

SERVICING AND ASSISTANCE FACILITIES

With one exception, no special benefits are offered to small industrialists to induce them to settle in industrial estates. They are entitled to the various forms of aid devised by the Government to assist small-scale industry in general, irrespective of its location, namely: financial assistance on liberal terms through the industries departments of state governments and the state financial

¹⁹ Information supplied at the first All-India Seminar on Industrial Estates.

²⁰ The need to reserve enough land for future expansion on all industrial estates, irrespective of type, may be underlined in this connexion. Experience in all countries has shown that land speculation and inflated prices for adjoining plots practically always accompany the establishment of an industrial estate.

corporations; ²¹ supply of machinery on hire-purchase terms, Government contracts and marketing of finished goods through the National Small Industries Corporation; technical assistance and training through the Small Industries Service Institutes. New industries, employing ten or more persons where power is used, or twenty or more persons if power is not used, which came into production within eight years from 1 April 1948, are exempt for a period of five years from income tax and super-tax on their profits or gains up to a maximum equal to 6 per cent of their paid-up capital. Shareholders are exempt from tax on dividends paid out of tax-exempt profits by limited companies. Small industries are also eligible for the special depreciation allowances and rebates for new plant and machinery granted to all industrial enterprises in India.

The only special advantage offered to occupants of industrial estates relates to rent. In principle, they are to pay market rent, but subsidies may be granted should such rent be found to be too high. The burden of subsidies is carried in equal parts by the central Government and the states up to a period of five years, in the course of which subsidies are progressively reduced; any subsidy to be paid thereafter is to be borne entirely by the state Governments. Rent subsidies can be granted only with the approval of the central Government.²²

The absence of special inducements to attract industry to industrial estates may be due in part to the fact that the advantages inherent in the device are more compelling in an under-developed country like India than in the more developed parts of the world. To obtain ready-built factory space with modern conveniences is a powerful inducement for people who, in general, have no alternative but to stay or settle in crowded, inconvenient and unsanitary premises. Of particular importance also is the lowering of cash requirements due to the possibility of leasing rather than purchasing and the elimination of the time-lag between investment and production which is invaluable to small businessmen disposing of very scant resources.

To a large extent, the success of industrial estates in India results from the fact that they incorporate all or most of the facilities devised by the Government to promote and assist small industry. The administrators of the estates centralize the requests for technical assistance, training, financing, machinery, supply of raw materials,²³ import licences, aid in marketing and the like and channel them to the appropriate agencies, some of which have set up facilities in a number of estates. Among the Small Industries Service Institutes which are established in each of the sixteen states, eleven

²¹ See United Nations, *Bulletin on Industrialization and Productivity*, No. 3 (Sales No. 60.II.B.U.), "Financing of Small-scale Industries in Under-developed Countries".

²² It may be noted in this connexion that a buildings project team appointed to study slum clearance problems pointed out in its report that "an answer to low rent is lower cost of construction and not higher subsidy". Quoted in *Report of the Selected Buildings Projects Team on Industrial Estates*, op. cit., paragraph 9.1. The reader is referred to this report for suggestions on reducing costs of construction of industrial estates.

²³ In particular supply, at controlled prices, of certain licensed materials, such as steel, coke and cement.

are located in or near industrial estates; three of the four Branch Institutes are also similarly located. Many of the forty-two Industrial Extension Centres already established and the thirty-seven others now being planned are set up or are to be set up in the vicinity of industrial estates. Training courses have been organized by the Institutes in a number of estates and plans have been made for providing them in others.

Prototype "Production-cum-training centres" have been set up by the National Small Industries Corporation in the Rajkot and Okhla estates. These centres develop prototype machinery and train small manufacturers to produce it on commercial lines. The Government intends to establish one such centre on an industrial estate in every state. The Corporation is now setting up offices in each state in the premises of the Small Industries Service Institutes, which will enable it to expand its services, particularly in the estates, in supplying small manufacturers with machinery under liberal hire-purchase terms,²¹ in providing them with marketing assistance, including export promotion, and in procuring government contracts for purchase of their products. The Corporation has set up on the Ludhiana estate, in Punjab, on an experimental basis, a depot for supplying iron and steel to small industries in the area. It has also established on the same estate a wholesale depot to facilitate marketing by small shops manufacturing woollen hosiery, sewing machines and bicycle parts.

In addition to the services provided by government agencies, various common facilities are usually set up on the estates for the benefit of their occupants. As a rule, these facilities are much broader in scope than those found in industrial estates in the developed countries. Besides the standard services furnished by most estates throughout the world for the convenience of the occupants—canteens, dispensaries, banks, post offices, bus service, police and fire protection—special services are supplied with a view to improving productivity and reducing costs. In most cases, determination of the type of services required followed rather than preceded occupancy of the factories, as it depended upon the distribution of activities on the estate, which, as a rule, was not or could not be forecast with certainty or, therefore, planned in advance. As an example, one of the most advanced estates in India—Guindy, near Madras—provides the following services: (1) foundry equipped with moulding, pattern-making and sand-testing machinery supplying ferrous and non-ferrous castings, and a control laboratory; (2) forging and heat-treatment shop equipped with drop hammers and pneumatic hammers for making light forgings. The shop also undertakes metal treatment, such as hardening, annealing, normalizing, tempering, case hardening, and so on; (3) tool room providing dies, jigs and fixtures for press work, forging, casting, plastic

²¹ The beneficiaries make a down-payment of 20 per cent for general-purpose machines and one-third for special-purpose machines, and pay the balance in half-yearly instalments over a period not exceeding eight years, at interest rates of 4.5 or 6 per cent for machinery valued up to, or more than, 15,000 rupees, respectively. The amount of down-payment for machinery valued at 2,000 rupees or less is one-half of the limits just mentioned. Industrial co-operatives enjoy more favourable terms for both down-payment and interest rate.

mouldings, etc.; (4) pressure die-casting unit supplying non-ferrous castings; (5) service-cum-training centre for precision instruments assisting enterprises manufacturing surgical instruments, laboratory equipment and hand tools; (6) service centre for electrical goods supplying coated copper wire, coated enamel wire and enamel winding wire; (7) glass works manufacturing scientific and laboratory glassware, neon-signs and other items and providing training in glassmaking; (8) wood-working shop, including seasoning plant and testing equipment; (9) common lease shop renting out portable tools and leasing machinery to be used in the shop with the help of skilled operators. The shop leases heavy equipment, such as grinders, milling machines, turret lathes, die-sinking machines, shaping machines, screw machines, punching and shearing machines, and sand-blasting equipment; (10) testing laboratory carrying out industrial testing and research on raw materials and finished products and extending technical advice and service; (11) servicing agency managing a depot for supplying iron, steel and other essential raw materials to the occupants of the estate; (12) technical information centre with technical library, motion pictures and slides, which also provides printing and blue-printing facilities. The Guindy estate has also built houses at subsidized rents for the workers.²⁵

Some of these facilities, and similar ones, are being set up in other estates. For instance, dyeing, bleaching and finishing centres have been built on the Rajkot estate to serve the needs of some of its occupants and those of neighbouring enterprises.

When fully implemented the government measures should go a long way to improve the productivity of

²⁵ A few other data on the Guindy estate may be of interest to illustrate the information presented in the paragraphs above. By the middle of 1959, the estate included 78 factories with a total employment of 1,050 workers and an average employment of 13 workers per factory; the 12 centres mentioned above served 40 to 100 plants on the estate and in the neighbourhood, and provided employment for 400 additional workers. By the end of 1959, a total of 97 plants were scheduled to be in operation with a total employment of 1,160. Thirty-one additional plants were to be completed early in 1960 and provide employment for another 300 persons. Because of the smaller size of the additional factories, the average number of workers per factory would then be 11. The total acreage of the estate is now 100 (40 hectares) and a reserve of 120 acres (49 hectares) is being acquired for further development. The total annual turnover is estimated to reach 15 million rupees when all 129 plants are in operation.

The 76 factories in operation by the middle of 1959 produced a variety of products, including: oil circuit breakers, fuses, switches, busbar trunking, high-voltage group-operated disconnecting switches, air-break switches, underground cable joints, precision-cut gears, industrial gear boxes, gear pumps, radios, including transistor radios, amplifiers, volume controls, bicycles, wire nails, panel pins, electric washing machines, film printing machines, lamp shades, soap boxes, tin containers, spectacle frames, builders' hardware, industrial belting, precision-ground components for automotive engines, tube-light fittings, galvanized parts, die-cast parts, motor pump parts, conduit pipes, paper pins, gem clips, automobile parts, mathematical instruments, index files, screwdrivers, roofing hooks, railway parts requiring argon arc welding, bolts and nuts, rivets, hinges, washers, wire mesh, drop forgings, corrugated paper and boxes, machine screws, sheet metal work, brass foundry, copper conductors, polyvinyl chloride wires and cables, thin-walled engine bearings, typewriter parts, diesel engine parts, pressed tools, polyethylene films and bags, fountain pen parts, waterproof and coated papers.

the estate industries. Some of these measures — hire-purchase of machinery, for instance — ensure the use of efficient modern equipment, and, as mentioned earlier, on the Guindy estate, use of modern machinery is a condition for admission. In some estates, applicants who are prepared to install high-quality machinery and produce goods according to standard specifications are given admission preference. This is, however, not the general case. On many estates, little or no control of the quality of equipment or of the manufactured goods is exerted by the estate managers. While many new enterprises furnish themselves with new machinery, others buy second-hand, obsolete equipment. Most of the already established entrepreneurs who move into estate factories bring with them their antiquated, low-productivity equipment, and many of them turn out goods a large proportion of which is rejected for defects. To quote from the report of the Buildings Projects Team "it is still the same backyard factory from the congested part of the town which has shifted to new premises".²⁶ Entry procedures are often limited, as in developed countries, to ensuring compatibility by refusing admission to obnoxious industries and to enterprises which would compete with industries already established on the estate. According to this and other reports, technical assistance is often not requested or not provided, in the former case, because of adherence to routine procedures on the part of the industrialists, in the latter, because of lack or scarcity of expert technicians. Difficulties and delays in building of estates, supply of raw materials and marketing of goods are also reported.

In a few cases, the establishment of industrial estates has given rise to the creation of industrial and commercial firms in adjacent areas — some of them trading with industries established on the estate. According to one observer, such growth in the neighbourhood of the Rajkot Industrial Estate has taken place haphazardly, "without much apparent control by the municipality over location, architecture, or the general appearance of the neighbourhood. The nature of this spontaneous commercial and industrial growth near the estate may already serve as a warning of the dangers of inadequate land use planning and zoning or inadequate enforcement of regulations." This observer warns that, "without sufficient care, an industrial estate might become completely surrounded in time by uncontrolled growth of business enterprises, which could turn a well-conceived project into a congested industrial slum and a traffic cul-de-sac".²⁷

On the other hand, he notes that the interest created by the Rajkot experience has already stimulated local estate development projects, private and public, in the neighbouring area — by a private developer, a co-operative group of industrialists and the Rajkot municipality.

These two examples raise the broader problem of the extent to which it might be necessary or possible to

²⁶ Report of the Selected Buildings Projects Team on Industrial Estates, op. cit., paragraph 10.4.1. The sanitary conditions and safety arrangements provided in the new premises will, however, favourably affect the health of the workers — a very important consideration in India — and thereby tend to curtail absenteeism and high turnover of manpower, and improve labour productivity.

²⁷ William Bredo, op. cit., page 48.

integrate the development of industrial estates into larger schemes, in particular, regional or town and country planning.

Puerto Rico

The industrial development policy of Puerto Rico has been based since 1950 on a comprehensive system of incentives aiming primarily at attracting capital and entrepreneurship from the United States mainland. Efforts are also made to stimulate local entrepreneurship and to attract industry from European and other countries. The industrialization programme is directed and supervised by a government agency, the Economic Development Administration, 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.

Prior to 1950, the Puerto Rican Government had attempted to stimulate industrial development by setting up government-owned and government-operated plants in key industries — cement, glass containers, paperboard, structural clay products and shoes — both to meet war-time shortages and to induce private industry to follow suit; the latter, however, did not materialize, and the Government turned to a policy of inducements to private investors to set up industries in Puerto Rico. To that end, a law exempting new industries from local taxation was passed in 1947 (this was revised in 1948 and 1954 and completed in 1959). In 1949 and 1950, the government-owned factories were sold to private interests. A broad programme of construction of factories on individual plots and on small industrial estates called "industrial subdivisions" was begun in the early nineteen fifties; simultaneously, an intensive promotional campaign was launched in the United States to attract new industry.

Tax differentials — exemption from most local taxes (for ten years from corporate and personal income tax and municipal levies, and for five to ten years from real and personal property taxes), inapplicability of corporate and personal federal income taxes in the commonwealth, and low rates of taxation applying after expiration of the exemption period — are considered to be the key inducements in attracting new industries.²⁸ It is acknowledged, 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.²⁹

The first industries attracted to the island were generally small, labour-oriented and little-capitalized. Tax exemption was undoubtedly a strong incentive to industrialists considering the alternative of remaining subject to federal and state taxation, but availability of labour, low wage rates and lack or weakness of labour organization also enhanced their expectation of higher and faster

²⁸ National Planning Association, *Lomento the Economic Development of Puerto Rico*, by William H. Stead, Planning Pamphlet No. 103 (Washington, D.C., March 1958), pages 99 and 114. Heavy emphasis is put on this aspect in Puerto Rico's promotional literature.

²⁹ *Ibid.*, pages 77, 80, 92 and 93.

returns than on the mainland. The strength of the last two considerations has been diminishing in recent years, as wage rates and unionization have been steadily progressing.

The other main incentives — financial assistance on favourable terms, including minority investment by PRIDCO in the share capital of private firms, extension of services, such as engineering and economic research and help in recruiting and training labour, and provision of industrial sites and buildings — elicit response principally from small and medium-sized firms.

As the success of Puerto Rico as an industrial location progressively impressed itself on the American industrial community, some highly-capitalized enterprises were set up on the island. It is probable that the expectation of low tax rates over a long period of time was a more important consideration than temporary tax exemption in motivating their decision. The gradual evolution of an industrial climate and of "external economies" is likely to influence increasingly the location decisions of enterprises of all sizes. As a whole, the effectiveness of the Puerto Rican programme may be attributed to a well-balanced and skillfully publicized set of measures combining tax and other inducements with assistance in all phases of planning, construction and operation of industry.

Industrial subdivisions are parcels of improved land usually featuring standard, ready-built factories offered for sale or lease. Most of these subdivisions accommodate less than ten industries, only a few contain more than twenty sites. As of 30 June 1959, thirty subdivisions had been completed, one was under construction, and twelve were in the planning stage.

The subdivisions are intended to bring together complementary and auxiliary industries so as to develop small industrial complexes. The sites are fully improved and the buildings are geared, in size, specifications and appurtenances, to the requirements of United States industrialists. A certain number of factories, 6,000 square feet in covered area (557 square metres), are available, but the majority have an area of 11,500 and 23,000 square feet (1,068 and 2,137 square metres) — sizes considerably larger than those of the factory sheds in the Indian industrial estates. In all cases, enough land is provided to permit the size of the factories to be doubled. In view of the small size of the estates, few common services and facilities are provided to the occupants. In 1958, private builders began to develop industrial subdivisions, with the encouragement of the Government.

Industrial subdivisions and individual sites with or without factories have been set up throughout the island in an effort to disperse industry and thereby promote a geographically balanced development. Differential rental rates for standard factories apply in five geographical zones. The lower rates — which are subsidized — apply to the less developed areas of the island; rental rates for the buildings under 11,500 square feet in area are somewhat higher, per square foot, than those applying to the larger factories.

The factory buildings erected by the Puerto Rico

Industrial Development Company are in most cases offered for rent, although the Company would have preferred a policy of selling lots and buildings. Such a policy would have allowed the Company to reduce the amount of funds tied up in land and buildings, and to spread its resources over a broader construction programme; it would also have induced industries to keep their factories for prolonged periods. It has not proved possible, so far, to implement such a policy to any appreciable extent; only vacant land is generally sold on an outright cash basis. The Company recognizes the incentive value of rent, which is particularly great for the smaller firms. The importance of this inducement diminishes considerably for the larger, more capital-intensive industries, whose establishment in Puerto Rico is now particularly encouraged.

Between 1950 and 1959, 564 new industrial plants were set up in Puerto Rico. Most of them are branches of American concerns or new enterprises financed and controlled by mainland investors; the majority engage in light manufacturing and ship the bulk of their production to the United States. It is estimated that, from the inception of the programme to the end of 1959, about 41,500 industrial jobs have been created in Puerto Rico.

The fact that the development policy of Puerto Rico is largely focused on attracting industry from the mainland should be viewed in the light of its peculiar political, economic and geographic links with the United States, particularly its free access to the United States market. So far, stimulation of purely local entrepreneurship has been small,³⁰ although all benefits provided by the Economic Development Administration, including tax concessions and factory space, are available to local industry qualifying under the programme. It may be that exemption from relatively low local taxes is not of itself a sufficient incentive to the formation of new local ventures. Another possible factor is that the industrial subdivisions programme is geared to the requirements of industrialists from the United States rather than to those of local entrepreneurs. It is likely that even the smallest factory buildings in the industrial subdivisions would be too large and costly in relation to the resources of the latter.

Thus, the general orientation of Puerto Rico's industrial estate policy does not seem to be typical of that likely to be adopted by most under-developed countries, which would rely principally on efforts to mobilize domestic resources and only accessorially on attracting capital and entrepreneurship from overseas. However, efforts to attract foreign industry are made by most of the developing countries. Puerto Rico's experience suggests that achievement of that objective may be enhanced if inducements, services and promotional approaches are properly adapted to the requirements, standards and business practices of foreign industrialists. Many of the organizational, physical planning and servicing methods developed in Puerto Rico could be successfully adapted in many under-developed countries for the promotion of national industrial undertakings.

³⁰ Formento — *The Economic Development of Puerto Rico*, op. cit., pages 34 and 81.

Jamaica

In another island of the Caribbean region — Jamaica, British West Indies — an industrial estate at the western end of Kingston has been in process of development by a government agency, the Industrial Development Corporation, since 1952. The Corporation sells or leases improved factory sites. In certain instances, it assists industrialists by building factories according to their specifications, for sale or lease with option to buy at any time during the lease. Rental is at the rate of approximately 10 per cent of the cost of building and land, exclusive of charges, such as insurance, water rates and repairs. Ready-built factories are not provided on the estate. The Industrial Development Corporation also undertakes to build factories in rural locations, for rent with option to purchase.

The estate is zoned for light and heavy industries and warehouses. Its total area is 300 acres (121 hectares). By the end of 1959, it included thirty-five factory buildings for light industry, most of them erected for American, Canadian and British firms.

