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THE EFFECTIVENESS OF INDUSTRIAL ESTATES IN DEVELOPING COUNTRIES

PREPARED BY THE

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INTRODUCTION

The Lima Declaration and Plan of Action on Industrial Development and Co-operation, which was adopted at the Second General Conference of UNIDO in March 1975, re-asserted that industry was a dynamic instrument essential to the rapid economic and social growth of the developing countries, and called for a 25 per cent share for the developing countries in total world industrial production by the year 2000 (their present level is 7 per cent).

Recalling General Assembly resolutions 3201 (S-VI) and 3202 (S-VI) on the Declaration and Programme of Action on the Establishment of a New International Economic Order, the Lima Plan of Action noted that small-, medium-scale and rural industries should be encouraged and supported since they fulfilled the basic needs of the population and contributed to the integration of different sectors of the economy.

Industrial estates have long been regarded as being among the best and most economical tools for promoting the development of manufacturing industries, especially in the medium- and small-scale sector, in countries in the process of industrialization. Their use has also been extended to promoting the economic development of rural and backward regions.

Over the years, a number of studies have been undertaken and seminars organized by UNIDO and its predecessor on various aspects of industrial estates and the closely-related questions of small-scale industries. Most of these have been devoted to describing national experiences and projects, much of the emphasis being on the mechanics of estate design, planning, construction, management and operation. Little has appeared by way of critical appraisal, a notable exception being a paper prepared by A. Molinari and published in the proceedings of the United Nations Regional Seminar on Industrial Estates in Asia and the Far East.[1/] The Swedish International Development Authority (SIDA) has also been active in this field in recent years.

1/ United Nations: "Some controversial questions concerning industrial estates", A. Molinari, pp. 415-443, Industrial Estates in Asia and the Far East, New York, 1962.

In November 1975, UNIDO and SIDA initiated a joint programme to evaluate the effectiveness of industrial estates as an instrument of industrial development. When the International Centre for Industrial Studies of UNIDO was established, some weeks later, it adopted this project as part of its work programme and brought it more closely in line with the Lima Plan of Action by adopting, as its main objective, the development of

> "a concept and project design for the establishment of industrial estates based as much as possible on the use of local resources and related to local social, economic and cultural factors."

Altogether, some 12 country studies (all but one of which were financed by SIDA) were conducted, in two separate phases. In phase I, six countries were visited: Cuba, Ecuador, Iran, Pakistan, Senegal and Turkey. In July 1976, after reviewing the results of this phase, it was decided to proceed with phase II, in the interest of more representative coverage, and studies were carried out in Argentina, Malaysia, Nepal, Nigeria, Sri Lanka and Sudan. The principal questions underlying the studies were:

(a) If developing countries are to be assisted to industrialize, is the promotion of industrial estates and, by implication, the provision of public funds, national or international, to help them, a valid and economical means of doing so?

(b) If the use of industrial estates as a promotional tool is discarded, what alternatives are there by which the process of industrialization can be accelerated?

(c) What are the conditions necessary for the success of an industrial estates programme or an individual estate, and what factors must be taken into account?

(d) What are the economic and social effects of an industrial estate on those working in it and on the community in which it is located? Does an industrial estate, of itself, have special effects other than those resulting from concentration of industry in a location without a formal structure of an industrial estate?

(e) What role can industrial estates play in the least developed countries - given the special conditions obtaining there?

The consultants were also asked to consider and calculate the return on investment in an industrial estate, which might be measured in terms of revenues to capital investment, separating total investment into investment in infrastructure, factory premises and technical services. In the final analysis, it proved impossible to answer this question. Only in very few countries, and for a limited number of estates, was it possible to obtain separate figures relating to the various elements, and even then return on investment was difficult to define. Industrial estates financed from public funds are normally set up to achieve objectives wider than the simple profitable investment of government or municipal money. Thus, the direct return on public money invested in, or loaned to an estate may be too narrow a concept. Since the primary objective of such investment is some form of national or local development, return might be better measured in terms of increased national or local industrial output, employment generated, and specific human or material resources used, all of which is directly attributable to the existence of the industrial estate or programme.

The actual studies were carried out by carefully selected consultants, in keeping with the Guidelines presented in Annex III. Their findings were subsequently presented, in two consolidated reports covering the individual phases, to an "Expert Group Meeting on Evaluation of the Effectiveness of Industrial Estates in Developing Countries" held at Vienna, 13-16 December 1976.

The material collected in the course of the studies were supplemented by an analysis of the performance of selected industrial estates in Mysore.[2/] This study was very critical of many aspects of the industrial estates programme in India. However, the author, like Molinari, does not suggest that industrial estates are ineffective under all conditions. Both authors cite successful examples, yet challenge the indiscriminate establishment of estates without proper preliminary studies. This point of view is upheld by UNDP and UNIDO as well as the World Bank, which always insists on adequate feasibility studies being made before considering the disbursement of financial aid.

2/ N. Somasekhara: The Efficacy of Industrial Estates in India; Delhi, Vikas Publishing House Private Ltd., 1975.

Other supplementary meterial included an extract from a report on selected industrial estates in India prepared on behalf of the Overseas Development Institute of the United Kingdom; and data on India's industrial estates programme furnished by the former Development Commissioner, Small-scale Industries, Ministry of Industrial Development of that country. Further information provided in the course of the Meeting touched upon industrial estates in Greece and rural industrialisation in China. A full list of the documents provided at the meeting is reproduced in Annex II, and the list of participants in Annex I.

The present document summarizes the proceedings of the meeting, highlights some of the most salient issues, and indicates scope for future action. A formal publication, in which the studies will be reproduced in their entirety, is in the course of preparation by the International Centre for Industrial Studies and is scheduled for issuance later in 1977.

Chapter I

THE ROLE OF INDUSTRIAL ESTATES

General remarks

The reasons for the establishment or promotion of industrial estates put forward by the Governments of the countries visited were broadly similar, and included some or all of the following:

(a) To advance national economic development by accelerating industrial development;

(b) To create employment opportunities and, in many cases, to offset periodic irregularities in agricultural employment;

(c) To decentralize industry and spread the benefits of industrialization more evenly in the country, thus diversifying and increasing economic activities in rural and backward areas;

(d) To promote and raise productivity in small-scale industries;

(e) To promote, particularly in India, specific industrial sectors and groups of skilled and qualified persons;

(f) To relocate industries, especially small-scale and artisan industries, away from congested urban areas.

As described in the Guidelines, industrial estates fall into three classes:

(a) Tracts of land with suitable infrastructure, of which plots are sold or allocated to entrepreneurs and on which they build their own factories;

(b) Land with infrastructure, divided into plots which are either offered for sale or rental to entrepreneurs to construct their own factories, or on which standard factories are constructed by the estate authority and offered for sale or rental;

(c) Land divided into plots on which standard factories are constructed for rental and where services are provided.