Various tax exemptions and concessions, relief from import duties, and other incentives are extended to encourage local industrial investment and attract industry and entrepreneurship from abroad.³¹ In the period 1952-1958, a total of £3.9 million was invested in industry in Jamaica. Projects of local origin absorbed about 35 per cent of that total, foreign projects 55 per cent, and joint local and foreign ventures 10 per cent. The Industrial Development Corporation participated to the extent of 25, 19 and 27 per cent, respectively, in the investment of these groups.³²

Mexico

In Mexico, the central Government is sponsoring and financing the construction of three "industrial cities", with the express purpose of diverting industry from the main industrial centres — the Mexico City and Monterrey areas — and encouraging local industrial development. All three cities are in rural areas. Planning and construction are undertaken by government corporations and financing is provided by a government development and investment institution — the Nacional Financiera.

The Ciudad Industrial Bernardino de Sahagún (State of Hidalgo) is situated 104 kilometres (about 65 miles) from Mexico City. Construction was undertaken in 1953 by a special public corporation — the Constructora Industrial Irolo. The city had initially 7,000 inhabitants and was planned for a maximum population of 60,000. Industrialization was expected to take place around a nucleus of two large-scale state-owned industries producing railway cars, and diesel engines and motor trucks, to which another large state-owned plant producing textile machinery was subsequently added.

³¹ Pioneer Industries (Encouragement) Law, 1949, amended in 1954, 1955 and 1956; Industrial Incentives Law, 1956; International Business Companies (Exemption from Income Tax) Law, 1956; Export Industry Encouragement Law, 1956.

³² Jamaica Industrial Development Corporation, *Annual Report, 1958* (Kingston).

About 75 million pesos (8U \$6 million) were spent for basic improvement work, installation of utilities, housing, schools, roads and bridges. To attract industry, and to counterbalance the disadvantages of distance from Mexico City and other industrial areas and lack of external economies and amenities in the new centre, a twenty-five-year exemption from corporate income tax and a fifteen-year, 80 per cent abatement of property tax were granted to prospective occupants.

In spite of these efforts, no new industry has so far been established in Ciudad Sahagún. Its lack of attractiveness to private industry appears to be principally due to an unfavourable location as regards communications, supply of raw materials and marketing of products.

On the other hand, positive results have already been achieved in the Ciudad Industrial de Irapuato (State of Guanajuato), situated 355 kilometres (221 miles) from Mexico City, whose construction began in 1957. Good prospects appear to be in view for the recently opened Zona Industrial Lagunera (State of Durango), located 355 kilometres from Monterrey and 1,100 kilometres (687 miles) from the capital. Planning and development of these industrial cities have been entrusted to the Comisión Federal de Electricidad, with a view, among others, to securing new outlets for the increasing power production of this government agency.

Both cities are located in predominantly rural areas, but are well served by railroads and modern highways, and have direct access to raw materials, utilities, abundant manpower and large consumer markets. Irapuato is located near an oil refinery, and Zona Lagunera near a pipeline terminal. In both cities, fuel may be purchased at the lowest price obtainable. Ample supplies of electric power and water are available at very low cost. The former city has 50,000 inhabitants; the latter is located near two medium-sized towns — Torreón with 182,000 inhabitants and Gómez Palacio with 70,000 inhabitants. In both cases, a large part of the population is unemployed or under-employed. In each city, the size of the industrial estate proper is about the same — 280 hectares (692 acres), of which 220 (544 acres) are for sale in Irapuato, and 265 hectares (655 acres) of which 224 (554 acres) are for sale in the Zona Lagunera. Each is zoned for light and heavy industry.

In both cities, improved sites are sold at cost, with the addition of a fixed overcharge of 2 pesos per square metre (1½ United States cents per square foot) to constitute a fund for common services — police and fire protection, sanitation, health and so on. The average sales price is 30 pesos per square metre (8US\$0.22 per square foot). The purchaser makes a down payment of 10 per cent upon signature of the contract and pays the rest of the price by monthly instalments over a period of five years, with interest on the unpaid balance. No buildings for sale or rent are erected in advance of demand.

Tax concessions similar to those mentioned earlier are made available to the occupants. Assistance in obtaining raw materials and marketing products, as well as certain subsidies, may be provided by the state governments.

Light and heavy engineering plants, shoe manufacturing, clothing and other light industries are located in Itapuató. Towards the middle of 1960, eight contracts for the sale of a total surface of 12.5 hectares (about 31 acres) were being negotiated at the Zona Lagunera.

There are indications that another "industrial city" is being planned at San Luis Potosí, in the state of the same name, by a special corporation — the Urbanizadora Industrial — under the sponsorship of the state government. The opportunity of creating industrial estates at Acapulco (State of Guerrero), Matamoros (State of Tamaulipas) and in the State of Veracruz is currently being discussed.

Brazil

Two "industrial cities" are established in the vicinity of Belo Horizonte, capital of the State of Minas Gerais and a town of about 340,000 inhabitants. These cities, Contagem, founded in 1941, and Santa Luzia, founded in the nineteen fifties — have been set up with a view to attracting industry to a state with an economy based on mining and agricultural activities. Before the establishment of the industrial cities, the products of the state were almost entirely exported and processed in other parts of the country or abroad, and practically all manufactured goods were imported. Another objective was to provide employment to the local manpower which, for lack of opportunities in the state, migrated towards the industrial centres of Rio de Janeiro and São Paulo. At the same time, it was desired to decongest the urban area of Belo Horizonte. Both projects were financed by the state and are under state management.

Improved sites in the "industrial park" zone of each city are offered to industrialists for perpetual lease at nominal rates. These amount to 6 per cent per annum of the land value which ranges today from 6 to 10 cruzeiros per square metre (3 to 5 United States cents per square foot). Water is supplied free of charge. Ample electric power is available.

The industrial parks in both cities are zoned for light and heavy industries. In Contagem, some heavy industries have been promoted in the form of joint ventures between state and private groups. A number of subsidiaries of important foreign firms have been established. By the end of 1960, forty-two factories were in operation in Contagem, with a total employment of 12,000 and an average employment of 290 workers per plant. Capital and reserves of these enterprises amount to 3 billion cruzeiros. Sixty-three factories are under construction. The area of the industrial park was originally 270 hectares (667 acres) and has subsequently been expanded to about 700 hectares (about 1,700 acres). Sites were improved at a cost of 100 million cruzeiros. Heavy industries include steel mills, mines, metallurgy, the manufacture and assembly of motor-cars, tractors, railway cars and machinery and the manufacture of oil products and cement and other building materials. Light industries include dairy and food-processing plants making use of the state's livestock resources — the largest in Brazil — pharmaceutical products, electrical appliances, paper products and many others.

Common services include catering and health facilities. A vocational school has been established in the industrial park. Housing is provided for the workers in the residential zone of the industrial city.

Santa Luzia was set up after it had become apparent that Contagem was about to be fully occupied, while demand for industrial sites continued to be strong. By the end of 1960, a large slaughter-house was in operation, an automobile factory was under construction and an oil refinery was being planned.

In 1959, preliminary plans were made for developing two other industrial cities in the state of Minas Gerais: Governador Valadares (population in 1950, 20,357) and Uberlandia (population, 34,866), at 240 and 475 kilometres, respectively, from Belo Horizonte. The former would be managed by a private organization; the latter, by the municipality or a foundation especially created for the purpose. In both cities, industry would be based mainly on the processing of local agricultural and forestry materials. Electric power and transportation facilities would be developed concurrently. Similar plans are under consideration 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. More than forty enterprises were operating in the estate by the end of 1958.

Nigeria

A very small industrial estate — 2½ acres (1.1 hectare) in area — was set up in February 1957 at Yaba, a suburb two miles from the centre of Lagos, a city of 300,000 inhabitants. The purpose of the project is not to promote new industry — applicants have to be in production to be eligible for admission. It is to stimulate the growth and improve the productivity of small industries by providing them with suitable premises and various forms of assistance. The estate contains five single-storey "nest" factories, each of which is divisible into six independent workshop units, 30 by 40 feet in size (9 by 12 metres), offered for rent. Tenants may occupy one or several units, or part of a unit. As a rule, a firm settling on the estate occupies one standard unit during the first year. During the second year, it may grow to two or three units, and may reach the maximum permissible space allocation of four units during the third year. It may stay for another year in the estate; after that time the industrialist has to move out and set up his own factory in one of the industrial areas zoned in the outskirts of Lagos, or elsewhere. New tenants can then occupy the premises he has vacated.

Subsidies permit the payment of rent to be graduated so as to approach market cost after the fifth year of lease. Rental covers common services and building maintenance. It starts, for one standard unit, at £18 per month during the first and second years and reaches £25 for the period extending from the third to the fifth year; it amounts to £29 per month thereafter. Additional charges are made for water and electricity; machinery is owned and installed by the tenants.

As the corresponding market rent is even higher, actual cost is not fully recovered from rent. This would induce firms to stay on the estate if it were not for the four-unit allocation limit which forces those who have reached it to vacate the premises. In the two years in which the estate has been in operation occupation began late in 1958 only two firms out of forty have not applied for additional units. There is a long waiting list of entrepreneurs wishing to settle on the estate. Lack of reserve land, however, precludes any expansion. The small size of the estate and the high rate of use of land have caused some congestion and lack of storage space; overhead costs are reported to be high. Most of the forty established workshops employ less than fourteen workers each; total employment is around 300.

The estate includes an office building, canteen, garage and parking space for trucks which are required in view of the absence of railway facilities. Construction was done by local builders under the supervision of the Federal Public Works Department. The estate is managed by the Nigerian Department of Commerce and Industries.

The common services included in the rent consist of accounting advice, training in maintenance of machinery, and engineering work performed by a central workshop; the workshop also accepts orders on a commercial basis from outside firms.

The industries established on the estate include production of furniture and upholstery, printing, food-processing, manufacture of electrical appliances, tyre vulcanization, vehicle body repairs, typewriter repair, shoe-making, leather-working, wood-carving, cosmetics production and recording of music.

Pakistan

In 1947, the government of what was at the time the province of Sind set up a public corporation — the Sind Industrial Trading Estates Company, Ltd. (SITE) — to promote industrialization by building and managing industrial estates along the lines of the British trading estates. The Company developed two estates, one on the outskirts of Karachi, and the other at Hyderabad, 100 miles north of Karachi. Its efforts were spurred by the need to provide work for the large numbers of refugees who had entered West Pakistan after Partition.

To help in the establishment of the Karachi estate, the Government gave 4,000 acres of land (1,618 hectares) free of charge, and extended a loan of 4.6 million rupees (₹966,000) at 4 per cent interest, to start the improvement work. An area of 1,500 acres was subdivided to accommodate 500 factories. Improved sites are offered for rent, for periods of from five to ninety-nine years. The basic rent is currently 756 rupees per acre per annum (₹159), a figure calculated on the basis of the total development cost, estimated to amount to 30 million rupees (₹6.3 million), spread over a period of twenty years. The rest of the land is allocated as follows: roads, railways, administration buildings, warehouses and public amenities, 700 acres; housing for the workers, 900 acres; the balance of 900 acres is held in reserve.

By the middle of 1960, about 7 million rupees had been spent by SITE on improvement and development work, including 55,200 square feet (5,128 square metres) of "model factories" and 202,050 square feet (18,770 square metres) of go-downs and warehouses, at a cost, for each of these two types of projects, of about 1.1 million rupees. A total of 447 plots had been allotted to tenants, 324 factories, most of them built by the tenants, were in production; the rest of the factories were being constructed and were expected to be operating by the end of the year. About 50,000 workers were being employed and average employment per factory was 154. When all 500 planned factories have been built, total employment will be about 100,000.

Of the 447 enterprises, 128 are textile mills; 101, engineering plants; 35, chemical and pharmaceutical plants producing about 25 per cent of the country's requirements; 18, oil and soap factories; 15, food-processing industries; 14, plastics factories, producing all the country's requirements and exporting abroad; 8, paint and varnish factories; the 128 others include steel re-rolling mills, leather, rubber, glass and cigarette factories, car and appliance assembly plants, optical goods, cosmetics and other factories.

SITE manages the estate through a Board of Directors of seven members, four of whom are nominated by the Government and three elected by the tenants. The Managing Director is a government official. The Company is run on a "no profit, no loss" basis. Only a limited range of services is provided. Development of two other estates near Karachi is under consideration.

The Hyderabad Trading Estate was founded in 1952. It includes 1,264 acres of land (511 hectares), of which 536 acres (217 hectares) are allocated to factories and the rest to houses for the workers. As of 1959, 3 million rupees had been spent on improvement and development; total expenditure will amount to about 5 million rupees (₹2.4 million).

In 1959, twenty-five factories were erected on 194 acres of land and nine others were under construction on thirty acres. Sites are rented at a basic rate of 750 rupees per acre. The industries include nine textile mills, five engineering concerns, two tanneries, soap, oil and flour mills, and other light manufacturing establishments. Sixteen acres are reserved for handicrafts.

Development of the estate was hampered by difficulties in providing utilities — in particular water and electricity — inadequate drainage, and shortage of housing.

In East Pakistan, construction of sixteen estates for small industries in rural and urban areas is provided for in the second five-year plan. Six estates are to be set up during the fiscal year 1960-61 at Sylhet, Barisal, Mymensingh, Khulna, Rajshahi and Pabna. Admission will be reserved to industries supplying agriculture, processing agricultural products and other indigenous raw materials, producing essential consumer and producer goods — using imported as well as domestic raw materials — and handicrafts.

The estates will provide factory buildings and a full range of services. Construction of the factories will be undertaken either by the Government through its depart-

ments and agencies, or by co-operative societies or private companies. Factory units will be offered for rent, hire-purchase or outright sale. Improved plots of land may be offered on the same conditions, as an alternative.

Basic development costs are estimated at 2 million rupees (₹420,000) for a large estate; construction of workshops, administration building, post office, bank, first-aid centre and the like will involve an additional

expenditure of 500,000 rupees. Improvement of a small rural estate (about ten acres) is expected to cost one million rupees. Capital costs will be recovered over a period of ten years. A small service charge will be levied on each factory unit to cover administrative costs and technical and other services.

Each estate will feature facilities for extending technical assistance, service to management, common service centres and engineering workshops.

Chapter 3

THE ROLE OF INDUSTRIAL ESTATES IN INDUSTRIALIZATION POLICIES

The foregoing review of the experience in both advanced and under-developed countries suggests a certain number of remarks, some of which may be of interest to countries which envisage the establishment of industrial estates as one means of furthering their industrialization. Since the experience is in many cases very recent, particularly in the case of India, and little information on achievements is available, some of the following observations are put forward only tentatively.

Policies of industrial location and development

In most of the cases reviewed in this study, the establishment of industrial estates has been used as an instrument for the location and development of industry either (i) by local groups, public or private, with a view to promoting local interests, or (ii) by Governments, in order to further policies of broader scope.

The first aspect has been discussed in connexion with the experience in the United States, and in Italy prior to the 1957 law on the development of the Mezzogiorno. This may provide useful data regarding organization and operation of industrial estates, but contains few elements which would contribute to the formulation of industrial development policies making use of industrial estates. The discussion in the following pages is thus confined to the second aspect.

In most countries under review, industrial estates have played a role in government policies aiming at the same time at diverting industry from certain relatively over-populated or over-industrialized centres, steering it towards depressed or less developed areas of the country and inducing and facilitating its establishment in these areas; some policies also aim at promoting industry throughout the country. The emphasis put on decentralization, on the one hand, and industrial development on the other, and the means adopted to achieve these aims, vary from one country to another. It seems possible, however, to distinguish four main types of policies.

(1) LOCATION AND DEVELOPMENT POLICIES BASED ON INDIRECT CONTROL

Policies under this heading aim at inducing decentralization of industry and its development in certain areas by offering it special advantages and facilities in these areas. Industry may, however, establish itself anywhere in the country. The policy adopted in the United Kingdom before the Second World War in regard to southern England and the Midlands on the one hand, and the Special Areas on the other, and the policies recently

introduced in Mexico, Brazil and Italy belong in that category.

The inducements consist of differential advantages as regards plant establishment and operation; they are devised, on the one hand, to facilitate investment, and, on the other, to raise profit expectations. The former include provision of sites and factories in industrial estates or on individual tracts of land for sale or rent on favourable terms, grants, and low-interest loans; the latter comprise tax exemptions or abatements, reductions in customs duties on certain imported materials, reductions in rates of utilities or prices of supplies and similar concessions.

The comparison and evaluation of policies based on such inducements is made difficult by the multiplicity of the factors involved — differences in national economic structures, variety of the inducements and the fact that many of them are offered jointly. In addition, the areas differ considerably in size, distance from the main centres, type of predominant industry and other features. The following considerations are, therefore, offered tentatively.

Industrial estates will attract small and medium-sized industries, and will be especially effective when featuring ready-built, general-purpose factories. General-purpose factories, when properly designed, are suitable for a great variety of light industries. The economies of scale resulting from mass construction are passed on to the occupants, whether purchasers or tenants, in the form of lower prices or rents. Renting a factory — even more than renting a site — permits a capital cost to be converted into an operational expenditure, and releases resources for purchase of machinery and for working capital, which is of particular importance in countries where credit is scarce and interest rates are high. Leasing — instead of purchasing — the premises also reduces the risks incurred by the industrialist, as he may more easily "pull out" of an unsuccessful venture. While this may involve some risk to the sponsor, experience shows, for instance in the United Kingdom, that successful estates seldom lack applicants for vacant factories.¹

Provision of grants or loans will enhance the appeal of industrial estates mainly in respect of newly-founded small companies with limited financial means.

As noted earlier, American and British observers tend to minimize the value of inducements aimed at enhancing profit expectation or lowering costs of production, whether offered separately or in conjunction with sites

¹ In some countries, however, lease agreements are drawn to extend over a period of years before allowing for cancellation.

or factories in industrial estates. It is true that some of these benefits have only a contingent value, as they may be taken advantage of in slight degree, or even not at all. Thus, profits before tax have to be large if tax exemptions or abatements are to be of any use. In general, newly-founded enterprises can seldom — if ever — make any substantial profits in their first years of operation, and tax concessions may have expired by the time profits begin to emerge. Thus, to be effective, tax concessions should evidently offer a large differential advantage and be granted for a sufficiently long period.² This consideration has, in Mexico, motivated the granting of a twenty-five-year tax exemption to attract industry to the "industrial cities".³ The experience of one of these cities shows that even exceptionally favourable advantages of this type will not attract industry unless they complement efforts to develop markets and improve supplies of materials or labour in the area.

However, short-term tax concessions are easy to introduce and usually cost the public authorities which extend them little or nothing; on the other hand, inducements enhancing the ability to invest are costly and sometimes involve substantial risks. For that very reason, tax concessions are frequently offered with small variations by competing communities. Such competition may not affect their appeal to local investors, but may diminish and sometimes cancel out their attractiveness as far as industrialists from other regions are concerned.

Finally, it appears that, while investment in infrastructure facilities is not *per se* an inducement in regard to location and establishment of industry, programmes for setting up industrial estates can be fully effective only when integrated with basic development plans. As was pointed out earlier in the present study, the measures taken recently by the Italian Government for the industrialization of the Mezzogiorno are to a large extent motivated by this consideration.