The first two classes of estate are sometimes categorized as "industrial areas" or "industrial zones" (in Iran, "industrial parks"). These types predominated in most of the countries visited, and in many cases might be expected to have the same effect on industrialization and economic development as the third type, which is generally considered the archetypical industrial estate.

The first question posed in this study, namely, if industrial estates constituted a valid and economical means of using public funds for the purpose of accelerating industrial development, defined the central problem to be examined. The question relates to those estates sponsored and financed directly or indirectly from public moneys, national or international, and used as instruments to promote private industry in accordance with national economic and industrial development plans and objectives. The emphasis on private industry is important, because the private industrialist in an economy which does not have total central planning and direction may choose whether he sets up his factory on, or transfers to, an industrial estate, or takes some other course of action. Thus the success of an industrial estate or programme ultimately depends on the extent to which the private industrialist sees it as offering him better opportunities for development for a given outlay than any other alternative, such as buying a piece of land and building his own factory on it, or, if he is already established, simply staying where he is. For this reason, industrial zones or their equivalents in centrally planned socialist economies such as China and Cuba have been excluded from the main body of the study, although they have features of interest, and the Cuban experience is briefly discussed in Chapter III.

The same applies to privately developed, profit-making estates, which are mentioned in the report on Argentina. These estates, which lack all the special advantages, concessions and benefits usually associated with government-sponsored estates, must be made attractive to industrialists, who will judge them solely on commercial criteria. In any case, public moneys are not at risk and the validity of the investment is solely a matter for the sponsors of the estates.

The third type of estate, which represents an alternative to the publicly financed and developed one, is set up by a co-operative of manufacturers, or by a manufacturers' association. This type is commonly found in Turkey,

where it is being developed on a very large scale. Since government aid in the form of loans on non-commercial terms is provided to these estates, they are discussed in the present report, even though the main element of risk is borne by the manufacturers.

Types of industrial estates

As a convenient method of classification, estatss may be divided by virtue of their objectives, in the following manner:

Promotion To promote new industry in areas where it already exists but where it still does not provide sufficient employment opportunities or economic development;

Development To further the dsvelopment of backward areas, through the introduction of industry from without and the establishment of new industries and entrepreneurs from within;

Relocation To relocate existing enterprises that are prevented from developing bscause of their locations - generally in congested towns and cities - thereby enabling them to expand and develop while improving bóth working conditions within the relocated plants, and environmental conditions in the areas vacated.

Sponsorship may be: governmental (national or provincial); municipal; co-operative; association of industrialists; chamber of industry or commerce; private profit-making company; or a combination of sponsors.

In India, eight types of estate are recognized:

Conventional general estates, containing firms producing a variety of products, oftsn with no linkages or associations other than those of proximity;

Ancillary estates, established for, or sometimes by, a single large-scale manufacturer for whom the small enterprises produce components and carry out other operations as sub-contractors, although they may seek other outlets for their products;

Single trade estates, consisting of enterprises belonging to a single trade or branch of industry producing similar or competing products;

Functional estates, consisting of enterprises producing related products and sub-contracting to one another, often including both component manufacture and end-assembly operations in small-scale units;

Technocrats estates, set up exclusively for technically qualified personnel, who lack capital, but enjoy special assistance and a package of services to enable them to launch their own businesses;

Craftsmen's estates, designed on a small and simple scale to help skilled artisans to become fully fledged entrepreneurs with a much larger and more sophisticated range of operations;

Co-operative estates, whose members form a co-operative society through which they establish and manage the estate, with Government assistance;

Commercial estates, designed primarily for service operations, such as motor vehicle servicing or wholesale activities and trading.

Normally, service trades are excluded from industrial estates in India, but some small, specialized estates are being established in response to demand. Service establishments are by no means excluded in all countries: in Turkey, they form an important, if not the main, element in many estates. The wide variety in India reflects both the size and maturity of the estates programme, its autonomous administration by state authorities, and the policy of providing special assistance to selected groups of entrepreneurs and other persons.

Chapter II

THE CONTRIBUTION OF INDUSTRIAL ESTATES TO ECONOMIC AND INDUSTRIAL DEVELOPMENT

The conditions under which the field studies were conducted did not permit the collection and scientific analysis of data, which might have produced some more definitive answers to the questions raised. There are serious gaps in the evidence, some of which is necessarily subjective for want of reliable or comparable statistical data. An effective assessment of the value of industrial estates as a means of accelerating industrial development has been hindered by the absence of control groups outside the estates.

Since some countries had very small industrial estates programmes, with a negligible effect on national development, it was found necessary to examine certain programmes (sometimes only a single small estate) in terms of their effects on regions or localities, or even on the development of a small group of entrepreneurs (as in the case of Senegal). In the Sudan, industrial estates do not exist, although a number of studies have been made in the last few years indicating that the country could with advantage support at least two or three estates, if properly located (see Chapter IV).

Cuba is a special case. It is a centrally planned and controlled economy in which the rate of industrialization, the selection of industries to be developed, the locations of the industrial zones and related questions are part of an over-all socio-economic plan. The success or failure of industrialization is thus in no way dependent on the promotional or developmental value of grouping industries together, except to the extent that economies can be effected in such matters as infrastructure construction and the provision of centralized services. As interesting or educational as it may be, the Cuban experience is largely inapplicable within the context of this document since all the other country studies relate to a mainly market-oriented economic system.

Summarized below are the industrial estate programmes of the following countries: Argentina; Ecuador; India; Iran; Kenya; Malaysia; Nepal; Nigeria; Pakistan; Senegal; Sri Lanka; and Turkey.[3/]

Cursory analysis of the country summaries would indicate that, viewed quantitatively, industrial estates make a major contribution to industrialization or to employment in only one country: Malaysia. Whereas India has a very large industrial estates programme in absolute terms, it represents only a very small percentage of the total output and employment in the small-scale industry sector. In the summaries, an endeavour is made to discern whether (a) through the promotion of specially important industries or the development of industry in certain backward regions, industrial estates have made important qualitative contributions not ascertainable from global or national statistics; (b) firms or industrial estates grow faster or are more productive than equivalent enterprises in the same branches of industry outside; and (c) a case can be made for the investment of public money in promoting industrial estates for private industry.

Argentina

With the exception of India, which has a large modern industry sector as well as an extensive small-scale and artisan industry sector of a less advanced and more traditional type, Argentina was by far the most industrially sophisticated of the countries visited. Argentina possesses a substantial steel industry; an automotive industry capable of meeting the country's passenger car and goods vehicle requirements; an important machine-tool industry; and extensive consumer goods industries of all types. The importance of the metallurgical, machinery and transport industries may be gauged from the value of exports which amounted to over 3.8 billion pesos ($760,257,000) in 1973.[4/] In 1969, the latest year for which figures are readily available, production of the manufacturing industries had already

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3/ Unless otherwise stated, the facts and figures cited throughout the report have been taken from the country evaluation reports and the background documents listed in Annex II.