(2) LOCATION AND DEVELOPMENT POLICIES BASED ON DIRECT CONTROLS

The objectives outlined above may be achieved by adopting measures which are in the nature of direct controls. Under such a policy, all plans to establish new industry in any part of the country must be approved by the central authorities. The post-war policy of the United Kingdom — the only country applying such a policy — practically excludes new industry from such regions as the London area and the Midlands, and leaves it little choice but to settle in less industrialized regions or to move to the Development Areas, the Development Districts, the New Towns or Northern Ireland. The choice that industry can make between these areas and locations within them may be further limited by requirements for certain types of raw materials, transportation, labour, or access to certain markets.

Even under such a policy, the need for special inducements is not entirely eliminated. Although external economies and complementary industrial facilities have been

² The degree of enforcement of taxation is also a factor.

³ A similar concession is granted in Ireland. The type of policy in force in Puerto Rico is discussed below.

developed in the Development Areas as a result of fifteen to twenty-five years of special efforts, supply of facilities and services by the Board of Trade and the trading estates corporations still appears necessary for attracting industry. Inducements such as tax concessions, grants, loans and offers of "advance" factories — which were extensively made use of in the pre-war period — do not appear to be required any more in the Development Areas. Some of them are, however, judged necessary in localities and regions, such as the Development Districts and Northern Ireland, which are economically at a greater disadvantage than the Development Areas.

Generally speaking, there appears to be little justification for applying a policy of direct control of industrial location in under-developed countries where nation-wide development is wanted. It is true that, even in such countries, certain regions are still less developed than others, and a better geographical distribution of industry is desirable. However, in view of the generally limited mobility of capital and manpower in most under-developed countries, especially in the large ones, controls over the location of private industry may generally be difficult to implement. In smaller countries with unbalanced regional development, controls based on building licences, provision of industrial estates and measures to facilitate mobility of capital and, if necessary, of population, might be effective in some cases.

(3) INDUSTRIALIZATION POLICIES BASED ON INDUCEMENTS TO INVESTORS FROM ABROAD

As mentioned earlier, few under-developed countries have adopted development policies based principally on inducements to investors and entrepreneurs from abroad, though all countries make some efforts to attract foreign capital.

In the case of Puerto Rico, it is difficult to differentiate between the respective inducement value of tax exemptions, wage differentials and industrial estates, but it is likely that, in view of the special economic and political links between Puerto Rico and the United States, the first two would have attracted industry even in the absence of the third, though perhaps at a slower rate. In countries attempting to attract investment in industry from foreign sources, a combination of these incentives, particularly of industrial estates well adapted to the requirements of foreign manufacturers, and of the requisite basic facilities, might be useful, assuming of course that the industrial estates are part of an integrated government policy aiming at making investment by foreign nationals sufficiently attractive.

The role of industrial estates in facilitating dispersal of industry throughout Puerto Rico has been noted earlier.

(4) INDUSTRIALIZATION POLICIES BASED ON PROVISION OF INTEGRATED MEASURES OF ASSISTANCE

India is the only country where industrial estates have been used consistently as a tool of promotion of small-scale industry within the framework of a national policy of industrialization. The Government's objectives in

establishing industrial estates are not so much to divert industry from large urban centres and induce it to move to certain areas — though this objective is also present in the minds of the sponsoring authorities — as to promote and assist small-scale industry throughout the country. As is well known, small industry has limited mobility, and the Government's efforts on its behalf tend principally towards mobilizing financial resources and stimulating entrepreneurial initiative at the local level. Hence, the nation-wide establishment of industrial estates — with special emphasis on small towns and rural areas — and provision of measures of assistance, also on a nation-wide scale.

The Indian industrial estate integrates all or most of the facilities devised by the Government to encourage the establishment and growth of industry and improve productivity — provision of financial and technical assistance, procurement of machinery, supply of raw materials, marketing, training of manpower and the like. Moreover, it is designed to encourage the development of relationships of interdependence and complementarity among the occupant — inter-trading, inter-servicing, and formation of co-operative organizations. It is also expected that, in some cases, relationships will be established between some of the occupants of the estates and neighbouring large industries in the form of subcontracting arrangements. This integration of measures on behalf of small industry makes the Indian industrial estates programme by far the most ambitious undertaken so far by any under-developed country. It also makes it a costly undertaking, since expenses for provision of a variety of government services are to be added to the outlays on site improvement and factory construction.

Some of the difficulties which have been experienced in carrying out this programme may stem precisely from its ambitious scope. As the survey team's report referred to earlier points out,⁴ to develop industry in rural areas is not an easy undertaking, especially in the conditions prevailing in India. It may take a long time before estates located in rural areas are fully occupied and, above all, before satisfactory levels of productivity and quality of production are achieved. Other difficulties, such as delays in building, supply and marketing, and lack of technical assistance, will no doubt be overcome as the programme — now barely three years old — achieves maturity.

* * *

Industrial estates can also play a role in policies or programmes of a narrower scope. They may be a suitable device for developing large-scale industrial complexes, including heavy and light industries of all sizes, centred on major projects such as ports and airports, railroad junction points, reclamation schemes, power plants, oil refineries, steel mills, or chemical or electrochemical plants. They may be an important tool in urbanization policies tending to achieve industrial decentralization together with planned concentration on selected sites; in particular, they may be a useful adjunct in urban renewal and slum clearance projects. They may also

be used, as in Nigeria, as "nurseries" or training grounds for small industries.

Types of estates

It has been seen that industrial estates can be established in many forms and provide a variety of services. An industrial estate can be the centre of an "industrial city" or of an "area of industrial development", or a modest cluster of small industries and handicrafts in a rural locality. It may be a landscaped "park" or a utilitarian "tract". It may be zoned for heavy or light industries, or both, or reserved for certain specific industries or ancillary enterprises working as subcontractors for large concerns. It may offer improved sites, custom-built factories, or general-purpose factories, or any combination of these features. It may provide a variety of services affording economy and convenience to the industrial occupants — canteens, dispensaries, banks, building maintenance — and services to raise their productivity, improve the quality of their products and lower their costs of production.

Estates of all these types may serve useful purposes in under-developed countries, as well as in developed ones. However, certain types may be particularly appropriate to the conditions and industrialization policies prevailing in under-developed countries. In keeping with the approach adopted in the present report, this question is discussed below from the standpoint of economic planning.

As already mentioned in connexion with the Indian industrial estates programme, considerably more economic planning and research than in developed countries would in most cases be required for establishing industrial estates in the under-developed ones, particularly when the estates are intended to promote industrialization in rural districts.⁵ The choice of location and determination of size and type of industrial estates in under-developed countries would in general involve surveys, in alternative localities, of already existing industries; of new industries whose establishment on the estates would be both desirable and feasible; and of the availability or accessibility of facilities for promoting and assisting industry — this, in addition to the usual surveys of availability of labour, raw materials, power, water, transportation and other prerequisites.⁶ In the light of these surveys, estimates would be made of the type and size of the estate; the type, size and number of factories and other buildings, common facilities and amenities; if necessary, the equipment to be installed; and the building and development costs involved.

As a rule, the degree of advance planning required will be in inverse relation to the level of economic develop-

⁴ See pages 20 and 22. It will be recalled that although the majority of the Indian industrial estates were to be established in rural areas, only "preliminary surveys of very limited character" were, according to the team on industrial estates, carried out in advance. It is probable that the lack of thorough advance planning was due in part to the fact that only a few of the surveys recommended by the Planning Commission of the Government of India were completed by the Small-scale Industries Board at the time development of the estates began. Also, there was a desire to expedite implementation of the projects.

⁵ This question is discussed in more detail in appendix I to chapter 4.

⁴ See page 22.

ment of the selected area. As will be seen below,⁷ a technical assistance team sent by the United States International Cooperation Administration to establish an industrial estate in a country at a very early stage of industrialization came to the conclusion that advance determination and detailed planning of *all* the industries to be set up on the estate were necessary if the project was to be successful. Within the range between such estates and the more or less "speculative" ones prevailing in the developed countries, a certain number of intermediate types are possible. The five types described below, which are classified according to the type of facilities provided, seem to be suitable for under-developed countries or areas at different levels of industrial development.

(1) *A fully planned estate of the type just mentioned, with "custom" factories designed for selected industries.* Such an estate might be the only one appropriate for a rural area where opportunities for industrial development are limited and where entrepreneurial initiative is unlikely to manifest itself spontaneously.⁸ A complete "blue print" would evidently ensure a rational composition of industries and good operating conditions, as local potentialities and needs would be thoroughly taken into account. On the other hand, the lack of flexibility of a fully-planned small estate might have some disadvantages: for instance, if planning errors or managerial failures forced one of the industries to shut down, expensive remodelling might be required to fit the vacated "custom" factory to the needs of another industry. Since such an estate would as a rule be small, its planning, construction and operation would be relatively expensive. No country has yet established an estate of this type.

(2) *A larger estate including both "custom" factories for a certain number of selected industries and general-purpose factories built in advance of demand.* The "custom" factories would be the first to be erected; they would be built for industries having special plant requirements and presenting a particularly high priority both from the standpoint of general economic needs and from that of the further development of the estate. In particular, priority might be given to industries judged necessary to the establishment of other industries on the estate — for instance, a building materials factory — or to their operation — for example, a foundry. Custom-built factories might also be necessary for the establishment of large or medium-sized industries; standard factories would normally be designed for small-scale light manufacturing industries.

Although not tested so far, this form of organization would seem to commend itself by combining full planning in the initial stage — where the greatest difficulties are usually to be met and where the impact of success or failure may be decisive — with flexible, though controlled, development in the future. Such an estate would seem to be appropriate both for a centre where some industry is already established and for an undeveloped locality

where a sustained process of industrialization is likely to be induced.

(3) *An estate of the Indian type, featuring only general-purpose factories of various sizes.* These may range from divisible "nest" factories providing workshop units for handicrafts and very small establishments to full-fledged plants for small-scale industries. Such an estate is suitable for urban and rural localities with good prospects for industrialization. If necessary, the industrial composition of the estate could be influenced by selective admission procedures and even by special inducements to selected industries.

(4) *An estate offering general-purpose factories, improved sites and custom-built factories, including, if need be, medium-sized or large plants.* This type of estate, which is similar to the British trading estate of the pre-war period, would allow for maximum flexibility in organization and use of land and in the services extended to industry. It might be particularly suitable for large-scale industrialization projects.

(5) *An estate providing only improved sites.* Establishment of such an estate in or near a large urban centre may frequently be a sufficient incentive to the formation of industrial undertakings and the relocation of existing ones.

Location of industrial estates

It has been seen that, in accordance with a recommendation of the Planning Commission, the majority of the industrial estates in India have been established in small cities, with a view to promoting the industrialization of rural areas and averting further concentration of population in large urban centres. In spite of this recommendation, a certain number of estates for small industries have also been established near large cities. Two of them — Okhla, near New Delhi, and Naini, near Allahabad — seem to be "model" estates designed to provide guidance for the development of estates in other areas. The location of the other estates may have been decided upon because of especially favourable industrialization prospects.

It is already apparent from the present study — and it will be further stressed in another chapter — that industrial estates are an effective tool for the promotion of small-scale and medium-sized industries. Their effectiveness, however, is to a large extent related to their location. Favourable prospects for industrialization do not depend only upon the availability of such factors as manpower, raw materials, transportation, utilities and markets. These may exist in small towns in rural areas as well as in large urban centres. They depend also upon the possibility of mobilizing local capital and entrepreneurial talent and initiative. This is evidently much easier to achieve in the large cities than in rural areas where pioneering efforts are required to induce — and then sustain — major changes in economic activities. However, the establishment of industrial estates in well selected rural areas and provision of integrated technical assistance facilities may constitute such an effort and may open development prospects which would not otherwise have been revealed. The rate of development of such estates is likely to be slow. It may take a long time

⁷ See appendix II to chapter 4

⁸ The question whether establishment of estates in such areas is justified is discussed below.

before an assessment of this aspect of the Indian experience become possible.⁹

As already noted, there are indications that the scope and speed of development are greater in some of the estates located near large Indian cities. This appears to be corroborated by the experience of other countries, developed or under-developed, where estates have been set up in rural as well as in urban localities.¹⁰

This suggests that where the goals of industrialization do not conflict with other aims, in particular with social, political or strategic ones, they might best be achieved by encouraging settlement on estates located on zoned sites in or near urban centres. If tendencies towards industrial concentration can be definitely ascertained in such localities, estates providing only improved sites may be sufficient to induce an inflow of manufacturing enterprises. The sites might be offered for rent or sale at cost or even at a reasonable profit, so as to minimize the expenditure involved and shorten the amortization period. The experience in developed countries suggests that industry is willing to pay market prices for sites in metropolitan areas; this may also be the case in the less developed nations. If, however, a faster rate of development is desired, general-purpose factories might also be made available. Estates in such locations may be suitable not only for small industries but also for medium-sized and large plants. Provision of financial and technical assistance would be particularly needed in estates designed for the former.

Metropolitan industrial estates would also have the effect of regulating the inflow and local development of industry which, in such localities, often takes place in a disorderly fashion. Also, they might be a desirable counterpart to urban renewal programmes, in particular slum-clearance projects. In under-developed countries, industries are frequently established in squalid city districts; if displaced by slum clearance, they may legitimately claim compensation and measures of assistance, particularly relocation. Provision of sites or factories on industrial estates or both would avoid destroying the productive capacity involved.

For a variety of reasons, attempts are often made to discourage hypertrophic growth of industry in metropolitan centres by means of indirect controls of the type discussed earlier, and by zoning and planning regulations. Measures to divert industry and enforcement of zoning ordinances may not always be effective, and industry may continue to flock in and further add to overcrowding and other ills. A realistic solution might then be to set up relatively inexpensive industrial tracts in suitable outlying areas. Neither ready-built factories nor special advantages or services would be provided,

⁹ Seasonal migrations of agricultural workers to industrial centres take place every year in India. Establishment of industrial estates in rural areas would, among other things, contribute towards stabilizing their population and preventing periodic overcrowding of urban centres.

¹⁰ It may be observed that in the United Kingdom, where the object of establishing industrial estates was to promote the growth of industry in the Development Areas and to check it in the already industrialized centres, important clusters of estates have been set up around some of the main cities in certain Development Areas and in Northern Ireland.

since the objective would be to regulate an inflow of industry, which cannot in any case be prevented, rather than to induce it. The tracts should obviously be provided with managerial organization to enforce their rules and regulations.

It may also be mentioned that the governments of countries which intend initially to establish one industrial estate only, as well as those which plan to create a network of estates, might consider locating the first estate in or near a large urban area so as to benefit fully from the demonstration effect of what would be, in all probability, a more immediately successful achievement. Making a "showcase" of a single estate project might be appropriate in small countries where industrial development potentialities are concentrated in the larger cities, and where resources do not permit several industrial estates to be created at once. The "demonstration effect" argument is also valid in larger and more advanced countries where a "model" estate may help to stimulate the interest of industrialists and lending institutions and provide guidance for the development of estates in other areas.

Policy of admission

An issue which is to some extent connected with that of location is whether admission to industrial estates should be confined to newly-founded firms. In the developed countries, the question of whether a "prospect" for a site or factory in an estate is a new firm or an existing one wishing to shift its place of business is usually of little concern to the developers. In under-developed countries, this question which arises mainly in respect to industrial estates located near large urban centres — presents a certain importance.

It has been noted earlier that, in the estates situated near large Indian cities, relocated industries were more numerous than new ones. This was deplored by the survey team which investigated several of these estates. The team did not explicitly recommend granting exclusive admission rights to new industry, but indicated a preference for giving it priority and preferred treatment.¹¹ In particular, it suggested reserving to new plants the benefit of subsidized rent — the only special inducement used in India in connexion with industrial estates. As to the location of the estates, the team did not oppose their establishment in or near large centres, but expressed a preference for setting them up in small towns, in spite of difficulties which it anticipated.

A more extreme position is adopted by the developers of the Guindy estate, located near Madras, where admission is reserved to new industry manufacturing certain types of products with the aid of modern machinery and power.¹²

The rationale of an admission policy discriminating against existing enterprises would seem to be that industrial estates should serve to maximize production and employment and that this would obtain if priority of

¹¹ See also the recommendation of the All-India Seminar on Industrial Estates, footnote 16, chapter 2.

¹² See page 25.

occupation or exclusive rights were given to newly-established firms or extensions of existing ones.

It may not be advisable, however, to base admission policies on this criterion. Efforts are generally made to improve the productivity of existing industries. It is to be considered that some of the benefits provided in industrial estates — technical assistance, common services, healthful surroundings — and a general condition that up-to-date machinery be installed would raise the productivity, the productive capacity and sometimes the employment of relocated firms. It might be preferable to adopt a less rigid policy of admission in respect of existing firms based on the consideration that the results expected from industrial estates should be commensurate with the efforts and costs involved in their establishment. Admission policies would thus vary with the type and location of the estate. On the more costly ones — those providing general-purpose factories for rent and a variety of services — giving a high priority to new establishments might be justified on the grounds that the economic gain to the community which would result from purely re-housing operations would be too small in regard to the large development costs supported by the community. On less expensive projects — industrial estates or tracts providing improved sites for sale or rent at market prices — there would appear to be little justification for denying admission to existing concerns — local or from outside — which would qualify under the estate's rules and regulations.¹³ Moreover, as mentioned in the preceding section, industrial estates may play a useful role in relocating industries displaced by urban renewal programmes.

As to the estates established in small towns and rural areas, demand for premises is likely to come principally from newly-founded firms; admission of qualified local concerns might be advisable, not only on economic grounds, but also because their co-operation would be needed to ensure the success of the project.

Industrial estates and "secondary" growth

An issue related to some extent to the problems discussed in the preceding sections arises in connexion with the "secondary" growth effect due to the existence of an industrial estate, as illustrated by the case of the Rajkot estate in India, reported earlier. Because of inadequate or unenforced zoning and planning regulations, a haphazard development of an industrial and housing slum zone has taken place around the estate which threatens to blight the neighbourhood. It can be presumed that such a secondary growth was due to the effect of the external economies stimulated by the existence of the industrial estate. If the surrounding area had been zoned and planned for business and residence and the regulations and restrictions had been enforced, this would have prevented the businessmen engaged in modest undertakings, such as traders, caterers, artisans, workshop-owners and repairmen — as well as the workers employed on the estate — from becoming "squatters" in the area around the site. Instead, orderly settlement by qualified and less "atomized" enterprises would

¹³ The question of restrictive covenants and other admission regulations is beyond the scope of the present study.

have taken place. In many under-developed countries, there are many small family enterprises disposing of minimal resources for investment and working capital and operating by makeshift. Though economically inefficient, often socially undesirable because of congested, unsanitary and unhealthful working conditions, such enterprises still make some marginal addition to national income and employment. There are no ready answers to such questions as whether enterprises of this type should, in effect, be prevented from going into business under such conditions and, if so, whether alternative opportunities for a livelihood could or should be provided to the people concerned. Also, resources may not permit industrial estates at some distance from the city to be built at the same time as houses for the workers. Assuming that this could be done only if both programmes were scaled down, the question arises whether the purely economic objectives of increasing output should prevail and funds be used only for the former. Finally, again because of limitation of resources, there is the question whether an otherwise desirable programme of slum clearance would not create economic and other hardships for the displaced individuals because industrial and residential relocation could not take place at the same time.