4/ In September 1976, the official rate was $1 = 250 new pesos, a very sharp devaluation, as a result of which translation of the 1973 exports into dollars would be cut to 1/50th of the sum given above.

amounted to 2,228 billion old pesos (some $6.4 billion).[5/] According to official sources, more than 1,000 industrial projects worth $1 billion are currently at various stages of planning or implementation.

Owing to the brevity of the visit to Argentina, the report fails to provide a complete picture of industrial estates in that country. However, this shortcoming may be less crucial than it might have been in other countries in view of the Federal Government's declared policy to use industrial estates as a means of attracting industry away from the over-populated area of Greater Buenos Aires - a conurbation of over 8 million people or more than one-third of the country's population. It is also Government policy to use industrial estates in order to provide employment in underpopulated provinces, thus drawing migrant labour from Buenos Aires and elsewhere. The incentives and concessions offered to industry, including the setting up of estates by provincial governments using Federal subsidies, are discussed in Chapter III. The provinces are classified into three categories. The first category (Class 0) applies to prosperous provinces where Federal aid and concessions are reduced to a minimum; the second category (Class 1) to the most underdeveloped regions where maximum incentives must be offered to induce firms to locate there; and the third category (Class 2) to intermediate regions.

The estates are also classified as: (a) official, in which land, infrastructure and (sometimes) buildings are financed entirely from public funds; (b) mixed, in which land and infrastructure are financed by loans to private industry, repayable over specified periods; and (c) private, which are financed entirely by private capital. Objectives are classified according to the criteria outlined in Chapter I.

Programmes were studied in the following provinces:

Santa Fé (Class 0). Programme of seven mixed estates, mainly promotional/relocational, associated with industry in small- and middle-sized towns and cities (except Rosario, which has about 900,000 inhabitants).

5/ New pesos were introduced in January 1970 at the rate of $1 = 3.5, i.e. 1/100th of the old rate. As can be seen, the new peso has fallen in relative value almost to that of the old peso, thus making the translation of Argentine financial data (including wages and salaries) into dollars very doubtful and comparison between periods almost impossible.

Chubut (Class 1). Estates in four towns, primarily developmental and designed to attract immigrants to a sparsely populated province. The Trelew estate was studied in depth.

Neuquen (Class 1). One estate near the city of Neuquen, primarily developmental and to provide employment opportunities to offset cyclical agricultural unemployment.

Buenos Aires (Class 0). Of the number of estates in Buenos Aires Province, only two private industrial areas, both relocational, were studied. One, still under construction, is to accommodate industry obliged to move outside the 60-kilometre zone encompassing the capital.

Santa Fé

The programme was started by the Provincial Government in 1971 but has since been considerably delayed by a number of factors, including several changes in Government and policy. Two estates only have firms in production, the others being at various stages of construction. In some cases, infrastructure is hardly developed. Upon completion of the programme, some 600 plants will have been established on the estates, representing an investment of 15 billion new pesos and providing 18,000 jobs. However, only a fraction of these will be new jobs since, in most cases, employees will be transferred with their firms. Investment amounts to 833,333 new pesos per job ($3,333), but would be much higher if only new jobs were taken into account. Unemployment is rare or non-existent in the smaller towns; and skilled labour is at a premium. Increased labour requirements will have to be met by migration from other provinces or from the surrounding agricultural areas. The Provincial Government will eventually recover its investment although, at the present rate of site occupancy, this will take several years, whereafter the only continuing commitment will be the provision of technical assistance.

Chubut

Chubut Province lies in Patagonia, 1,400 kilometres south of Buenos Aires at its nearest point. The prinoipal resource is oil; the population density is about 1.5 persons per square kilometre. The estate at Trelew,

a town of 25,000 inhabitants, which has doubled its population in two years, has effectively attracted industry from Buenos Aires. The plants are mainly medium sized with a high proportion of capital-intensive textile plants. Twenty-four factories, employing about 3,000 (mainly women), are already in operation, and a further 42 are in planning or under construction. Once full, the estate will hold some 116 firms of varying sizes, including a considerable number of small workshops - with land for expansion and a total labour force of around 13,500. Again, since unemployment is almost non-existent, additional labour will have to be supplied by migration. Land is sold at heavily subsidized prices (240,000 new pesos per hectare) and numerous concessions are offered to firms prepared to settle on the estate, although firms have to construct their own buildings.

Neuquen

The objectives of the Provincial Government of Neuquen, an oil-producing province bordering on Chile and the Andes, are broadly the same as those of the Chubut Government, but with added emphasis on diversification of economic activities and job opportunities. Development aims are also tied to those of the development of the city itself. The estate has not yet advanced as far as that at Trelew, with three or four medium-sized firms in operation employing about 290 people. The effect on city development is not likely to be as spectacular as at Trelew. Neuquen is a much larger town (a provincial capital with over 60,000 inhabitants) with a more diverse economy; however, the province has very little manufacturing industry. Occupancy of the estate will, therefore, represent a major increase in this sector as well as provide an outlet for local raw materials.

Buenos Aires

Industrial congestion in both the Federal capital and the Greater Buenos Aires conurbation which contains some 8.5 million inhabitants has reached the point where the authorities have been obliged to pass legislation forbidding the establishment of new or the expansion of existing factories within a 60-kilometre radius of the city centre. As a consequence, affected industries wishing to locate plants at points accessible to the urban markets and the seaport are obliged to look for land outside the 60-kilometre limit, and this situation has been exploited by private interests.

Two industrial areas were visited. The first - the Oks industrial area for medium- and large-scale industry - was set up on the Pan-American Highway about 25 kilometres from the city centre before the new legislation was introduced. Twenty-six firms have built, or are building, factories on this estate and, at present, 1,500 persons are said to be employed. Only land with infrastructural services has been provided, at a price of 25 million new pesos per hectare (2,500 new pesos per square metre).6/ Sales revenue has been used to purchase 900 hectares of land, beyond the 60-kilometre limit, to build the infrastructure of the new Pilar industrial area. The area is still under development; no factory buildings have yet been erected, but 26 plots have been sold with a final occupancy figure of 200 enterprises envisaged. Some 12,500 people will be employed (for the most part in new jobs). Some labour will be drawn from the nearer suburbs of Buenos Aires, others from towns in the vicinity, thus providing industrial employment in an area with little prior industrial history.

The industrial estates and areas in the provinces discussed above have been set up, or are being set up, for specific purposes, with every indication of attaining their sponsors' objectives. In the case of the estates in Santa Fé, Government outlay, which was considerable, will eventually be recovered and, given the probability of further inflation, may even prove profitable. In the case of the Oks and Pilar industrial areas, the promoter appears likely to obtain a very substantial return on his investment, while the firms that have acquired land in these areas will have made their decisions on a strictly business basis. The Trelew estate would appear to justify the considerable direct investment made in it as well as the indirect cost of the concessions granted to firms which otherwise would certainly not have been attracted. The growth of the city and the increased revenue to the province accruing directly from the inflow of migrants and others associated with the estate may be considered a return upon investment, albeit unquantifiable.