Even the resources of the most advanced countries did not prove adequate to solve all of these problems simultaneously or in short succession, as may be readily observed in the history of any of their large industrial centres. This is all the more true in the less developed countries intent upon accelerating their industrial development. Establishment of industrial estates on a large scale will contribute towards achieving this objective, but it will also be likely to bring a multitude of other problems in its wake, the solution of which may necessitate prolonged efforts.

Integration or co-ordination of industrial estates projects with programmes of broader scope

Establishment of industrial estates, either in large or small centres, is not a substitute for an economic development policy of broader scope. As an immediate effect, an estate will concentrate industry in a relatively circumscribed area. In the neighbouring area — township or commune — it will also normally induce some secondary economic growth — trade, transport, housing, and perhaps schools, health services and other facilities. Its "radiation effect" is not likely to extend beyond that area; as has been seen above, not all of the secondary effects may be desirable.

It would be useful if industrial estates projects in under-developed countries were integrated or co-ordinated with development plans or programmes at a local or even regional level. The experience gained in the British Development Areas, the proposals made in Italy for the establishment of broad economic development regions in the South and the recent decisions of the Italian Government concerning the "areas of industrial development"¹⁴ suggest that industrial estates should

¹⁴ Some other implications of the Italian Government's decisions are discussed in the following chapter.

be planned, in any given locality, having regard to the resources and needs of the surrounding area, and that the creation of a special agency, or a co-ordinating body, having jurisdiction over this area would be desirable; such an agency would plan or co-ordinate the over-all development of the area.

The area would be mapped out taking into consideration such factors as population density, present and potential resources and trade prospects within the area and between it and other parts of the country. It might cover a town and suburbs or a much broader territory, but, since it would be defined as an economic unit, its boundaries would not necessarily coincide with those of administrative subdivisions.

The agency provided, if necessary, with subsidiary bodies might be organized in a variety of ways and might have different functions. It might take the form of a British trading estate company, an Italian "consortium", an industrial development corporation, or it might combine features of these or similar institutions.

Its functions in the field of industrial development might usefully include, besides construction of industrial estates, provision of individual sites for industries which cannot be given accommodation in the estates — for example, heavy and "obnoxious" industries — and of group sites for enterprises which can forgo the estates' facilities and services.

The agency would also be empowered to provide, or, at any rate, co-ordinate provision of, "infrastructure" facilities to support industry, such as power, water supply, roads, housing and the like.¹⁵

Integration of plans for the establishment of industrial estates with town and country planning programmes, particularly regional planning programmes, would be of great importance. Such integration would be a prerequisite for launching large-scale programmes of establishment of industrial estates.

Industrial development would thus be more diversified and better balanced geographically; more employment opportunities would be created, and better control of the secondary growth induced by industrialization would be achieved.

Intensive or extensive industrialization policies and programmes related to the establishment of industrial estates

The problem discussed in the following pages is whether it is preferable to promote the development of a few very large industrial complexes in certain appro-

private locations or of a great number of small projects scattered over a broad territory. To some extent, this problem is an extension of those discussed in the preceding section and in that relating to the location of industrial estates.

This issue was raised in a discussion of basic principles of industry planning which followed enactment in 1957 of the Italian law on the industrialization of the Mezzogiorno. It will be recalled that, at the time the law was enacted, it encouraged the establishment of industrial estates throughout the South; following amendments introduced in 1959 and decisions taken in the same year by the Council of Ministers for the Mezzogiorno, the benefits provided by the law were reserved to projects for the creation of large "areas of industrial development" in localities where certain feasibility prerequisites were met and minimum growth prospects ascertained; in 1960, it was decided that small industrial estates could also be set up under the law, wherever similar prerequisites were fulfilled.

The decisions taken in 1957 and 1960 have been questioned by those who favour the alternative of establishing a few large "areas of industrial development" in certain strategic locations. Their view is that, among the various localities that offer some prospects for industrialization, there are a few which have the geographical advantages and endowment in human and natural resources which make them, in effect, "development poles" towards which industrial, trade and service undertakings will tend to gravitate rapidly and in large numbers.

In this view, scarce resources should be concentrated on a few massive industrialization projects, including all the required overhead facilities, centred on one or several large industrial estates grouped in such locations, and should not be scattered over numerous small projects. To use an expression recently introduced in the economic development literature, a "big push" would be more effective than a large number of small dispersed efforts. An intensive industrialization programme of this type would tend to maximize the rate of development and set in motion a sustained and cumulative process of economic and social growth which would "radiate" over wide areas. Industries and trades of all types and sizes would be attracted to the area in large numbers and would serve not only local needs, but also national and foreign markets. The large rise in employment would transform peasant communities into industrial societies. Development costs would be relatively low owing to the considerable economies of scale achieved.

Supporters of this view admit that networks of small industrial estates would also induce some secondary growth, but point out that this would take place slowly, on a narrow scale and in a circumscribed area. Addition to national product and employment would be small. The market served by the new industries would, as a rule, be strictly local. The over-all effect would be slight against the high cost of developing small industrial estates in many localities.

Considering the problem in a more general context, it seems that, in many countries, the choice between the policies under discussion might be precluded or nar-

¹⁵ The costs of "infrastructure" may be important. According to the Italian study referred to earlier, they may increase more than in proportion to the size of the population centre in which the estate has been set up. This conclusion, however, does not appear to be corroborated by preliminary investigations made in other countries by other research agencies, in particular, by the Netherlands Economic Institute of Rotterdam. Further studies of costs of social fixed investments required for industrialization and made necessary by it are thus urgently called for. Knowledge in this field would be essential for planning industrial development, particularly for determining the location of individual plants and of industrial estates — taking full account of the resources and potentialities of the host cities and surrounding areas — and for guiding policies of balanced growth.

rowed down by the existence of structural rigidities. Thus, in a very small country, or in one with distinctive geographic or climatic features — for example, a mountainous or desert land — or with a poor or unbalanced resource endowment, the choice of localities offering industrialization prospects would be limited and the alternative between the policies under discussion would not arise. In other countries where no such rigidities exist, the inability to mobilize and concentrate in a single area the large financial resources and bring together the diversified organizational and technical skills required by a very large-scale project might constitute another structural limitation.

On the other hand, the establishment of industrial estates in rural areas to promote cottage and very small-scale industries may be considered desirable by some countries, since even limited increases in income would raise substandard living levels;¹⁶ also, some countries would favour industrial decentralization as a means of decongesting large urban areas, even though these might offer the characteristics of "development poles" defined above.

Where alternative industrial estates programmes are being considered, the choice will depend to a large extent on relative cost and return estimates. One of the arguments put forward by those who advocate intensive policies seems to be that while implementation of large projects would involve important investments, unit investment costs would be minimized, and returns in absolute and unit terms would be maximized. In projects of public interest such as industrial estates, the costs would include not only direct investment in land, buildings and plant, but also overhead investments required by industry and made necessary by it, and services of various type to be provided by public authorities to industrialists, workers and their families. The returns should be considered in terms of benefits to the community as a whole in the broad area surrounding the industrial centre; they would be measured not only in terms of value of goods produced, but also of number of jobs created, increase in income, and secondary effects on trade, service and even agricultural activities.

There is no evidence, *a priori*, that unit costs and returns as defined above would be more favourable in one type of project than in the other. Whether the problem is to choose between intensive or extensive industrial estates programmes or between projects in the same category, the decision would largely depend upon comparative measurements of feasibility, costs and growth prospects. The elaboration of methods of evaluation of industrial projects of public interest is needed if scarce resources are to be rationally allocated among programmes and projects. The criteria developed for assessing industrial estates projects in southern Italy are an important step in this direction, and further work in this field is called for.¹⁷

¹⁶ This discussion is to some extent paralleled by that of capital-intensive versus labour-intensive policies in United Nations, "Capital Intensity in Industry in Under-developed countries", *Bulletin on Industrialization and Productivity*, No. 1 (Sales No.: 58.11.B.2).

¹⁷ It should be noted that adoption of location and prospective

cost and growth criteria for industrial estates projects involves integration of these projects in the plans or programmes for broader areas discussed in the preceding section. Such integration would be required whether the industrial estate programme provides for small or large estates — rural or urban — a single project or a network.

To conclude, a few observations might be made concerning certain existing unplanned and planned industrial development areas. The industrial zone of Marghera (Venice), although not planned as an "area", has not only reached the highest level of industrialization of existing zones in Italy, but is also, according to certain observers,¹⁸ the only one which has exerted an important "radiation effect" on the surrounding area. This is explained — leaving aside such factors as efficient management, transport and port facilities, which exist in a number of other zones — by the fact that it is located in an area particularly favourable to the expansion of industry and trade. The area is linked to the most industrialized and prosperous Italian region

the middle Po valley. Its population has been increasing at a high rate in the last half-century. Economic and social overhead investments have kept pace with the area's development. Industries of all types and sizes have been set up not only in the zone of Marghera but outside of it, and an important market for finished and intermediate products has developed. Marghera has benefited from this favourable environment and has been instrumental in further improving it.

On the other hand, the British Development Areas were by no means natural "development poles" at the time of their creation, but, on the contrary, depressed regions. Their industrialization was induced by comprehensive planning and control, large support expenditures for overhead and industrial facilities, and provision of services and assistance. The need for support has been declining as industrialization has progressed; self-sustaining growth in some of the Areas seems to be in the offing.

These two examples illustrate the well-known fact, already stressed, that, in general, the degree of planning and amount of expense will be in inverse relation to the level of development of any given area or economic sector. They suggest that it may often be justified to leave part of the industrial initiative to private efforts in geographical areas or economic fields of "spontaneous expansion" — while subjecting them, if necessary, to controls such as zoning and urban planning regulations — and to focus government intervention on the areas and the types of industries where incentives are needed, provided, of course, that minimum development prospects can be ascertained. In the former areas, government measures on behalf of industry such as the creation of industrial estates might have the effect of accelerating industrialization and economic development. It has been suggested elsewhere in this report that, in such areas, relatively modest government efforts may sometimes be sufficient. Under certain circumstances, however, it may be worth while to explore the potentialities of more intensive policies and programmes.

¹⁸ Associazione per lo sviluppo dell'industria nel Mezzogiorno (SVIMI Z), *Il problema delle zone industriali in Italia*, by A. Molinari and C. Turco (Rome), December 1958.

Chapter 4

INDUSTRIAL ESTATES AS A MEANS OF PROMOTING SMALL-SCALE INDUSTRY

References have already been made in this study, particularly in the section concerning the industrial estates programme in India, and in the preceding chapter, to the role of industrial estates as a means of promoting small-scale industry. It has been stressed that industrial estates may provide effective means of raising the productivity of small enterprises, improving the quality of their products and lowering their costs of production by furthering complementary and co-operative arrangements among them and ancillary relationships between them and larger concerns, and by supplying them with a wide range of services — on a general and an individual basis — and measures of assistance.

There is abundant evidence that many under-developed countries intend to use the device of the industrial estate primarily for promoting small-scale industries. In view of this, it has been thought appropriate to devote part of the present study to this subject. To avoid duplication, this chapter focuses on certain questions dealt with in the preceding pages in less detail than others, although they are of equal, if not greater importance. It is concerned with certain aspects of the problem of technical and financial assistance to small enterprises established on industrial estates. Such assistance is, more than promotion of complementary and co-operative arrangements among occupants and more than provision of common facilities, the decisive factor — if not the prerequisite — for achieving success in developing this weak and vulnerable economic sector.

Another subject of importance is that of the economic planning involved in setting up industrial estates for small industries. Some references have also been made earlier to the type of planning required, especially for estates in rural areas. It is difficult to discuss this question in general terms, mainly because little information is available on the procedures followed in planning such estates in the few countries where they have been established. It has been thought useful, however, to provide material on two aspects of this subject; this is contained in two appendices to this chapter.

The first appendix contains some considerations on the terms of reference of an expert mission appointed under the United Nations technical assistance programme to explore the feasibility of establishing an industrial estate for small industries in an under-developed country. The advance planning procedures illustrated seem to be applicable, in their main lines, to other cases, and may provide some guidance to the various national authorities, to municipalities, provincial or state governments — as well as to technical advisers — who may undertake similar assignments.

The second appendix contains a case study which illustrates the type of planning involved in setting up a very small industrial estate in a rural area in another under-developed country. It presents an outline of proposals made by an expert team of the United States International Cooperation Administration. The proposed estate is of the "fully planned" type discussed in the preceding chapter.¹ It is probable that estates of certain other types listed in that chapter will be more frequently set up than that under consideration. While their establishment will normally involve less thorough surveys, it is likely that methods of investigation and analysis basically similar to those described in this case would be applied. In keeping with the approach adopted in the present study, the discussion is more concerned with the economic aspects of the subject than with the physical planning, technical and organizational problems involved.

Since the technical assistance operations referred to in the appendices are, in one case, in progress and, in the other, under study by the government concerned, the names of the countries, localities and experts have been withheld — a detail which may not be essential since the material is intended to provide an illustration of planning procedures which, in their main lines, may be generally applicable in underdeveloped countries.

ASSISTANCE TO SMALL INDUSTRIES ON INDUSTRIAL ESTATES

Technical assistance

Technical assistance to individual small industries scattered throughout under-developed countries or areas raises a number of difficult problems. In a typical case, an engineering expert goes from factory to factory, from one city or village to another. The time he may devote to each enterprise is limited and is usually employed in making a rapid diagnosis of operational problems and recommending remedial measures. Whether the proposed remedies are of an interim "stopgap" kind or consist of long-range reorganization plans, further problems may be raised for the small industrialist which the experts may not be able — for lack of time or competence — to solve himself, though he might generally provide some information and advice on the steps which could be taken. For instance, a recommendation to purchase certain pieces of machinery will raise for the industrialist a problem of financing, which may be complicated by the need to secure foreign exchange control authorizations and import licences; installation of the machinery may need to be supervised, additional manpower

¹ See pages 21 et seq.



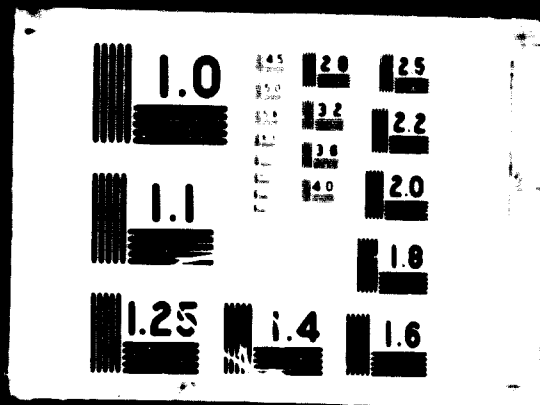
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recruited, and some specialized training provided to new as well as to existing employees. These problems may often be exceedingly difficult or even insurmountable for a man with little experience in administrative and business procedures, small financial means and limited access to commercial sources of financing.²

Even if the expert proposes measures which do not raise such problems and leaves detailed instructions for carrying them out, he may not be able to follow up his recommendations, or may do so only after a fairly long time. In the interval, his advice may be neglected or misconstrued and further issues may crop up.

To a large extent, these difficulties which are not always present but arise frequently enough stem from the structural weaknesses of small-scale industry. They also result from the fact that technical assistance organizations — national or international — have limited resources which must be apportioned as economically as possible to serve a large number of needs. It is generally impracticable to provide a multitude of small enterprises scattered all over a country with lengthy, concentrated and costly help.

An effective means of overcoming the structural weaknesses of small industries is to group them into joint or co-operative organizations, such as co-operative associations for production, procurement or marketing, on a local or regional level. When sufficiently developed, as in Japan, such associations, or confederations of associations, are able to set up their own technical, training, financial and other facilities which, because of their specialized object, may be quite effective. Yet, the distance between enterprises and between them and the servicing agencies remains a hindrance to the operations of the latter, as it tends to reduce their number, frequency and scope and to increase their cost.

The grouping of small enterprises on an industrial estate makes it practical and economical to give them not only sustained assistance but, in many cases, integrated assistance — a benefit that can seldom be extended to individual small enterprises outside of co-operative organizations or industrial estates. If the estate is sufficiently large, facilities in such fields as engineering, quality control, maintenance of equipment, management (including administration, accounting and marketing) training (of managers, foremen and workers) and finance can be included as an integral part of the project. Certain facilities may be institutionalized in the form of industrial extension centres, vocational training centres, testing laboratories or even technological research institutes. Multiple assistance can also be provided to smaller estates when they are located in areas where prospects of industrial development justify the establishment of permanent assistance institutions to serve the area.

Availability or accessibility of assistance facilities is thus an important factor in selecting the location of estates in under-developed countries. Difficulties in this

² See United Nations, "Financing of Small-scale Industries in Under-developed Countries", *Bulletin on Industrialization and Productivity*, No. 3 (Sales No.: 60.11.B.1).

respect may, however, be expected in rural areas where assistance is most needed. The remoteness of the locations and the small size of the estates would generally preclude establishment of permanent facilities, and arrangements should be made for periodic visits by teams of experts. It is suggested that the managers of such estates should be carefully selected and, if necessary, trained to be able to provide some professional advice to the occupants, at least on a "first-aid" basis.³ As will be seen in the case study contained in appendix II, it may sometimes be necessary to hire technicians — nationals or foreigners — as members of the estate's management team to provide guidance and training in certain basic fields to all industries on the estate. While cumulation of managerial and technical responsibilities is generally inadvisable, such an arrangement may sometimes be useful at the launching stage, for a limited period of time. The case study also indicates that a few highly specialized technicians may be needed, for periods of different duration, to fill certain key positions in some of the industries established on an estate, to tide over the initial difficulties and train counterparts and workers.

Group servicing would evidently be beneficial to both givers and receivers. The time of technical advisers and instructors would be more fully and more economically utilized. Their work would not only be co-ordinated, but co-operatively centred on solving different aspects of the same problems. The implementation of their teaching could be followed up and supervised over a period of time.

Where complementary relationships exist among some occupants of an estate, technical assistance would be simultaneously extended to enterprises supplying and using the products of each other. Such assistance — which seldom or never takes place outside of industrial estates — would be particularly effective in improving the quality and lowering the cost of both the intermediate and final products involved.

Also, technical assistance could be given to would-be entrepreneurs — a type of assistance which can seldom be provided. Applicants for sites or factories could receive advice on choice of industrial activity and product, selection of equipment, investment and working capital requirements, prospective marketing and other prerequisites.⁴

The services of technical assistance organizations, national or international, are provided free of charge. This is fully justified since technical assistance operations benefit not only the recipient, but the community at large. It is suggested, however, that, under certain circumstances, fees might be levied for certain services extended by national organizations to occupants of industrial estates.⁵

³ In Madras State, the rural "industrial colonies" are managed, on a full-time basis, by engineers seconded by the state Industry Department.