6/ As compared with the subsidized cost of land on the Trelew estate: 240,000 new pesos per hectare. It was stated by the estate manager that the cost per square metre of covered space (with services) was 55,000 new pesos: 2,500 pesos per square metre thus represents less than 5 per cent of total factory costs.

Ecuador

Unlike Argentina, Ecuador is a country at the beginning of its industrial development. Until recently, it had one of the lowest per capita incomes in Latin America and about one-third of its 7 million people engage in economic activity outside the modern or commercial sector. Ecuador has been a traditional exporter of agricultural products and has benefited from the increase in oil prices that took place at the end of 1973, although to a lesser degree than its northern neighbours, Colombia and Venezuela. Although oil revenue has since fluctuated, a great deal of money has been generated, much of which is beginning to find its way into the establishment of manufacturing industries. This trend is being stimulated by Ecuador's membership in the Andean Common Market, which has allocated the country a quota of manufactured goods and granted it favoured treatment as one of its lesser developed members.

An industrial estate programme was first conceived by the Government in 1963, and a United Nations mission advised on the establishment of estates in eight towns and cities. Development corporations were set up in four of them - Ambato, Cuenca, Ibarra and Tulcan - and estate projects were launched in 1963-1964. These towns are all in the Cordillera of the Andes and are, with the exception of Cuenca, quite small. The primary objective of the Government in locating the first estates in these towns was to upgrade existing artisan workshops and transform them into small industrial enterprises by gathering them into co-operatives and providing standard factory space and centralized services. A second objective was to promote industrial development in less developed areas and to discourage the establishment of new industries in the major cities of Quito and Guayaquil. Failure to achieve these objectives led to a change of policy, and estate sites were offered to firms of all sizes on condition that they erect their own buildings. This policy, however, produced no positive results, and around 1968 the original four projects were left in abeyance. Instead, the Government opted for using industrial areas in an attempt to combat growing congestion, to deal with critical problems of urban unemployment, and to raise living standards in the larger cities, notably Guayaquil. This programme was no more successful than the others and at the time of the study mission, in late 1975, only the estates at Tulcan and Ibarra, each consisting of a mere three standard buildings, were occupied. At Tulcan,

one company with two separate businesses occupies all the buildings and employs 200 persons. The estates lack all amenities and the roads are unmetalled. This notwithstanding, certain private entrepreneurs have taken advantage of the Government's offer of low-cost land and buildings, even without any other special incentives. The company at Tulcan, for example, which has significant resources, would probably have established itself there anyhow since the proprietors wished to be near the Colombian border.

The total cost to the Government up to that time was $1,576,422 in land and infrastructure. Of this, $1,461,538 had been invested at Cuenca, the most distant and ambitious of the projects, which had also received substantial aid from the United Nations and the United States Agency for International Development (AID). The project in Cuenca - which is now linked to the rest of the country by the Pan-American Highway - has recently been revived and some firms may possibly establish themselves on the estate despite the claim of major firms in the city that they had set up factories elsewhere at a lower cost. The Ambato project is reported to be receiving a renewal of interest.

Government efforts to sponsor and set up an estate at Guayaquil, where urban congestion makes relocation of the numerous small industries essential, had met with no response up to the end of 1975: local industrialists, although eager for new premises, were not willing to finance the necessary preliminary studies. On the other hand, the greatly increased trade, induced by the oil boom and the manufacturing quotas allocated to Ecuador by the Andean Group, combined with a local law forbidding the establishment of factories within five kilometres of the Guayaquil city boundary, have aroused local commercial interest in finding alternative sites on prepared land. As a result, three private initiatives have been launched, the most advanced of which has completed an industrial area of some 40 plots, the minimum plot size being 10,000 square metres, at a cost of $1 million borrowed from abroad.

Some interesting artisan-initiated projects are currently under way. A woodworkers' co-operative is establishing an industrial complex near Quito with the aid of the Banco Nacional de Fomento. This will include central workshop facilities and dwellings. A second project is being undertaken by the Peguiche Indians of Otovalo, a small town in the north of the country. These exceptionally gifted and commercially dynamic people are setting up an estate

with centralized dyeing and spinning facilities to produce traditional textile and other products. The estate will also act as an exhibition and cultural centre to attract tourists.

From the above, it can be seen that the officially sponsored and financed industrial estates programme has achieved little or nothing over a period of more than 12 years, despite substantial expenditure, especially at Cuenca. Whereas private initiatives seem to be developing effectively and artisan estates are coming into being, the Government's programme cannot be said to have achieved its objectives.

India

The industrial estate programme oriented towards small- and medium-scale industry in India is so vast in relation to other countries studied, with the exception of Malaysia, that it is impossible to treat it in any depth here. Discussion is thus confined to the degree to which industrial estates have contributed to industrialization and to other related objectives of the Government.

India's industrial estates programme must be seen in the context of the Government's general industrial policy, which is based on four major considerations:

(a) Achievement of economic independence;

(b) Correction of the imbalance between the primary and other sectors;

(c) Creation of employment opportunities to combat massive unemployment and underemployment;

(d) Reduced concentration of economic power and diffusion of prosperity.

The creation of a strong small-scale industry sector is seen as a major contribution towards achieving these objectives. Having enjoyed strong financial and administrative support since independence, small-scale industry now plays an important role in the economy, the number of registered small units exceeding half a million with an output in excess of 57,000 million rupees (approximately $64.7 million). Data for 1972 reveal that the production of the small-scale sector, in 16 industry groups comprising 160,000

small-scale units, amounted to 35 per cent of total industrial output from registered enterprises in the country. Eighty-eight per cent of these units (five per cent located on industrial estates (1972)) had been established since the beginning of the First Plan in 1951. (See data below.)

Number of units	139,577
Persons employed	1,654,317
Investment - fixed assets	Rs. 10.6 billion ($1,199 billion)
Investment/employee	Rs. 6,388 ($725)
Gross output	Rs. 26 billion ($2,954 billion)
Gross output/employee	Rs. 15,377 ($1,745)

The rapid development of small-scale industry is a primary objective of the industrial estate programme - in itself an integral part of a larger programme - while the dispersal of industry to rural and underdeveloped areas to raise their levels of industrialization is a secondary objective. In the first four Plans (1951-1974), 508 million rupees ($57.6 million) or almost 25 per cent were allocated to industrial estates out of a total allocation to small-scale industries of 2.2 billion rupees ($250 million). By the end of the Fourth Plan, 520 estates had been established, and a further 92 were in planning (see 1972 data below). Some fifty estates are in less developed regions.