⁴ Complete "blue prints" for certain industrial activities might be prepared — even in advance of actual demand — by planners of industrial estates or technical advisers, to stimulate the interest of entrepreneurs and investors and facilitate and accelerate occupancy.

⁵ For obvious reasons, this could under no circumstances apply to assistance provided under multilateral, regional or bilateral arrangements.

It is to be considered, indeed, that the small industries on industrial estates are in a privileged position to improve their productivity and income. Concentrated technical assistance will be a major factor in achieving this. It is generally recognized that the principal function of technical assistance is a "pump-priming" one, and that it should be allocated by priority to those who need it most and cannot afford to secure comparable services on a commercial basis.

Thus, the principle underlying the Yaba estate in Nigeria, which is, it will be recalled, a "nursery" or training ground for small industries which must leave the estate after having reached a certain development within a specified number of years, might be transposed to apply to the provision of technical assistance on industrial estates of certain types, in particular, on large estates near urban centres. What is suggested is not to force an enterprise to leave, but to require it to pay for certain services after it has made sufficient progress. A discussion of the modalities of such arrangements — which should be incorporated in the original contractual agreement between the entrepreneur and the estate — is beyond the scope of this study. It may be expected that successful industrialists would recognize the value of the assistance received, and, when able to pay for further services — for instance, when these would be needed for carrying out a programme of expansion — would be willing to contract for them. As to the assistance institutions, operations would be more economical, more staff could be employed and more ground covered, both in numbers served and in types of operations.⁶

Also, services complementing those extended by government agencies could be financed by the occupants themselves, grouped in manufacturers' associations or co-operatives. An example of such an arrangement is given in appendix II, in connexion with a proposal to set up a voluntary quality control association among occupants of the estate.

Financial assistance

Many of the problems in financial assistance to small industries appear to find a solution when these are grouped on an estate. The improvement in technology, productivity, product quality and marketing outlets which may be achieved by integrated measures of assistance, common services, selective admission procedures, requirements of up-to-date equipment and so forth, tends to diminish the risk element and to make worth while and even profitable the required financing, whether from public or private sources. Reliable information on the business and credit standing of the prospective borrower may easily be obtained from the management of the estate or other occupants. The soundness of the project for which financing is requested may readily be assessed. Furthermore, the industrialist may obtain the help of the management of the estate for making the application for the loan, obtaining

⁶ It should be noted that the services of technological research institutes and certain facilities such as testing laboratories are usually provided on a paying basis — at commercial or subsidized rates.

foreign exchange authorizations or import licences, and taking other business or administrative steps. Assistance to industrialists in the field of accounting would also enhance their chances of obtaining loans from public and commercial lending institutions. These advantages would be likely to offset the drawback that industrialists renting premises on an estate have less property to offer as collateral security for a loan than owners of their business. The traditional recourse of small industrialists to money-lenders, wholesale traders or relatives could be, if not obviated, at least appreciably reduced. As productivity and savings would increase, self-financing would become more important.

The application of credit schemes in the form of hire-purchase plans where these exist for supplying equipment to the small industries located on the estate would be simplified since the need for financing could be better ascertained and the use of credit could be conveniently supervised.⁷ Ownership of efficient equipment should facilitate the granting of credit for working capital.

Some of the above-mentioned considerations also provide grounds for supporting projects for financing the basic investment in industrial estates. A properly planned estate managed by competent administrators and occupied by qualified and well-serviced and assisted industries should be considered by lending institutions, including commercial banks, as a sound business proposition presenting a minimum of risk. In view of the scarcity both of financial resources and "bankable" projects — especially those concerning small industry in most under-developed countries, it might sometimes be justified to expect, when planning the establishment of industrial estates, that part of the basic investment would be subscribed or lent by private domestic financial institutions, the balance being financed by government or even private groups. As it is likely, however, that commercial banks and private groups would rather follow suit than pioneer in an untried venture, the first estates should preferably be entirely financed with public funds.

It was because of the impact made on the small industry sector by the Indian industrial estates programme that the Government of that country decided, in 1960, to facilitate the financing of estates by private agencies. Some elaboration of the few indications given earlier⁸ may be of interest.⁹

In view of the increased demand for new industrial estates in all parts of the country, the Government decided, on the basis of a recommendation of the Small-scale Industries Board, and in consultation with the Reserve Bank, to empower state governments to extend guarantees for loans by banking institutions to private agencies set up to establish industrial estates.

⁷ See United Nations, "Hire-purchase Loans for the Mechanization of Small Industry", by J. I. Stepanek, *Bulletin on Industrialization and Productivity*, No. 1 (Sales No.: 58.II.B.2)

⁸ See page 18.

⁹ Central Small Industries Organisation, Ministry of Commerce and Industry, Government of India, *Industrial Estates Programme and Progress* (New Delhi, September 1960), pages 20 and 41 to 44.

If a certain number of small industries form a private joint-stock corporation or a co-operative society and raise, as share capital, one-fourth to one-third of the amount required in the case of a private corporation, and one-sixth to one-fifth in the case of a co-operative, the balance of the funds required for construction may be advanced by credit institutions—commercial banks or co-operative central banks. Loans by commercial banks will be made against security of land and factory sheds, with the guarantee of the state government concerned, provided this does not affect adversely the financial position and liquidity of the banks. Loans by co-operative central banks will be guaranteed provided the co-operative industrial estates societies are registered under the Co-operative Societies Act. The period of repayment of the loans will extend from seven to ten years. Loans will be at normal rates, as the Government considers that there is no need to subsidize the rates of interest. Counter-guarantees may be obtained by the state governments for the full amount of the loans guaranteed by them, in the form of security given by individual participants in the corporations or co-operatives to the extent of their holdings in the share capital, of mortgages on land and buildings, or other forms which may be deemed necessary. Care will be taken to ensure that estates proposed by private agencies conform to approved technical and financial standards and norms in regard to plans and layouts.

The Government suggested to the state governments that at least six such estates might be organized in each state during 1960-61; the state governments may encourage the establishment of a larger number during that year if there is proper response from private entrepreneurs and co-operative societies and if the proposals are found to be feasible.

Establishment of private industrial estates is encouraged even in areas where estates set up by the state government exist. More than one estate may be set up in the same locality, provided there is local demand and need for it. However, state governments are invited to see to it that at least one estate included in the state plan and directly financed by the state is put up in each district, preference being given to economically underdeveloped or backward areas of the state. The Ministry of Commerce and Industry is to be kept informed of the progress of these schemes.¹⁰

¹⁰ The terms stipulated by the Government for financing private or co-operative industrial estates were judged to be inadequate by the All-India Seminar on Industrial Estates. The Seminar recommended that, for private estates, the Government should advance as a loan four-fifths of the amount required, the period of repayment being twenty years, and the first instalment being due as from the fourth year of disbursement of the loan. For co-operative estates, it recommended government loans amounting to nine-tenths of the amount required, and a similar repayment period and date of first instalment payment.

PLANNING OF INDUSTRIAL ESTATES — EXPLORATORY SURVEY

CONSIDERATIONS ON THE TERMS OF REFERENCE OF A UNITED NATIONS TECHNICAL ASSISTANCE MISSION FOR THE ESTABLISHMENT OF AN INDUSTRIAL ESTATE

At the request of the Government of an under-developed country,^a the Bureau of Technical Assistance Operations of the United Nations Department of Economic and Social Affairs initiated a project for establishing an industrial estate for small-scale industries. The project is to be carried out, in principle, in two stages: first, a short-term exploratory survey by one expert; and second, if and as recommended by this expert, a detailed planning of the estate on the selected location, by a team of specialists sent for a longer period. Only the first stage of the project will be discussed in this appendix, in the form of some considerations on the terms of reference of the expert. These notes are part of the briefing material prepared for the expert. An example of operations at the second stage is given in appendix II.

The expert's "job description" is as follows:

"The expert is expected:

"1. To undertake an exploratory investigation with a view to advising the Government on the establishment of an industrial estate for small-scale industries;

"2. Specifically, to consider one or more possible alternative locations, and prepare a list of industries which might be located on the industrial estate in the light of the proposed industrial development of the area, availability of labour, raw materials, power, water, transportation and other supporting facilities;

"3. To make preliminary estimates of the size of the estate and the type, size and number of factories and other buildings, common facilities and amenities and, if necessary, the equipment to be installed, and of the building and development costs involved. He will also prepare estimates of the cost and method of financing;

"4. To make, as required, recommendations concerning the further implementation of the project, as well as recommendations concerning the needs for further technical assistance from the United Nations."

The terms of reference indicate that four main types of techno-economic surveys would have to be carried out in each alternative area in respect of the following:

- (i) Existing industries;
- (ii) New industries whose establishment on an estate would be both desirable and feasible;
- (iii) Availability of labour, raw materials, power, water, transportation and other utilities;
- (iv) Development, construction and installation costs, and financing and technical assistance requirements.

The number of localities where the surveys would be carried out would usually be narrowed down by a preliminary decision, or expression of preference, by the Government. As has been seen earlier in this study, the choice of locations — in particular as between urban and rural areas — reflects different policy decisions as to the role assigned to industrial estates. However, the exploratory mission might gain in effectiveness if the expert were given some latitude in his investigations. For instance, he might find that establishment of an estate would cost less and present better chances of rapid occupancy and successful operation in a location different from that or those envisaged by the Government. His analysis and recommendations would enable the authorities to take a final decision in full knowledge of the facts. The Government's decision may well give preference to a project judged by the expert to be relatively less auspicious, on the grounds, for instance, that the need to develop industry in a given location is great enough to justify assuming larger risks and bearing higher costs.

The survey of industries already existing in the areas envisaged would provide the background against which to assess the oppor-

tunity of establishing new industries on the estate as well as an indication of the type and number of industries which could, if necessary, be relocated on it. The survey would cover both large and small establishments; information on the former might indicate, in certain cases, the opportunity of creating small industries linked to the larger concerns by subcontracting arrangements. Data on certain industries in other parts of the country will subsequently be required to assess the over-all competitive position of the proposed industries.

It is probable that, in most under-developed countries, the desirability criteria for establishing new industries would be similar to those expressed in the admission rules of the Gundy estate cited above. The desirable industries would as a rule be those producing, with the aid of modern equipment and power, essential consumer goods or other articles for which there is strong demand and which are at present imported from abroad; those which are in short supply not only in the local area but in the country as a whole and therefore have to be transported over long distances; and those which have a good export market, and for which growing demand is anticipated consequent upon over-all development and rising income. The case study in appendix II suggests that, in practice, a flexible application of the criteria will be required in areas where development possibilities and, consequently, the choice between industries are limited.

The feasibility of establishing new industries evidently depends on the availability of factors of production, raw materials, utilities and, as stressed earlier, technical assistance. Immediate availability of some of these elements would not always be an overriding consideration. New industries can often be established despite lack of local talent — managerial and technical — and skilled labour. Obtaining technicians from other parts of the country or from abroad, under private contracts or technical assistance arrangements, is frequently required, even in relatively well-endowed localities, and, in most cases, training must be provided to the workers to be engaged in new industrial occupations.^b

Similarly, the availability of raw materials or of certain fuels in the locality may not always be an absolute prerequisite. As a general rule, few small industries are materials-oriented, and economic procurement of basic supplies from other parts of the country or sometimes from abroad may be a sufficient condition for establishing industries which are desirable and feasible in other respects. Some cases in point will be found in appendix II, in particular in connexion with proposals to establish on an estate a bag and burlap factory and a metal-working plant which may have to be based entirely on imported raw materials; it will also be seen that the proposed estate would need imported fuel for steam. The case study also provides an illustration of the surveys of local construction methods and materials necessary for selecting and estimating the cost of those to be employed in developing the estate.

The expert would have at his disposal prior to or upon arrival in the country, data and statistics enabling him to appraise the economic factors bearing on the establishment of the estate, such as industrial development trends, the relevant fiscal, financial and customs legislation, marketing prospects, zoning regulations, and so on. Needless to say, the close co-operation of government authorities — national and local — and consultations with entrepreneurs, building contractors, importers, banks, investors, labour leaders and many others will be required to carry out the surveys.

^a Information on training, in particular on accelerated training is contained in many reports published by the International Labour Organisation. Accelerated training is based on job analysis and the determination of appropriate degrees of job specialization.

^b See last paragraph of the introductory section to chapter 4.

PLANNING OF INDUSTRIAL ESTATES — A CASE STUDY

In 1958 an American engineering firm sent, under contract with the United States International Cooperation Administration (ICA), a five-man team^a to establish an industrial estate in one of the larger cities of a predominantly agricultural Asian country^b where industry accounts for less than 10 per cent of the national product and employs one-fifth of one per cent of the total population. The team felt that, in view of the country's low level of industrial development, it would have to plan thoroughly every aspect of the establishment of the estate; that is, determine the over-all composition of industries and, for each industry, select the optimum technology and capacity of production, thus determining the size, layout, specifications and cost of each individual factory, and the type, quantity and cost of the raw materials, machinery and manpower required. Accordingly, in its report, submitted in 1959, the team studied, on the one hand the availability and cost of the goods, services and charges jointly affecting all of the proposed enterprises — construction techniques and materials, fuel, power, management, manpower and transportation requirements, as well as taxes and customs duties. On the other hand, it analysed, for each recommended enterprise, the existing and prospective demand for the product, the domestic and foreign competition, and the availability of raw materials; it determined and described the technology for manufacturing each product, the machinery, space and personnel requirements, and estimated for each enterprise the investment in machinery, buildings, grounds and working capital, as well as prospective annual receipts, expenditures and profit margins. On the basis of these estimates, the team prepared detailed submissions to assist the beneficiary government in obtaining credit from financial institutions — national, foreign or international — for the foreign exchange part of the total investment cost. The team's findings and recommendations on some of these points are summarized in the following paragraphs.

The team recommended the establishment of a small industrial estate consisting of eight industries. Before examining the selection criteria and the recommendations relating to each industry, a brief review of the economic conditions in the locality and the requirements common to the proposed industries may be in order.

ECONOMY OF THE LOCALITY AND COMMON REQUIREMENTS

Only two factories are in existence in the locality, a city of about 60,000 inhabitants: a woollen mill with 2,160 spindles and thirty-six power-looms and a fruit-canning plant processing annually 20,000 to 30,000 pounds of fruit, both equipped with antiquated machinery. There are a number of service industries and artisan establishments which produce building materials and a variety of consumer goods. Agricultural and trade activities predominate.

All of the manpower required for the new industries — managers as well as workers — would have to undergo some training. As the team considered that the high cost of foreign supervisory and technical personnel could not, in most cases, be supported by the individual enterprises, it recommended that a number of foreign technicians be supplied by ICA under a technical assistance grant as members of the estate's managerial group, to provide advice and training in certain basic fields to all industries on the estate.

^a The team was composed of an industrial engineer, a mechanical engineer, a power and utilities expert, a finance expert and an economist.

^b See last paragraph of the introductory section to chapter 4.

In some of the proposed industries, however, a few highly specialized technicians would have to occupy certain key functional positions for periods of different duration, in the course of which they would train national counterparts. The team suggested that exemption from the two-year compulsory military service be granted to all trainees; under a national law, such exemption may be obtained for skilled workers performing work of national importance.

Salaries and wages in the area and the country are "extraordinarily cheap by European, or even by Japanese, standards"; productivity, however, is appreciably lower than in the more advanced countries. Female labour would have to be used extensively on the estate, most indoor work being traditionally reserved to women in the country — a factor narrowing somewhat the range of possible industries. Wage rates for women are even lower than for men. A mid-day meal would, according to custom, have to be provided by the employers to the workers as a wage in kind, which indicated the need for a central canteen on this estate. Provision of nutritious food would help in raising labour productivity: as mentioned in the team's report, "unless a free lunch is provided, many workers go without eating in order to save money for their families".

Until a recent time, the city's publicly-owned power company had less than 1,000 kilowatts of generating capacity, which was barely sufficient for lighting purposes and running a score of small industrial motors. The two existing factories produced their own power with diesel generators. Two 1,000-kilowatt generators were added to the power company's capacity at the time the team was carrying out its survey, and plans were under way for installing hydrogenerators with a total rated capacity of 6,400 kilowatts at a dam 45 kilometres (28 miles) from the city. On the assumption that this power would be made available to the estate in good time, the team made no provision for electric power generation on the site. To meet any contingency, however, it made an estimate of power requirements and the cost of a special power plant for the estate.

The local sources of fuel are camel thorn and some firewood; these are used in a few brick kilns, but would not be suitable for the industries on the estate. Coal is mined in another part of the country, but the whole output is used locally; even surpluses were available, the cost of transportation to the city where the estate is to be set up would be prohibitive. All petroleum products are imported by a government monopoly, and prices are burdened with heavy sales taxes, administrative costs and monopoly profits; the latter are used in part to subsidize other imports. The team suggested that, as a general measure, the Government consider changing petroleum import policies so as to encourage rather than discourage the importation of industrial fuel oil, while maintaining heavy charges on gasoline. In the case of the estate, it recommended that the estate corporation be allowed to purchase fuel oil directly from abroad; this would permit a substantial reduction in the cost of oil, since the sales tax on products distributed by the monopoly would not apply and the cost of handling the oil would be sharply reduced. The fuel would be used to produce steam for both heating and processing in a central boiler plant rather than in separate boilers in each enterprise.

At the proposed site, the underground water-table fluctuates between 8 and 15 metres (25 to 50 feet). Four artesian wells will be

necessary to provide the estate's requirements, estimated at 350 cubic metres a day; the dissolved mineral content is moderately high and the water is suitable for industrial use. The team estimated that at least 90 per cent of the water used on the estate would flow out as more or less contaminated waste water and, after study of site conditions, recommended the sewage irrigation method for disposal of effluent as the most economical solution. The irrigation field

which would cover 34 hectares (84.2 acres), almost two-thirds of the total area of the estate — would be used as a demonstration area, to grow forage crops, fibres, nursery stock, fast-growing lumber trees, oil-seeds and others, as well as to raise livestock and demonstrate modern agricultural materials and machinery.

Transportation of materials and products would be by truck, since no railroad exists in the region. The team checked sea and land freight and charges from Europe and the United States to the locality and found them high, but not prohibitive; the cost of shipping machinery, for instance, varies with the specific item, but in general seems to be around 10 to 15 per cent of the f.o.b. cost of the equipment. Air transport of certain light-weight, high-value products needed by or manufactured on the estate (where in excess of local consumption) may become possible when construction of an airport, 24 kilometres (15 miles) from the city, is completed. In contrast to this advanced transportation method, any shipment into or out of the many surrounding areas without roads would have to be made by mule or camel train. About 3 kilometres (1.8 miles) of paved road and driveway — including parking space, would be built within the limits of the estate.

The team surveyed the building materials traditionally used in the area — mud, straw, lime and gypsum mortar, sun-baked brick and semi-burned brick — and the construction techniques. It found that, compared to modern methods, local construction practices had a number of disadvantages: limitation of the clear span between walls or pillars; small net usable area in view of the considerable thickness of walls — usually around one metre (3.3 feet); frequent repairs and maintenance due to the friability of the materials. It studied the cost of local construction, and arrived at the conclusion that, excluding materials and labour for electricity, plumbing and heating, a factory building could be erected with modern materials and by modern methods at a somewhat lower cost, were it not for the high cost of foreign supervision.