Estates completed	520
Number operational	420
Sheds in production	11,010
Persons employed	175,700
Value of output	Rs. 2 billion ($232 million)
Output/employee	Rs. 11,633 ($1,320)
Investment 1951-1974	Rs. 508 million ($57.6 million)
Investment/employee (Government outlay only)	Rs. 2,891 ($328)

The real investment per job created was undoubtedly higher since many of the firms moving on to the estates were already in existence. On the other hand, not all estates were fully occupied in 1972 and it was envisaged that many more jobs would be created. In his "Bulletin on Industrial Estates in India for 1972", the Development Commissioner for Small-Scale Industries pointed

out that, while estates in urban areas enjoyed an occupancy rate of 88 per cent, those in rural areas were only 65 per cent occupied.1/

It should be noted that in 1972 the annual output per employee on industrial estates for the country as a whole was 11,633 rupees ($1,320), whereas that for the small-scale industries in the 16 main industrial groups was 15,377 ($1,745). The reasons for this difference have not, however, been explored. Output figures for two estates visited in the course of a study conducted on behalf of the Overseas Development Institute (ODI) early in 1976 were:

Sanatnagar Estate, Hyderabad

Number of units	81
Persons employed	3,000
Government investment	Rs. 8.2 million ($930,760)
Investment/employee	Rs. 2,733 ($310)
Output/annum	Rs. 100 million ($11.3 million)
Output per employee/annum	Rs. 33,333 ($3,783)

Ambattur Estate, Madras (SSI only)

Number of units	434
Persons employed	12,500
Total capital	Rs. 140 million ($15.9 million)
Capital/employee	Rs. 11,200 ($1,271)
Government capital	Rs. 49 million ($5.6 million)
Government capital/employee	Rs. 3,920 ($445)
Output/annum	Rs. 210 million ($23.8 million)
Output per employee/annum	Rs. 16,800 ($1,906)

Both estates contain small units which use advanced technologies, and the Sanatnagar Estate is reported to have fully centralized facilities and a tool-room.

1/ Ministry of Industrial Development: Industrial Estates in India, Half-yearly Progress Report for the Period ending 30 September 1972. Industrial Estates and Planning Section, Office of the Development Commissioner (Small-Scale Industries), 1973.

In his very carefully controlled survey (see Introduction) carried out in Mysore in 1961-1962, Dr. Somasekhara covered nine industrial estates (107 units) and a control group of 107 comparable units. He repeated his survey in 1971-1972 on the same basis, this time gathering data for 114 units on the estates, including those he had visited ten years previously, and 84 of the same outside firms. It proved impossible to cover all the original outside firms since some had gone into liquidation, the mortality rate of outside firms being substantially higher than that of firms on estates.

The second survey which confirmed the initial findings provided information of considerable interest:

(a) Comparative indices of real technical and economic efficiency on industrial estates were consistently lower than those for the control group of outside firms;

(b) Industrial estates had become comparatively capital-intensive, one reason being the preferential treatment given to firms on industrial estates in respect of credits and the supply of machinery, both domestic and foreign;

(c) The employment growth rate on the estates was relatively lower than in the control group;

(d) Neither gross output nor gross earnings of firms on the estates increased faster than in outside firms;

(e) Industrial estates had sustained and fostered small inefficient firms which outside would not have survived;

(f) Industrial estates had not been very successful in contributing to the establishment of small-scale industries in rural and backward areas;

(g) Relocation of units from places of high industrial concentration to rural estates was almost non-existent.

Similar criticism, although much less scientifically documented, has been voiced by other researchers and observers in recent years, including the International Perspective Planning Team, financed by the Ford Foundation, and a World Bank mission in 1965.

The Somasekhara study does not suggest that all industrial estates in India are ineffective and points out as exceptions the Okhla estate at Delhi and the Guindy estate at Madras. According to the study, the major reason

for the success of these estates is that they are better organized as to facilities, possibly because they are big and homogeneous in terms of the industries represented.

The Somasekhara study has been criticized on the grounds that it deals with only nine estates out of some 450 operational in 1971, or the more than 100 estates already established a decade earlier. This criticism may well be justified but the fact remains that this study is so far the only one to have been carried out using scientific and statistical methods and the control group described.

In 1964 the Indian Government undertook a survey to examine the progress of the industrial estates programme, to pinpoint any weaknesses, and to study the impact of industrial estates on the growth of small-scale industries. The findings of the survey corroborate many of the points in the Somasekhara study, among them the folly of attempting to set up estates without adequate preliminary studies or in areas in which their location is not economically justified. The problem of attracting entrepreneurs to backward areas was recognized, as was the need to stimulate local entrepreneurship through special inducements. The survey indicated that the shift to an estate had a substantial effect on output and employment. The 444 units which supplied information on this item had employed 5,702 workers and produced 46 million rupees ($5.2 million) worth of goods in the year prior to moving to an estate. Once established on the estates, they employed 8,621 workers and produced 83 million rupees ($9.4 million) worth of goods: increases of some 51 and 88 per cent, respectively, showing a 20 per cent increase in labour productivity.

The Indian Government recognizes that in the past the importance of industrial estates to the development of backward areas has been over-estimated and a sober assessment of the problem should be made. Among possible lines of action suggested was that of locating a large firm on an estate in a backward area and encouraging small firms to cluster around it, without necessarily being commercially associated.

The ODI study shows that considerable success has been achieved in promoting specialized and advanced technology estates, such as the Technocrats estate at Balangar, Hyderabad (graduate engineers), the Instronics estate at Madras (electronic products and instruments), and the Tiruvarambur estate,

Tiruchirapalli, mainly composed of subcontractors of the Bharat Heavy Electrical Corporation. These estates enjoy special financial aid, important technical assistance and central service facilities; but it is almost certain that they, and similar technology-intensive estates, could not have been established or operated as effectively, had they been set up in any other form.

Quantitatively, the Indian industrial estates programme represents a very small part of the total industrialization programme. Certainly, mistakes have been made; for example, the poor selection of locations may sometimes have been due to political pressure since industrial estates have certain political uses.[8/] The case is strong for the use of estates in promoting specialized activities, providing ancillary production and, in certain cases, starting industrialization in backward areas. The fact that rural industrial estates have a 65 per cent occupancy can be seen in another light: only 35 per cent of the sheds are vacant, and this, in some cases, may be an important achievement. A total investment in industrial estates of 500 million rupees ($56.7 million) over a period of 20 years cannot be considered inordinate expenditure, even though the figure certainly understates the total amount of resources devoted to the programme, and an important part of the investment is recoverable in the form of rent. The programme must be seen in the context of the small-scale industries programme as a whole: while it can profitably be used as a stimulus to industrialization, it is doubtful whether it can act as a catalyst on its own.

Iran

Iranian industry which has developed without adequate planning of location is sited mainly in Teheran and its environs. The Government is now determined, however, that other towns should be singled out for industrial development, all new plants being established in industrial parks. These parks would provide land with infrastructural amenities and centralized services, but the industrialists would be required to build their own factories.

8/ See Ministry of Industrial Development; op.cit.; Foreword.

The objectives of this scheme are:

- To ensure environmental conservation;
- To prevent urban congestion;
- To prevent overdevelopment which might jeopardize limited energy and water supplies; and
- To ensure regionally balanced growth.

The programme is specifically directed towards large and medium-sized enterprises. Responsibility for the promotion of small-scale industry rests with the Organization for Small-Scale Industry and Industrial Estates, the major efforts of which have so far been invested in the Ahwaz industrial estate in south-west Iran. Four other estates for small industries are being planned.

The Ahwaz industrial estate, the only one directly established from Government funds, was set up after feasibility studies had been carried out by the United Nations in 1962 and 1963. It has since received appreciable technical assistance. Ahwaz was selected by the United Nations advisers because of its good road and rail connexions, its proximity to the major seaport of Khorramshahr, its access to water and power from the Pahlavi Dam, an adequate supply of skilled workers and its "excellent industrial atmosphere". A long list of possible manufactures was drawn up for the estate which was to be developed in three stages and, when complete, was expected to provide some 3,000 jobs as opposed to the total of 2,970 provided by all industrial units in Ahwaz (population 210,000) in 1956. Central workshops were envisaged. The consultants advised that these should be handed over to private enterprise if and when a need for them was seen, but this advice was not heeded.

Owing to delays in construction, the estate was only ready for occupancy by 1969. The first unit went into production that year and contracts for all units were signed by 1971. At present, the estate consists of 22 factory units occupied by 15 firms employing 500 workers according to official sources. The estate has central workshops, an administration building with conference rooms and showrooms, bank and post office, a co-operative shop and a guest house. The estate staff numbers 88. The total expenditure on land, infrastructure, buildings and equipment was $2,655,000, to which must be added about $1,000,000 to cover United Nations technical co-operation. Since its inception, operation has incurred a deficit, which in 1974/1975 amounted to about $300,000. The estate was originally intended as a

demonstration unit for small-scale industry. However, it proved impossible to lease all the factories to small firms, and the estate was opened up to large industry and warehouses. The central workshops have proved expensive and are little used by the mixed variety of firms on the estate. The investment per post amounts to $7,310, including the United Nations component, while a subsidy of about $23 per square metre of covered space per annum continues to be paid.

Current plans envisage the creation of at least 15 industrial parks for large- and medium-scale industry in different parts of the country. Six are already being developed, one of which (Qazvin) is operational with 80 plants in production and a further 10 in the construction or planning stages in November 1975. The special attraction of Qazvin is that it lies just outside the 120 kilometre zone around Teheran in which new industry is now forbidden. It remains to be seen whether parks located further from the capital, which is the country's principal market as well as the seat of Government, will succeed in attracting industry.

The Government's programme for small-scale industry estates has so far been confined to Ahwaz which has proved costly and has failed to live up to expectations in terms of production or employment. The industrial parks have yet to prove their contribution to industrial development. Iran is booming: oil revenues are being used intensively to industrialize the country in a comparatively short time. There is no evidence, however, that industrial parks actually contribute to this growth of industry or to its increased efficiency, although they obviously contribute to the creation of employment opportunities in the town and areas in which they are located, and to the better zoning of industry.

Kenya

Although not visited as part of the present exercise, Kenya has been studied by UNIDO and SIDA, as well as the World Bank, which made a report on the country's industrial estates programme.

The establishment of an estate in Nairobi, comprising 25 small units and conceived as a means of promoting small-scale enterprises, was launched in 1965. The first phase of the Nairobi estate was completed in 1968 at a cost of about 9.4 million Kenya shillings ($1.15 million) and by early 1970

all units were completed. By the end of 1973, a further 25 units had been completed, as well as four medium-sized factories, all of which are occupied. During this period, an estate of the same size was constructed at Nakuru.

By the end of 1975, another estate, comprising 22 units, had been completed at Kisumu with the aid of SIDA, including a grant of 18.2 million Swedish crowns (£4.5 million). The construction of the estate cost an estimated five million Kenya shillings ($610,000). Within the framework of an agreement with the Federal German Government, another estate was being constructed at Mombasa for occupancy by mid-1976.

By the end of 1975, 101 factories were available at Nairobi, Nakuru and Kisumu, this figure increasing to 125 with the completion of the Mombasa estate. As of 1 April 1976, 54 factories were occupied at Nairobi, ten in Nakuru and seven in Kisumu. The remaining 15 buildings at Nakuru had been allocated, whereas at Kisumu less than half had been allocated. At first, most of the plants were small, labour-intensive units involving little capital investment. However, the Kenya Industrial Estates company has since adopted a policy of increasing the size and scope of manufacturing operations to include more capital-intensive units. The average per capita investment on the three estates is shown below:

Location	Nairobi	Nakuru	Kisumu
Number of firms	54	25	7
Employees per firm	14	23	15
Equipment investment per firm	$72,000	$122,000	$21,000
Equipment investment per employee	$ 5,140	$ 5,300	$ 1,400

It can be seen that in the first seven firms at Kisumu investment per employee was very low. The average figures cited for the Nairobi and Nakuru estates include a few firms each of which has equipment investments between $200,000 and $300,000. In eight firms on the Nairobi estate investment per employee was less than $1,000 and in eleven it was more than $10,000.

As of April 1975, 1,436 jobs had been created. The cost of constructing the above three estates is estimated to be 50 million Kenya shillings ($6.12 million) or 34,800 Kenya shillings ($4,264) per job. However, the main

objective of the programme was to encourage Kenyan entrepreneurs, of whom 31 were in operation at the time of the report. To the costs of construction must be added the costs of the Swedish and German grants and technical assistance.

Kenya is one of the lesser developed countries in terms of indigenous entrepreneurship, and it must be realized that the launching of the first entrepreneurs will necessarily be a slow and expensive process. Problems are prevalent: on the Nairobi estate eight firms have failed and considerable arrears of rents are common to all estates. Nevertheless, the programme has succeeded in establishing a significant number of Kenyan enterprises, and it is being extended with further bilateral aid to other parts of the country.

Malaysia

The industrialization of Malaysia has been very rapid in the past decade. Statistics show that from 1966 to 1970, gross sales of manufactured goods rose by 81 per cent, employment by 81.5 per cent, the number of establishments rose by 12.7 per cent and the average employment per establishment by 66 per cent. Exports of manufactured goods kept pace with the increase in gross sales, except in 1973-1974 when exports rose in absolute terms from 525 million to 10,189 million Malaysian dollars ($ US 207 million to $US 4 billion), an increase of 1,800 per cent.