In the team's opinion, the skill of the local builders with their own materials suggested that they could use modern ones if training were provided. Local contractors, on the other hand, could not, in its view, fulfil commitments to build modern structures because of lack of knowledge and experience. Foreign supervision was therefore required.

The need for foreign technicians to direct the project raises two sets of problems: how to organize the building project, and how to absorb the high cost of foreign specialists. One possible solution to the first problem is to hire a foreign contractor who will, in turn, hire all labour and pay for all materials, local or imported. Another solution is to entrust the foreigner with technical direction only, labour and materials to be provided by a government agency or a private firm. Neither method, in the team's opinion, is entirely satisfactory. Foreign contractors usually find it difficult to avoid paying a premium for local materials and labour if they do the procurement themselves. On the other hand, government agencies or private firms sometimes fail to arrange for a smooth flow of materials, labour and funds.

As to the cost of foreign supervision, it is invariably and unavoidably expensive. "Usually, foreign contractors are paid 100 to 200 per cent on top of the labour and material costs of construction. In many cases, the contract turns out to be cost-plus-percentage of cost arrangement, which provides for a monthly fee and provides no incentive to keep costs down or to complete work on time."

Accordingly, the team recommended that the estate corporation should do all the local hiring and purchasing and assume financial responsibility for construction, using funds supplied by the partici-

pants in the estate. The International Cooperation Administration would provide, as part of the estate corporation's management assistance contract, planning and construction training personnel, for the duration of the building period. A financial institution would provide the funds needed to buy imported components of the buildings, particularly plumbing, heating and electrical equipment, and reinforcing steel.

The team adopted the following criteria in planning the construction project:

"Design of the Park's buildings and structures should take into account the limited experience of local workmen and construction supervisors, should minimize the need for expensive foreign supervision or participation, and should maximize the use of locally available materials. Above all, the design should take into account the fact that many of the enterprises in the Park will have to compete with existing handicrafts, housed in traditional structures, whose rent or construction costs are very low. Low construction cost is therefore of paramount importance, even if other desirable qualities (such as ideal layout of machinery) have to be sacrificed to achieve it."

With these criteria in mind, it based its construction cost estimates on the use of standard components consisting of poured-in-place reinforced concrete slab floors, pre-cast reinforced concrete columns, roof beams and roof purlins (with a standard span between columns of 10 metres or 33 feet), pre-cast reinforced gypsum roof planks, and concrete block walls. It determined the most economic sources for procuring the appropriate materials in the necessary amounts, sizes and specifications, calculated their costs and those of labour, and described the technology for producing the components and carrying out the construction, in particular the necessary machinery. The experts recommended the use of labour-intensive construction techniques: excavation and grading would be done by hand, with the help of wheelbarrows, picks and shovels, and machinery — which would be rented — would be used only for mixing and compacting concrete, so as to ensure the use of a good quality material.

The team's estimate of the cost of a typical building 10 by 45 metres (33 by 148 feet), 4 metres (13 feet) high, amounted to the equivalent of about \$22 per square metre, excluding utilities but including special foundations and a provision for contingencies — a figure to be compared with that of \$25 for traditional construction. Total construction cost was estimated at the equivalent of \$40 per square metre (\$3.72 per square foot).

Finally, the experts reviewed the tax and customs charges and incentives bearing upon industrial investment and production and, in a few cases, recommended that the Government should take special measures to favour the development of some of the proposed industries and to protect their products. These will be examined below, in the section concerning the recommended industries.

SELECTION CRITERIA

The team considered that, as a whole, the area in which the estate would be established was "not outstandingly favourable for industrial development".

"Valid opportunities to establish industry exist — but they are limited in number. In some cases (e.g., cotton textiles), logical industries have already been established in other parts of [the country], with enough capacity to meet the country's entire needs for some time to come. In other cases (e.g., glass), establishment of an industry at [the locality] would be possible but other parts of [the country] are more logical sites, by virtue of access to cheap fuel, better supplies of raw materials, closer proximity to markets, etc."

Broader perspectives for industrial development would be opened when a large-scale programme of construction of storage dams and irrigation canals recently begun in the area takes momentum. In particular, new industrial raw materials or increased

supplies of existing ones might be provided when new farm land is settled and made productive. However, the team considered that future production from that source could not be assessed with any accuracy and that, consequently, the industrial estate could not include in its plans a dependence upon it. Nor could a projection be made now, in its opinion, of any greatly increased market in these new areas for the goods to be made in the estate. The estate should therefore "be designed primarily to meet existing demands, rather than to anticipate any possible dramatic future developments of the [area's] economy".

In view of these limitations, the team adopted simple criteria for selecting the industries for the estate: existence of readily foreseeable possibility of sufficient demand to make the use of modern production methods economical, that is, to justify the minimum size of plant at which the factory's costs would be competitive with imports and local handicrafts;¹ and economic availability of raw materials and managerial and entrepreneurial skills.

The team took into consideration the Government's goal of saving foreign exchange expenditures on imports, but found that import substitution could not be a general selection criterion, though a few industries chosen on other grounds would accessorially play some role in this connexion.

Also, the experts subscribed to the Government's objective of increasing employment opportunities, but did not adopt as a basic selection criterion the applicability of labour-intensive techniques in certain industries. As has just been indicated, the team's primary concern was to create industries which would be economic from the standpoints of investment and operation, and the choice of technology was largely influenced by this consideration. In analysing several of the proposed industries, it found that profitable operation would not be possible, or profits would be reduced substantially if heavy investments were made in elaborate equipment, in particular conveying or elevating apparatus. In recommending labour-intensive methods for carrying out these operations, the team was consistent with its criteria and fitted them in with the Government's goal of increased employment.²

Out of a score of potential industries thoroughly studied by the team, only eight appeared to meet the above-mentioned criteria: bag and burlap factory; cigarette factory; concrete and gypsum products factory; metal-working and bicycle factory; oil-seed mill and refinery; shoe factory; tannery; wood-working and marble factory. Before examining the team's recommendations concerning these industries, it may be of interest to give a brief explanation of its reasons for failing to recommend certain other industries, as this provides another illustration of its use of its criteria.

Cordage manufacturing was rejected because existing handicraft ropewalks produced adequate cordage at a fairly low price; the proposed bag and burlap factory might be able to produce twine for processing in these shops.

Establishment of a flour mill was rejected for a similar reason — local flour needs are met by small-scale millers at a reasonable cost. Furthermore, there would be no advantage in setting up a large-scale mill as the area does not produce a surplus of wheat that might be shipped to other parts of the country after milling.

As regards glass, the area does not provide the necessary fuel, has only inferior raw materials and a small market. All three requirements are fully met in another part of the country.

Manufacturing insecticides was not recommended since, until such time as the farmers and fruit growers have been trained in and become accustomed to their use, the only customer for the product would be a government agency. The team could not favour

establishing an enterprise dependent upon a single market outlet, especially when the extent, duration and variety of such market could not be closely estimated.

The experts considered that the possible market for plastic consumer goods — for instance combs — would be quickly saturated by the output of even the smallest production unit. The plant might try to make a large number of different products in small quantities, but the cost of the dies would be prohibitive. A plastics factory formerly established in the locality was closed for lack of sufficient business.

A beet-sugar mill of economical size — involving an investment of up to \$2 million — would not be profitable in the area under any probable circumstances. The Government subsidizes the sales price of sugar by bringing in imports at a favourable rate of exchange and by requiring farmers in another area — where a mill is established — to grow minimum acreages of sugar-beets irrespective of the greater profitability of other crops. In the locality where the estate would be established, the mill would be a heavy consumer of expensive imported fuel (the other mill has ready access to coal). Furthermore, only a few experiments were made to grow sugar-beets and sugar-cane in the surrounding area and no conclusions have yet been reached that these crops could or would be produced there at a reasonable price.

Tyre recapping was rejected for lack of market, the experience in the broad geographical region to which the country belongs being that truck owners could not be persuaded to bring in tyres for recapping before the casing was irretrievably damaged.

Truck bodies are manufactured in another part of the country. To the extent to which an unsatisfied demand develops, truck body manufacture could be undertaken by the proposed wood-working plant, without additional equipment.

RECOMMENDED INDUSTRIES

1. Bag and burlap factory

Most of the country's products, including wheat, cotton, karakul, skins, sugar, rugs and certain building materials, are transported in bags, burlap-covered bales, or nets. Jute fabrics are not now made in the country. Most of the country's requirement for wrappings are met by imports of finished jute bags and jute burlap cloth and yarn. A domestic wrapping products industry would therefore have to compete with imports.

The team proposed the establishment of a bag and burlap factory in spite of two unfavourable factors. In the first place, it ascertained that jute could not be grown successfully in the area; in the absence of a substitute crop, it would therefore need to be imported. In the second place, the country's demand for jute products — which the experts estimated at 900 tons per annum, or 3 tons a day (1.5 tons per shift) — would be too small to utilize the full capacity of the smallest economical production unit, which is 600 kilogrammes (1,323 pounds) per hour, or 2.4 tons per eight-hour shift; to be profitable, the unit should operate at least two shifts a day.

With respect to the first point, the team came to the tentative conclusion that the best substitute crop in the area would be kenaf, which could probably be grown profitably at a price low enough to justify the establishment of the factory; the feasibility of growing kenaf should, however, be investigated further. If jute has to be imported — either to start the factory, pending this investigation, or permanently, should the investigation show that the growing of kenaf would not be feasible or profitable — a protective tariff of 35 per cent should be imposed on imported bags and burlap cloth.

Tariff protection would also be necessary in view of the fact that the proposed plant would have some excess capacity, particularly in machinery used for softening, carding and spinning the fibre in preparation for weaving, and for finishing the cloth after weaving — which represents the bulk of the investment in the plant. Consequently, the factory's capital costs per unit of finished

¹ See, in this connexion, United Nations, "Problems of Size of Plant in Industry in Under-developed Countries", *Bulletin on Industrialization and Productivity*, No. 2 (Sales No.: 59.II.B.1).

² See United Nations, "Capital Intensity in Industry in Under-developed Countries", *Bulletin on Industrialization and Productivity*, No. 1 (Sales No.: 58.II.B.2), in particular the discussion of factor combination in selected industrial operations, page 23.

product would be comparatively high. If the factory is to meet the totality of the country's requirements in jute products, maximum flexibility in output should be achieved: the factory would produce several types of bags and burlap material (twill, as well as plain weaves), yarn for sewing and in addition would manufacture cheap carpeting and produce twine and rope.

The experts described the techniques for growing kenaf and estimated the maximum cost of production of usable fibre in the area. They described the processing of the fibre and the technology of the cloth manufacturing, made estimates of the required amount and cost of equipment, building and grounds, management and labour, and utilities, and also gave alternative estimates of total investment and receipts and expenditures based on the use of locally grown kenaf or imported jute. The factory would provide employment for 141 persons, all of them nationals of the country.

2. Cigarette factory

The country's tobacco crop is sold mainly for domestic consumption in the form of pipe tobacco; part of it is exported to a neighbouring country. Demand for cigarettes is growing and is met entirely by imports, legal and illegal, the former at prices four times higher than the latter and far above the means of the average consumer.¹ The team estimated that a cigarette factory on the estate could sell a minimum of 750,000 cigarettes a day, six days a week. Allowing for seasonal fluctuations in demand, the capacity should be one million cigarettes per eight-hour shift.

Cigarettes would be manufactured with domestic tobacco;² if necessary, the entire requirement could be produced by growers in the neighbourhood of the estate. Part of the processing and curing of the tobacco would have to be done at the factory. Other material — sugar, glycerine, flavourings, paper and packaging components — would have to be imported. The experts estimated that the production cost, including payment of the government tobacco monopoly excise tax, would be less than one-half the price of the smuggled cigarettes.

The standard tobacco-processing and cigarette-making machinery has in general a larger production capacity than that required for the proposed factory. In order to achieve maximum economy in investment and production, the experts chose the smallest machinery units from several different sources, eliminated conveyors and other labour-saving equipment, and suggested that one machine be used for two or more functions wherever possible — for instance, the casing machine to be used as an "order" machine³ and the cooling machine as a fluffing machine. While one large packing machine could handle the entire output of the plant, the team considered it preferable to install two small ones, so that the entire factory would not have to shut down in case of difficulties with a single piece of machinery. It also recommended that certain operations normally done by machines, for instance "stemming" the leaves, be done by hand.

The factory would give employment to 117 persons, two of whom would have to be recruited from abroad: the tobacco blender, preferably a Greek or an Armenian with long experience in this speciality, and the chief foreman.

3. Concrete and gypsum products

The team's recommendation to set up a factory producing modern building materials — concrete blocks, brick, pre-cast beams and pipe, and gypsum roof slabs — was mainly based on the expectation that demand for building would increase in response

¹ While cost estimates were based on prices of new equipment, the team recommended the purchase of reconditioned, used machinery.

² A package of American cigarettes sells at a price equivalent to \$0.32, or almost twice as much as an unskilled worker's daily wage.

³ In the opinion of the experts, tobacco is a particularly desirable crop which maximizes employment and cash income per unit of area, while requiring the minimum of land and water.

⁴ Machine for moistening tobacco leaves.

to the economic growth induced by the dam and irrigation canal construction programme and the establishment of the industrial estate. Producing these materials would provide an opportunity to do away with the shortcomings of the traditional construction methods and materials mentioned earlier. In view of the difficulty of changing traditional practices, the project could be successful only if prefabricated modern materials were produced at a low cost and in a form that could be used by local building workers and contractors without extensive training.

As already indicated, the experts estimated that the costs of building with pre-cast products would be competitive with those obtaining in traditional construction. In the absence of actual demand for such products, they thought it reasonable to set the capacity of production at the amount of materials required to build one medium-sized house a day, say, a dwelling 4.5 by 8 metres (15 by 26 feet), 2.7 metres (9 feet) high; this would require production of 800 standard blocks per eight-hour day for which 16 tons of concrete would be needed, 3 tons of beams, 36 square metres (387 square feet) of gypsum roof planks and 2 tons of gypsum. Seasonal fluctuations or an increase in over-all demand could be met by operating several shifts.

The plant would use cement produced in another part of the country, and locally available sand, gravel and gypsum. Reinforcing steel would be imported.

Eventually, the plant might produce other products, such as chimney blocks and concrete pipe, but, in view of the uncertainties regarding market possibilities, the team did not recommend installation of equipment for manufacturing these products.

The factory would employ forty-six persons, including one European foreman.

4. Metal-working and bicycle factory

Metal products — hardware, tools, agricultural implements, housewares, machinery, furniture and vehicles — appear to be a large and growing part of the country's imports; however, there are no detailed foreign trade statistics on which to base a list of products for manufacturing by the proposed plant. In addition to imports, important quantities of some products are made in the country by handicraft shops.

The experts made a limited survey with the aid of local importers, bazaar and other tradesmen, handicraft producers and metal-working industrialists in other parts of the country. Out of dozens of possible products, they selected a small number which, in their opinion, met pressing needs, required simple technological processes and inexpensive machinery, and appeared to be profitable.

The recommended products are: aluminium pots — now imported and subject to a 35 per cent customs duty — which would be manufactured from aluminium sheets imported duty-free; metal bedsteads made of pipe, angle iron, simple castings and wire, by processes well within the capabilities of a small metal-working plant; bicycles, which would first be assembled from imported parts and, later on, manufactured in the factory (the team recommended producing frames as early as possible from imported pipe and dispensing with the import of finished frames, which is expensive in view of the large shipping space required; the factory could also repolish and replate used bicycle components); building hardware, such as door locks, bolts, hinges, catches and padlocks; inexpensive cutlery, electroplated with a light coating of silver or nickel; agricultural handtools, especially scythes and scarifying ploughs (which are not known in the area, where the peasants cut forage with tiny sickles or even pull it out by hand, and plough with pointed sticks, sometimes crudely shod with sheet metal); hand, motor-driven and, above all, windmill pumps, for irrigation and domestic water supply; simple machinery, such as belts conveyors, materials elevators, packing fixtures, wool washers and other items, which would be required, in particular, by industries on the estate. The factory would also provide facilities to repair and make replace-

ment parts for machinery — a particularly important activity, in the opinion of the team, which found much expensive equipment lying idle for lack of such facilities: some pieces were delivered with missing or broken parts, and were never put in operation; in other cases, the original manufacturer of the machinery could no longer be found or persuaded to provide replacements for obsolete parts. Lacking any alternative, the larger industrial enterprises in the country have had to set up their own repair shops, which operate at a high cost in view of the low volume of work required. The experts considered that the proposed factory could obtain business not only in the locality but also elsewhere, since even enterprises having their own metal-working equipment would find it cheaper to let a specialized plant do the work.

The processes involved in manufacturing the above-named products would require only a minimum of general-purpose metal-working machinery — lathes, shapers, milling machines and the like. "The plant should deliberately limit the size and cost of its machinery, even though this limits the size of the work it can handle and may cause some inability to meet local demands for repair services." The plant should concentrate on special activities such as metal spinning, electroplating and finishing, and assembly so as to avoid investment in costly machinery and permit rapid change-overs in the type of goods produced. The number of products requiring dies — which are generally very expensive — should be as limited as possible. A small cupola and casting equipment would be necessary for producing repair parts and cast components for various items. All raw materials for the metal-working plant would have to be imported.

Total employment would be sixty-three, including one foreign specialist for electroplating and two for metal spinning, since these operations require workmen with much practical experience.

5. Oil-seed mill

The two most important uses of vegetable oil in the country are for cooking and the manufacture of household soap. The demand for edible oil and soap is met by the output of a government-controlled cotton company, by imports and handicraft production. Much of the country's needs will be met by a large toilet soap factory, oil refinery and hydrogenation plant now under construction in another region. A small oil-seed mill, refinery and soap plant on the estate would therefore rely largely on export markets and local consumption, both of which were judged sufficient to justify construction of the plant. In addition, the team envisaged the possibility of providing sulphonated castor oil as a base for fat-liquor in finishing leather at the proposed tannery. It also contemplated the possibility of developing, in the future, a paint industry in the locality which would use some dehydrated castor oil.

The fact that the castor plant is one of the few economic crops thriving in the locality was another reason for proposing establishment of the mill. The team recommended processing 2,400 tons of decapsulated castor beans¹ per year. Another 2,000 tons of various locally grown oil-seeds — colza, linseed, mustard, sesame, sunflower and others — would be used for producing edible oil. Caustic soda for refining would be imported. The experts recommended that newly-developed containers consisting of reusable polyethylene bladders inside corrugated paper cartons be used for shipment, instead of the conventional steel drums, whose purchase price and freight cost would be considerably higher. They made proposals to use waste products as fertilizer or low-grade fuel.

To save on fuel consumption and scale down capacity of production, the experts recommended hydraulic pressing with the use of small expellers instead of the solvent extraction process used in more advanced countries. Should there be a need to expand operations at a later date, solvent extraction equipment might be added to the pressing equipment (pre-press solvent method).

¹ It recommended that decapsulation be done by hand; decortication, however, would be done by machine.

Soap-making machinery would have a capacity of about one ton a day. Employment would be 111, including one European foreman.

6. Shoe factory

Most of the country's need for leather shoes is met by handicraft production, and the total output is not known. A small part of the demand, particularly for higher-quality shoes, is met by imports, which amounted in 1957 to about 231,000 pairs. The locality is a centre for handicraft production of men's shoes. There are about 200 handicraft shops and 100 craftsmen working at home, with a total labour force, including apprentices and journeymen, of 800 to 1,000 shoemakers, producing an estimated 300,000 pairs a year. The team judged that a shoe factory on the estate could count on sales of about 96,000 pairs of high-quality shoes and 96,000 pairs of low-quality sandals or shoes a year; the total output would provide one pair of shoes a year for approximately 1.6 per cent of the country's total population. Both locally produced and imported raw materials would be needed. Part of the supply would be produced by the tannery discussed in the next section.

The team considered that, if the plant were to compete successfully with low-cost local artisan production and with imports, investment in machinery should be kept to a minimum. Mechanization should be introduced only where it contributes substantially to quality, or makes a very considerable saving of labour at the cost of a small investment. Accordingly, the team did not recommend mechanization of the cutting department (apart from the provision of a pattern-making machine): cutting machines require a separate die for each part of each shoe size of each style, and these dies are expensive. Also, it did not recommend the purchase of lasting machines, which are quite costly; local workers would do a creditable job of lasting by hand.

In view of the existence of many different methods for manufacturing similar types of shoes, the team presented only a tentative list of machinery for estimating purposes. It recommended that the final choice of technology be made with the co-operation and advice of an expert on shoe production who would be appointed as a member of the estate management team.

Total employment would be 217, all of whom would be local workers.

7. Tannery

The country's total consumption of leather is not known, since much of the present demand is supplied by handicraft and home tanners. The experts judged the locally produced leather to be poorly tanned and, for the most part, unsuitable for modern footwear. The demand for good quality leather is met entirely by imports, which amounted to 325 tons in 1957. The country exports a certain amount of hides.

Establishment of a tannery on the estate would make it possible to supply good quality leather to the proposed shoe factory and to handicraft shoemakers. Some up-grading of present hide exports into exports of semi-finished or even finished leathers would also be achieved. Another result would be to increase production of valuable "Kashmir" wool for export. Goat and cow hair, sheep wool and glue would be sold as by-products.

In the absence of another tannery in the country, competition would come from imports and, to some extent, from handicraft tanners. The experts set the capacity of production at around 333 tons of leather a year, approximately the quantity now imported. This amount could undoubtedly be sold, since demand was likely to increase and part of the output could be exported. Raw material requirements were estimated at 500 tons of hides and 500 tons of skins a year (green weight), part of which could be supplied locally, and part obtained from other regions in the country. Lime would be obtained from local brick kilns. Chemicals, dyes and fats, and vegetable and mineral tanning substances would be imported.

The area in which the estate would be located does not have a good supply of heavy cowhides, such as might be used to produce vegetable-tanned sole leather. Furthermore, it does not now have a sufficient supply of vegetable tanning matter to support a modern tannery. Therefore, most of the tannery's output will probably be chrome-tanned. The team recommended that experimental cultivation of several plants producing tanning ingredients be made in the locality, but considered that investment in extraction facilities for tanning would not be justified at the present time. For the foreseeable future, the tannery would have to rely on imports of vegetable tanning materials for producing a limited amount of vegetable-tanned leather.

The experts proposed to adopt modern leather-making methods using strong vegetable-tanning extracts, new mineral tanning agents, particularly chromium salts, and heat, mechanical agitation and other means to speed up tanning and other processes. They considered fast processing to be economically important, since it reduces the cost of capital equipment and of working capital tied up in hides. It is also technically important, because it reduces the time during which hides are subject to spoilage by bacteria and other natural agents — a valuable advantage in a warm climate. Furthermore, speedier processes make possible closer and more effective control of tanning, using scientific laboratory methods rather than mere guesswork and tradition, and reducing the need for highly-skilled supervisors and workers.

In view of the high cost of tanning machinery, especially if compared with the low-cost equipment of handicraft tanners, the team proposed to install only the minimum machinery needed to produce high-quality leather, and recommended two-shift operation to the extent feasible. It proposed that machine operation be reserved for heavier hides and skins and hand operation for the lighter ones. Chrome tanning would require hiring from abroad four experienced drum operators for the first year or two. The manager of the tannery should also be a foreign specialist. Total employment would be 261.

8. Wood-working and marble factory

In the locality, wooden furniture, packing materials, doors, windows, panelling and other millwork are now almost all made by hand, out of unseasoned, roughly-squared lumber. The quality is low and the cost is high. Marble table-tops, tiles, wainscoting and exterior trim are also made entirely by hand; although the quality is good, the cost is heavy. The team reports that local entrepreneurs have been impressed with the success, in another city, of a mechanized wood-working and marble factory and would be ready to follow suit. Combining these two industries would be logical since manufacturing methods — sawing and polishing — are basically similar for the two materials, and there is a strong demand for wooden furniture with marble tops.

While demand for either product could not be estimated, numerically it appeared at present to be considerable and only a fraction of what could be developed in the future. The team considered that provision of properly seasoned, well-cut lumber at a reasonable price would in itself tend to encourage greater use of wood in construction. Furthermore, it expected the demand for lumber to increase as modern prefabricated building materials became available from the concrete and gypsum products plant. Also, there would be profitable opportunities for export of lumber, furniture and marble not only to neighbouring countries, but to Europe and the United States as well.

Only one large wood-working plant exists in another city of the country. In the opinion of the experts, it would be unlikely to provide serious competition for the proposed factory; it might, in fact, even become an important customer for the proposed forest-area sawmill. The proposed estate factory might possibly compete with it on its own market, in view of shortcomings in the design and finish of its products.

Since no sawmill exists in the country, the proposed plant would not only have to arrange for its supply of lumber, but also to provide its own facilities for drying. Since poor roads make transportation from forest areas difficult, sawn timber should be produced in the forest, using a portable diesel-operated sawmill. Sawing instead of rough-squaring would result in a considerable reduction in waste of lumber, and in savings in the weight transported. The team estimated that the cost of sawn boards delivered by truck would be below the present cost of rough-sawn timbers delivered by camel, even after allowing for sawmill costs. In connexion with lumbering operations, it recommended that the Government set forth forest conservation regulations.

In view of the country's high-temperature, low-humidity climate, proper air-drying was not possible, and kiln-drying facilities should be installed in the plant. As a wide variety of articles would be produced, including doors, window sash, panelling, furniture and tool handles, diversified machinery would be required. However, the team proposed, whenever possible, to use versatile tools, such as radial saws which can cross-cut, rip and perform a number of other operations. It recommended purchasing, instead of a planing machine, a moulder which could at the same time plane the sides of boards and plane and shape the edges; large pieces would be surfaced on a simple jointer-planer. Marble-cutting and polishing equipment would be similar, but heavier. Total employment would be 122.

* * *

The following tables summarize cost and other data relating to the proposed industrial estate.

ORGANIZATION OF THE ESTATE

Since the managerial and organizational structure of an estate may vary considerably according to the size of the project, the type of facilities and services provided to the occupants and other factors, the arrangements recommended by the team for the proposed estate may not necessarily provide guide-lines for planning projects under different conditions;¹ they are summarily described in this section to complete the picture given in the preceding pages, as they are thought to be appropriate to the project under consideration and the general economic conditions in which the estate would have to operate.

The experts proposed that the estate should be developed and managed by a corporation organized along co-operative lines. The corporation would acquire title to the land, build and maintain a central building, including office, canteen, testing laboratory, library, fire and guard stations, bank, post office and display room, install utilities, construct streets and so forth. The plots would be sold or leased to the enterprises joining the estate and the factory buildings and other facilities would be constructed by the corporation for the account of the individual enterprises. The corporation would provide technical assistance in planning, manufacturing, procuring and installing equipment, and in raising the productivity of the industries on the estate. It would assist industrialists in organizing a company, obtaining financing and selecting and engaging foreign technical personnel as part of their own staff; provide training to both management and labour, and organize a voluntary quality control association and a co-operative advertising effort.² It might provide services of a similar nature, preferably on a fee basis, to enterprises that are not members of the estate.

¹ See, in this connexion, United Nations, "Choice of Industrial Technology: The Case of Wood-working", by G. K. Boom, *Bulletin on Industrialization and Productivity*, No. 3 (Sales No. 60.11.11).

² See William Bredo, *op. cit.*, for case descriptions of estates and typical agreements with occupants in a variety of countries.

³ The team pointed out that quality control was necessary, on the one hand, to guarantee the safety of users of certain products — for instance, by making sure that the materials produced by the concrete and gypsum products plant or certain items manufactured by the machine shop meet strength standards continuously, on the other hand, to enable the industries to compete successfully on the domestic market.

TABLE 1. INDUSTRIAL ESTATE PROJECT: ESTIMATED COSTS
(United States dollars)

Industry	Investment cost				Foreign exchange component
	Machinery	Building and land	Working capital	Total	
Bag and burlap ^a	261,565	84,880	121,350	467,595	299,350
Cigarette	166,728	93,600	178,960	439,288	296,200
Concrete and gypsum products	75,211	27,640	14,591	117,442	89,688
Metal-working and bicycle	69,118	41,200	59,569	169,887	130,680
Oil-seed processing	143,435	26,420	153,631	323,486	162,941
Shoe	69,403	48,720	78,466	196,594	123,633
Tanning	112,223	109,920	143,200	365,343	221,173
Wood-working and marble	129,944	72,247	42,200	244,391	160,359
TOTAL, above industries	1,027,432	504,627	791,967	2,324,026	1,484,024
Estate corporation	139,872	174,035	18,150	333,377	198,247
TOTAL	1,167,304	678,662	810,117	2,657,403	1,682,271
Suggested allowance for expansion					317,729
Suggested request for foreign loan financing					2,000,000

^a Assuming use of locally grown kenaf.

TABLE 2. INDUSTRIAL ESTATE PROJECT: VALUE OF PRODUCTS, PROFIT, EMPLOYMENT AND AREA

Industry	Annual value of products (United States dollars)	Possible annual profit	Employment (number of persons)	Area		
				Plant and office (square metres)	Storage space [*]	Land (hectares)
Bag and burlap	302,400	83,299	141	2,025	100	1.3
Cigarette	361,000	68,015	117	1,635	900	1.0
Concrete and gypsum products	117,000	29,134	46	560	120	1.1
Metal-working and bicycle	170,345	45,875	63	1,000	—	1.0
Oil-seed processing	620,900	60,097	111	580	—	1.0
Shoe	412,000	66,035	217	1,200	—	0.6
Tanning	442,450	70,919	261	2,700	—	1.5
Wood-working and marble	234,324	74,720	122	1,260	610	2.7
TOTAL, above industries	2,661,219	498,094	1,078	10,960	1,730	10.2
Estate corporation	58,088 ^b	1,468	118 ^c	—	—	41.3 ^d
TOTAL	2,719,307	499,562	1,196			51.6

^{*} Warehouses, sheds or open storage space.

^b Value of rentals, printing, agricultural products, meals and transport.

^c Including eight foreign experts and three foreign secretaries.

^d Including estate grounds, 4.4; housing for foreign personnel, 2.9; sewage disposal, 34.0.

Each enterprise joining the estate would be required to subscribe to shares in the corporation, in an amount at least equal to a fixed percentage of its total assets — land, buildings, machinery, working capital and so forth — or in accordance with some other equitable formula to be worked out by the original shareholders.

The corporation would have a Board of Directors elected for a one-year term. Each enterprise in the estate would have the right to designate one director, who need not be a shareholder in the corporation.

The corporation would be financed by loans from national, foreign or international lending institutions. The cost of utilities

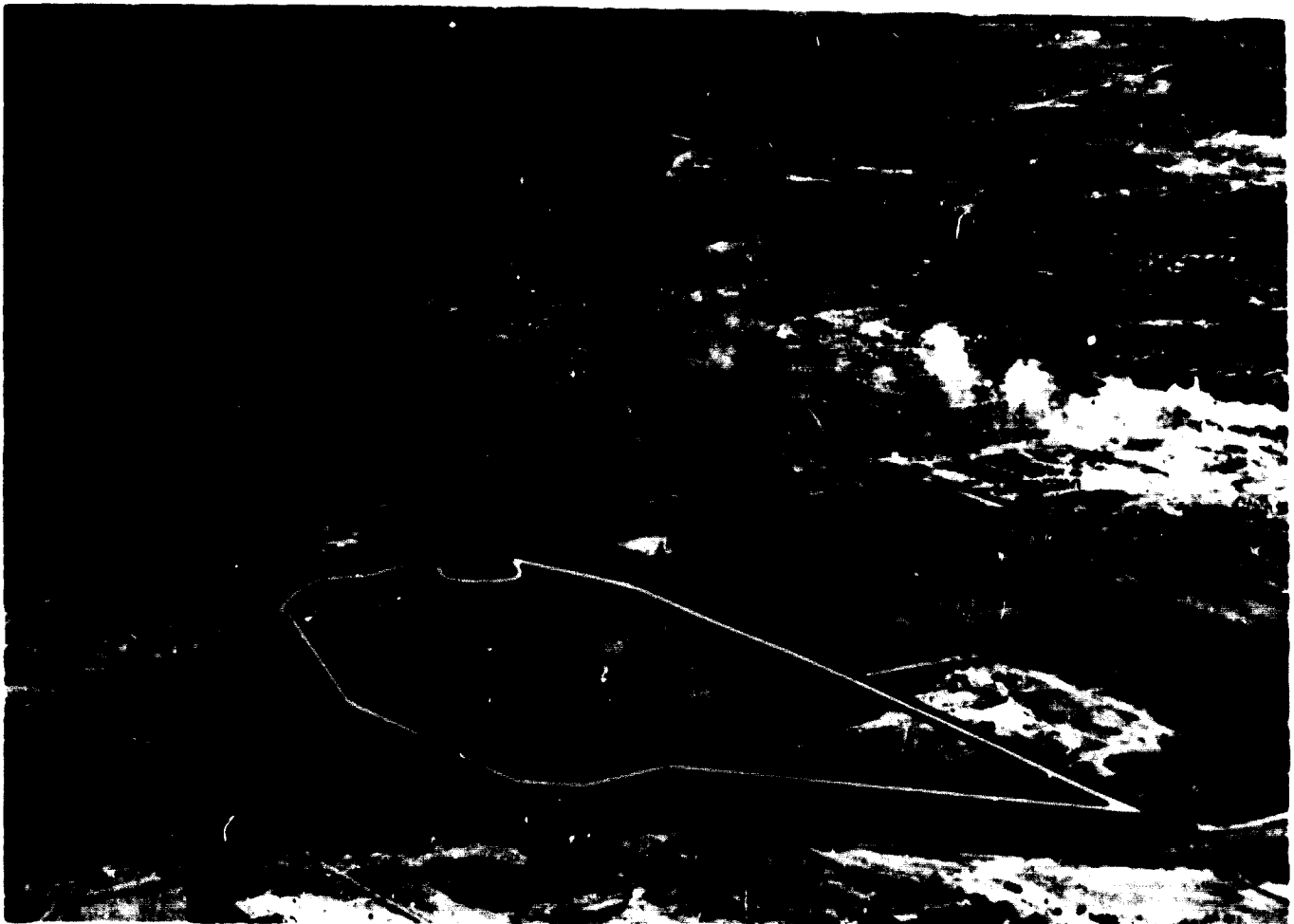
with handicraft products and imports and on export markets with foreign goods, by offering distinct advantages not only as regards price, but also quality and finish. The standards should, of course, be adapted to the economic conditions of the country. The team emphasized that in the case of the industries on the proposed estate, it was far more important that products be uniform in quality than that they be high in quality. It recommended that ICA technical assistance support include laboratory and testing apparatus for controlling processes and products. It also proposed that a distinctive brand name or trade-mark be adopted for products that meet the standards; promotion would be made by cooperative advertising.

would be met by an annual service charge, estimated by the team at approximately six-tenths of one per cent of gross sales of the occupants.

Among the first responsibilities of the corporation would be that of seeking on a contractual basis a managerial and engineering expert group, financed by technical assistance grants, to assume, under broad directives of the Board of Directors, the construction, operation and further planning responsibilities of the estate corporation for a minimum period of three years.

A small and specialized group would be required during the construction phase, which might already provide some training to local workers. During the next stage, which may be defined as an operating and training one, eight foreign experts would be required: manager and team head; productivity engineer; industrial engineer (metal and wood); organic chemist; construction engineer; textile specialist; shoe specialist; accountant. Three foreign secretaries would also be needed.

The local staff of the estate would include 107 persons, from a deputy estate manager down to canteen workers and gardeners.