This growth in industrialization and the recent leap in manufactured exports have resulted from a determined drive on the part of the Federal and State Governments. The promotion of industrialization is not only seen as a means of reducing dependence on primary commodities but it is also deemed essential to the reduction of disparities in regional development and a more equitable distribution of incomes, as well as a means of bringing more Malays into manufacture and commerce.

Industrial estates are a key element in the furtherance of this policy. The first industrial estate was set up in 1952, in Petaling Jaya, some 15 miles from Kuala Lumpur, primarily to provide work for relocated squatters, but after three years only six of the 300 acres allocated had been occupied. In 1957, however, the Federal Government initiated its "Incentives to Industry"

policy, which was so successful in attracting industrialists to the estate that the original 300 acres proved inadequate and a further 400 had to be allocated. By the end of 1966, 264 factories (43 in pioneer industries) were providing work for 10,000.

The success of the Petaling Jaya estate led to the setting up of a series of State Economic Development Corporations (there are now 12) for the construction of estates. Since 1975, all matters connected with industrial estates are channelled through the Federal Industrial Development Authority (FIDA) which was created to promote and control the development of industrial estates, and to encourage industrial development in general.

The Government launched a massive campaign, backed by a system of liberal fiscal incentives to attract new industries. FIDA was responsible for ensuring that industrial estates were built only where labour and essential services could be provided. Since the yardstick of success was increased employment and the development of new skills, particular efforts were made to attract medium- and large-scale enterprises. Loans on easy terms were made available to the Development Corporations for the construction of industrial estates, while one or two of the wealthier estates proceeded alone. At that time, little or no attention was paid to estates for small-scale industry, or to small-scale industry in industrial estates, although it has since been officially stated that the Federal Government is examining policies for the promotion of small-scale industries.

Fifty-nine industrial estates, including seven free-trade zones, now exist in Malaysia. In 1972, employment in manufacturing industries, excluding handicrafts, was some 206,000 persons, 84 per cent of whom were employed on industrial estates. It has been calculated that, when the estates currently under construction are completed and the factories occupied, employment will rise to nearly 310,000 - but this is likely to take many years. In September 1976, the total number of factory plots (leasable area) amounted to 9,240 acres, 6,750 of which had been allocated. Although a quarter of the existing land has still to be disposed of, it is intended to increase the total area by another 9,500 acres under the Third Malaysian Plan.

Of the 59 estates, 41 are located on the west coast of the peninsula, eight on the east coast and ten in Sabah and Sarawak. The west is the

most highly developed part of the country, but the Third Plan accords development priority to the less industrially advanced states.

The programme appears to have been successful through a combination of factors. The liberal system of fiscal incentives has attracted industry which might have settled elsewhere. The estate designers have maximized the leasable areas and eliminated non-essentials, and the policy of providing prepared and serviced land rather than simply land and buildings has permitted the rate of development to keep pace with envisaged demand, thereby reducing unproductive investment and creating cheaper plots. Site preparation ready for occupancy usually takes a year from the date of acquisition.

Prepared land on industrial estates is cheaper than equivalent land on the private market. Its availability at short notice and the minimal formalities make it attractive to industrialists. Free-trade zones and abundant cheap labour are obvious inducements, particularly to export-oriented assembly industries.

The estates have no central facilities or amenities other than the basic services and, in the free-trade zones, perimeter fences and security guards. Worker housing is provided on estates that are not near towns.

Although the Government may not regard the creation of the estates as an investment in real-estate development, it is believed that the income derived therefrom is sufficient to cover running costs.

Nepal

Nepal is in the very early stages of industrialization. In the fiscal year 1973/74, the share of manufacturing in the GDP was only three per cent, exclusive of cottage industries. In the previous year, the number of manufacturing establishments had been 2,434, providing employment for 47,638 persons. Of these establishments, however, 1,860 (employing 18,909 persons) were in rice milling and oil extraction, and 875 or about 36 per cent were temporarily or permanently closed down, mostly for want of raw materials or on account of partnerships disputes. In 1972/73, industrial estates accounted for 2,336 persons - about five per cent of the total labour force, or eight per cent, if rice milling and oil enterprises are excluded.

Of the seven industrial estates, one is not yet operational and a further one is in the planning stage. Two estates, Balaju and Hetaudi, were developed with United States assistance. The Indian Co-operation Mission aided in the construction of the others. At Balaju an estate was set up for small and medium industry, at Hetaudi for medium and large units, and at Patan, five kilometres from Kathmandu, in an area renowned for its wood carvers and metal-workers, for small-scale and cottage industries. Industries of various sizes, however, are to be found on all three estates.

Under its new economic policy in 1974, the Government announced a series of objectives common to most countries at this stage of development: increasing and improving industrial production, creating industrial employment, mobilizing local capital and skills, achieving self-reliance in essential goods and construction materials, and minimizing regional imbalances. Among the tools for the attainment of these goals were industrial estates, loans and financial incentives.

The six industrial estates in operation have a planned total capacity of 251 establishments, of which only 114 are in existence, with the estates at Balaju and Patan showing a reasonably high rate of occupancy. Investment in the estates at Balaju, Hetaudi and Patan to 1973-1974 was 26,656,451 rupees ($ 2,132,516), or 9,578 rupees ($ 766) for each of the 2,783 persons employed there in 1974. This does not seem an unduly heavy investment.

Incentives and benefits to firms moving to the industrial estates are substantial and include loans to industrialists of up to 95 per cent of fixed assets, various tax remissions and holidays, and a differential interest rate on the loans. All the estates have administration buildings, in addition to prepared and serviced plots, and some have central facilities and amenities. Lessees of plots may build their own buildings, subject to approval, or the administrators of the estate may construct and lease workshops.

Growth of the programme has been slow. Balaju, Hetaudi and Patan were established in 1960-1963, yet Hetaudi is still only one-third occupied. Employment has remained practically static for two years (1974-1975), but a move to take up places is reported and Balaju has a waiting list.

The output of the firms on Balaju and Patan fluctuates, compared with that of equivalent outside firms. It seems that whereas in the larger firms output is higher, it is not entirely true of output <u>per capita.</u> Nothing

would seem to indicate that the performance of firms on estates is better than those outside; it may well be that the estates are supporting enterprises which would not otherwise survive. The failure rate on the estate is high, but less than the national average.

Most of the firms are new and the cost of setting up a new factory on an estate is less than that of establishing the same facilities elsewhere. Indeed, sites with adequate supplies of water and electricity outside the industrial estates may be difficult to find. The industrial estate programme has been essential to the establishment of new ventures, which might not otherwise have come into being. The programme can be considered to have contributed at reasonable cost both to increasing industrialization and to raising the level of industrial employment.

Nigeria

The study of industrial estates in Nigeria was confined to the Lagos area, with brief visits to Kano in the north and Enugu in the south-east.