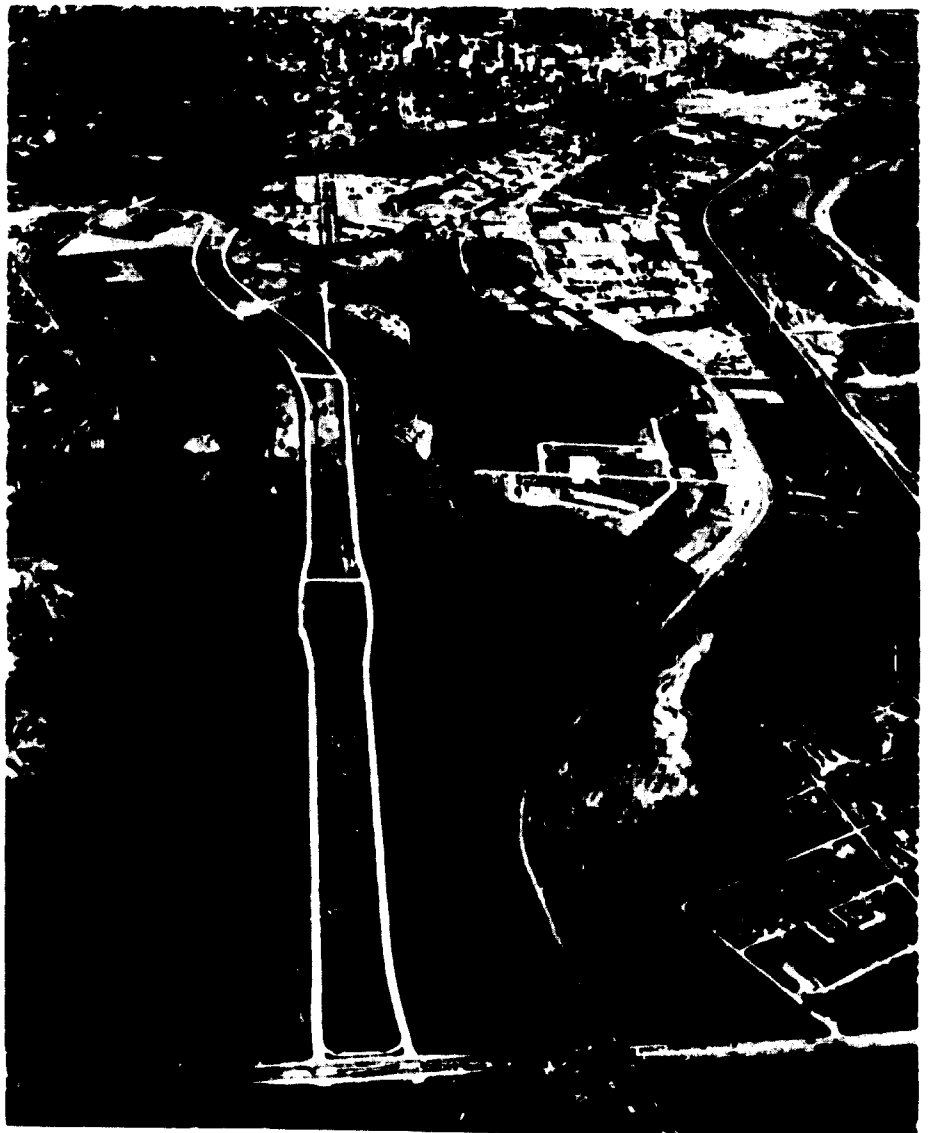
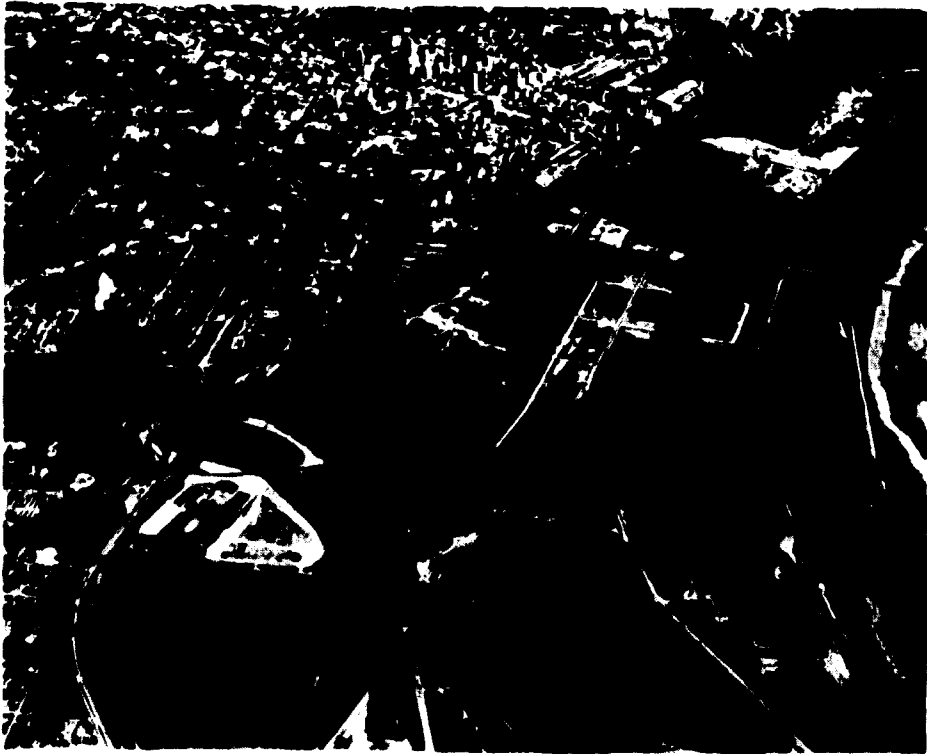


Brookhollow and Empire Central Industrial Districts, Dallas, Texas

Top: View taken in 1954, showing area of districts before development

Bottom: View taken in April 1960. Downtown Dallas is in the background; adjacent to it is the Trinity Industrial District

(Courtesy Brookhollow Industrial District, Windsor Properties, Inc., Dallas, Texas)





Trinity Industrial District, Dallas, Texas

Opposite page: Top: View taken in 1947, showing area of district before development

Bottom: View taken in October 1957

Above: View taken early in 1960. Downtown Dallas is in the background

(Courtesy Trinity Industrial District, Industrial Properties Corporation, Dallas, Texas)



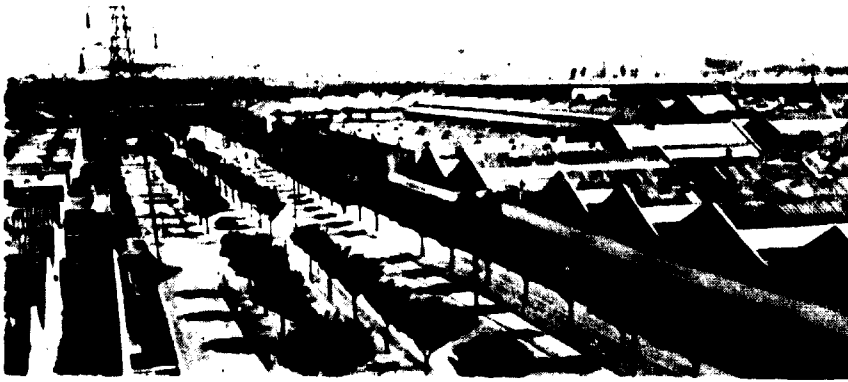
View of part of Team Valley Trading Estate
at Gateshead, England

(Courtesy Industrial Estates Management Corporation
for England)

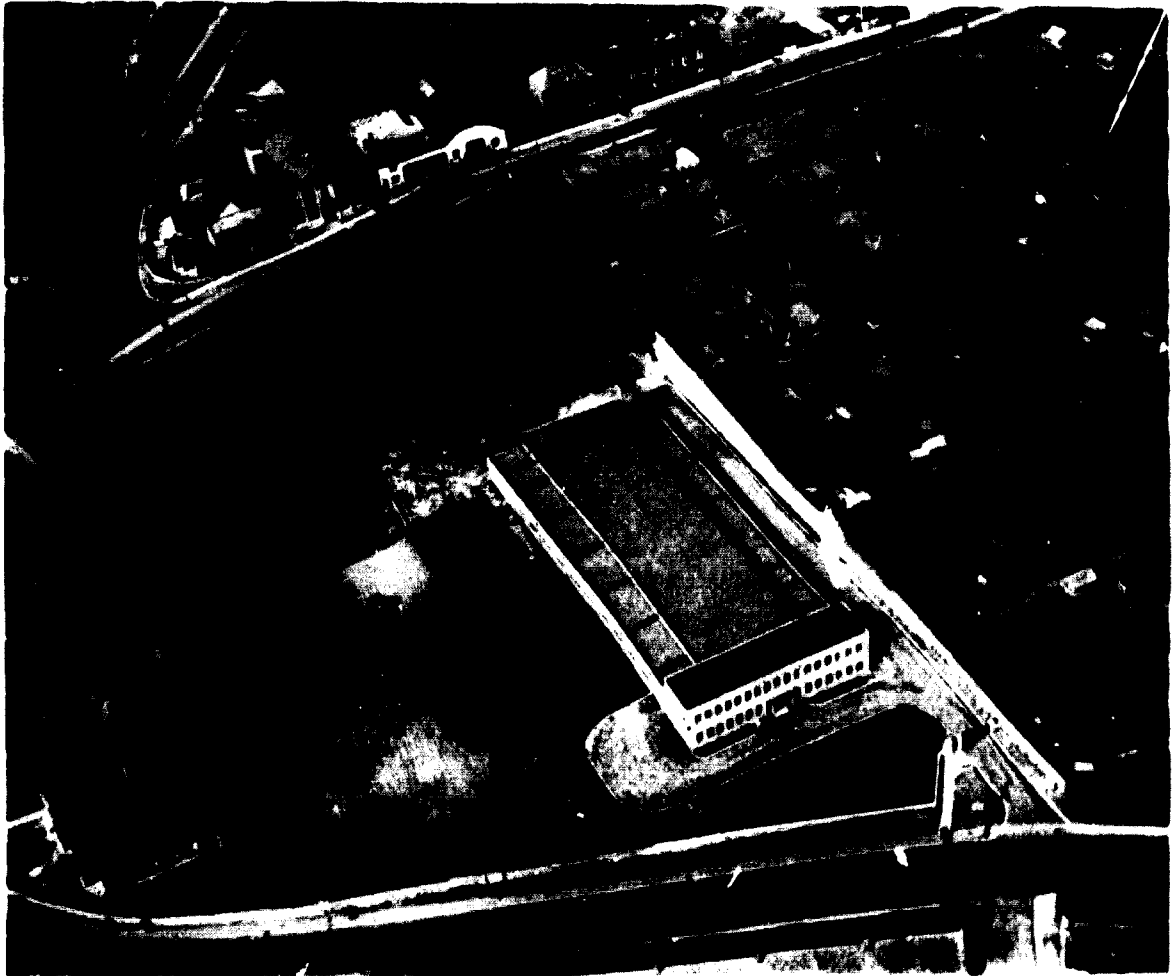


View of Bridgend Industrial Estate, Wales,
July 1959

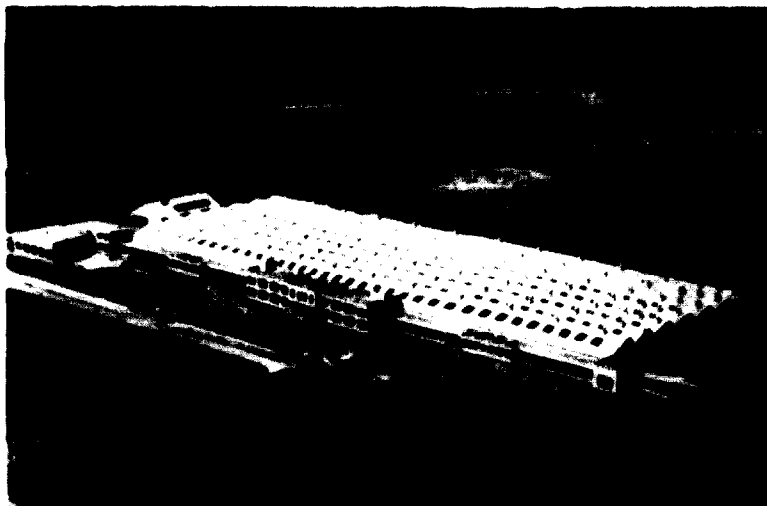
(Courtesy Industrial Estates Management Corporation
for Wales)



View of Hillington Industrial Estate, Scotland
(Courtesy Industrial Estates Management Corporation for Scotland)



Individual factory site at Chester-le-Street, England
(Courtesy Industrial Estates Management Corporation for England)



Individual factory site at Wishaw, Scotland
(Courtesy Industrial Estates Management Corporation for Scotland)



Industrial zone of Marghera, Venice
Top: Partial view of area zoned for medium-sized and small-scale industries
Bottom: Partial view of area zoned for large industries

(Courtesy: Ente della Zona Industriale di Porto Marghera, Venice)





Views of the Gundy Industrial Estate, Madras

(Courtesy Gundy Industrial Estate, Madras)



Common service facilities on the Gundy Industrial Estate



Forge shop



Tool room

(Courtesy Gundy Industrial Estate, Madras)



Two views of the Madurai Industrial Colony, Madras State
(Courtesy Ministry for Industry and Labour, Madras)

Industrial subdivisions in Puerto Rico



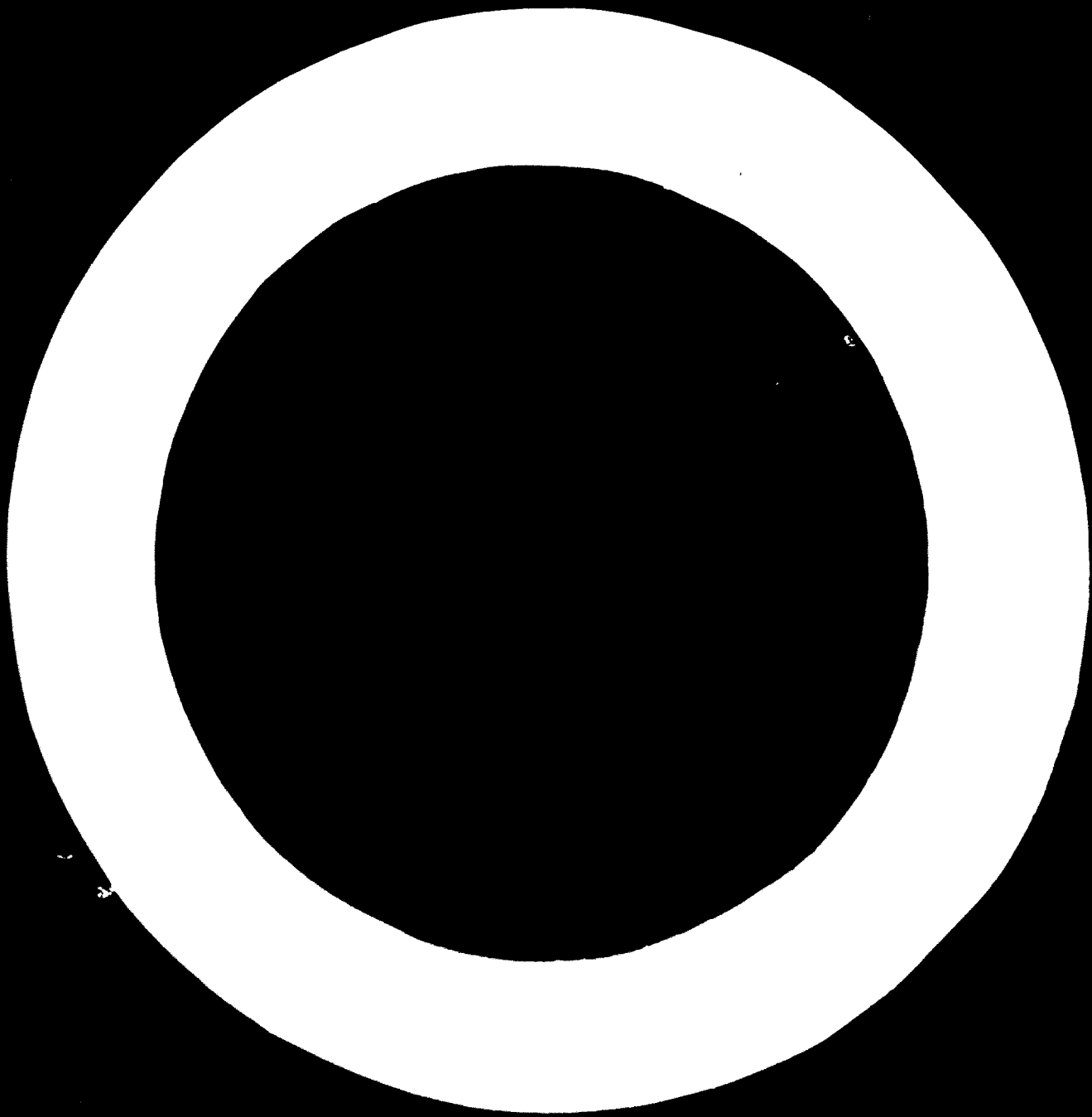
Hato Rey Industrial Subdivision at Rio Piedras



Caguas North Industrial Subdivision at Caguas

(Courtesy Puerto Rico Industrial Development Company)





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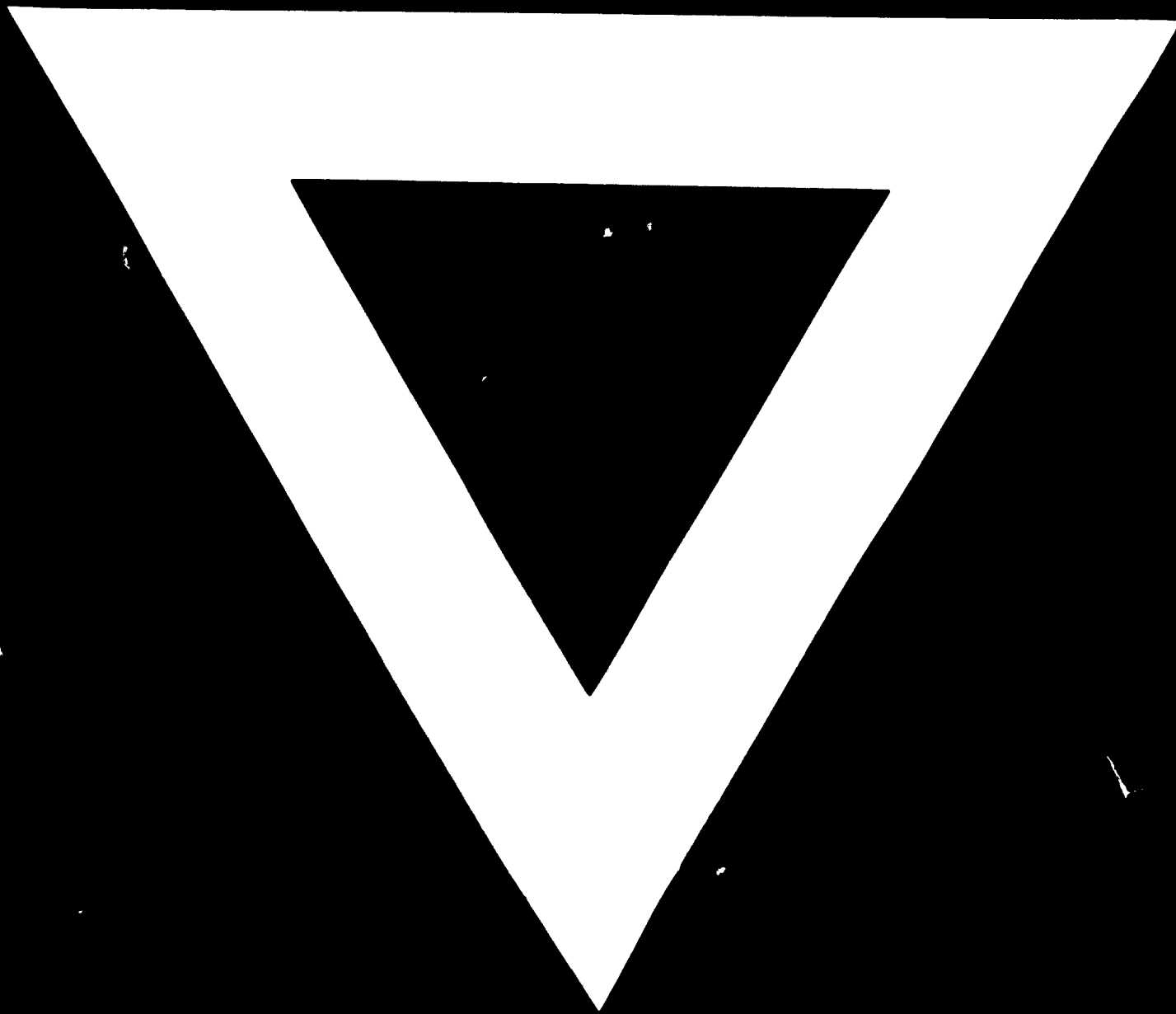
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