Industrialization in Nigeria has been stimulated at several levels by the boom following the increase in oil prices and revenue in 1973. Private industry at the top level is almost entirely in the hands of foreign firms. Certain sectors are now reserved wholly for Nigerian entrepreneurs, but large firms wholly owned by Nigerian interests are still few. Some of the larger Nigerian-owned enterprises, mainly at the secondary level (especially in the consumer goods sector such as textiles), have been founded by merchants, generally importers, who subsequently decided to go into manufacturing. The national business sector consists of small-scale industrialists, principally either skilled workers and craftsmen who have started up their own enterprises, or small traders and retailers, sometimes of foreign origin, who have switched to manufacturing, since foreigners are no longer allowed to own retail businesses.

In 1972, some one million small businesses were estimated to employ 3.2 million people. Of these businesses, nearly 60,000 factory-type enterprises, employing 200,000 workers, constituted the core of the small-scale industry sector. The importance of small-scale industry as a component of the national industrial development effort has been officially

recognized, and provisions for its encouragement embodied in the "Nigerian Enterprises Promotion Decree"of 1972. The basic objectives of the programme, which covers all states in the country, are those to be found in most such programmes: the creation of employment opportunities; the mobilization of local resources in capital and skill; the dispersal of industries, especially to rural areas; and the development of Nigerian entrepreneurship. The programme includes the establishment of regional industrial development centres (currently three) to provide central workshop facilities; the provision of managerial and technical extension services, and small-scale industry credit schemes; and the setting up of one model industrial estate in each state. Identification and motivation of small-enterprise entrepreneurship is also an important part of the programme.

Only two industrial estates as such were visited in the course of the study: at Yaba, in Lagos state, and at Enugu, in Anambra state. The Yaba complex, a site of 1.75 hectares with standard buildings, administrative offices and workshops, was set up in 1958 to provide employment for people on a housing estate in the area. The original intention was that the estate should be a "nursery" for small firms, a place where they would have the facilities necessary to enable them to grow from artisan workshops to self-supporting enterprises, at which point or after a maximum of five years, they would be expected to leave the estate and establish their own premises.

Currently, 21 firms on the estate, ranging in size from two to 110 employees, employ an estimated total of 380 workers. Predictably, however, the rule about leaving the estate after five years to make room for other "fledglings" have not proved enforceable. On the estate, firms pay subsidized rents and are provided with many facilities, including the upkeep of their premises at nominal charges, which they would not otherwise enjoy. Some firms have been on the estate for 15 years. Even the successful ones, including a clothing company which has grown from 30 to 110 employees, have not yet moved. Others are heavily in arrears with their rent and thus enjoy a subsidized existence, while the few which have failed, have been replaced (there is always a waiting list for places). The estate has central workshops, well equipped with machine tools and wood-working machinery, but it appears that they do little work for firms actually on the estate, working instead to fulfil major contracts outside. The estate has an administrative and maintenanoe staff of 69, and its manager is qualified to advise member firms.

Enugu, a town of 200,000 inhabitants, is the capital of Anambra state. It is surrounded by coal mines, a steel-rolling mill, an asbestos cement plant, a furniture factory, bakeries and a livestock feed mill, as well as numerous small-scale and artisan industries. The estate (1.8 hectares), which is run by a state government company established in 1964, was opened in 1966. Of 15 firms at present on site, the majority have expanded in the course of time, although one or two are operating at reduced capacity. The estate provides employment for 244 persons, including seven administrative staff. In the absence of central workshops, a private firm on the estate does some work for the others. The industries, however, are mixed and scope for central production facilities or inter-firm co-operation is limited. The Enugu estate would not seem to have stimulated other industries in the area, nor to have contributed to the development of the firms on the estate. It offers acceptable working conditions at comparatively low rentals and provides building maintenance and similar services.

Apart from the two industrial estates described above, a few similar sites are located in other parts of the country. In Lagos state (a few miles from the capital) and at Kano (in the north of the country) substantial industrial areas have been developed to provide sites for large and medium-sized firms. Nine such sites are now located in the vicinity of Lagos, the first of which was set up in the 1950s at Apapa, near the Lagos docks. The first major estate outside the city was at Ilupeju where the local planning authority had established its first housing estate and subsequently attempted to attract industry to the pool of workers living there. Two hundred hectares were acquired from the Lagos City Corporation, which, together with additional areas, is now occupied by plants, mainly foreign-owned and often subsidiaries of transnational corporations.

These industrial areas provide only a minimum of site facilities, generally little more than prepared roads and electricity. In most cases, tenants have to sink their own wells; only in one case were rainwater drains or sewers observed. There is little or no street lighting, while telephone lines, garbage collection, and collective security are non-existent. Most of the roads are now public highways. Firms wishing to leave Lagos, which is now very congested, or which seek to establish new plants, have little choice in the way of convenient sites and are more or less forced to relocate in one of these industrial areas, where rents are relatively low. None of the areas have administrative offices.

The Lagos State Development and Property Corporation owns and manages the areas, which are generally associated with housing and residential estates, but acts mainly as a rent-collection and road-maintenance agency.

A similar situation exists at Kano, where the industrial areas are simply part of the urban zoning. The oldest area, Bompai, was established in 1940, and is owned and administered by the state government. Electricity, water and drainage are available and rents are low. Access is direct from the public roads, but there are no central services. A second industrial area of the same type is just beginning to fill up.

The Nigerian industrial estates programme is still in its infancy. The Yaba estate may be considered to have met its objectives to a modest degree, but failure to enforce the five-year rule has frustrated its potential as a "nursery". The Enugu estate has enabled its tenant firms to save money on rents and buildings, but has induced little positive development. The Lagos state and Kano industrial areas accommodate large and medium-sized industries at comparatively low rentals, which, however, are a minor outlay compared with other operating costs. In sum, these areas may be said to offer convenient sites, but their role in the industrial development of the country has thus far been neutral.

Pakistan

In the past, Pakistan has concentrated its industrial development efforts on large and medium-sized enterprises. The small-scale and rural industry policy has not been consistently pursued, apart from the development of some industrial estates in the early 1960s.

In 1947, the newly created State of Pakistan disposed of practically no industry. Until then a town of about 300,000 and primarily a transit port for the army in the north-west of Karachi found its population swollen almost overnight to around 2 million persons, most of whom were jobless. Goods of all kinds, even basic textiles, had to be imported, but within a year the Sind Industrial Trading Estate Company, Ltd. (SITE) had initiated an estate for large and medium-sized industry in the city area, financed from government loans. Its development was phased over 20 years at a cost of 33 million rupees ($ 6.9 million at that time). In December 1976, the estate comprised 823 industrial units, employing well over 100,000 persons - a major contribution to industrialization and employment at a time when both were badly needed, at a minimal investment.

Two other estates were established by SITE in 1953, at Hyderabad and at Tando Adam, while in 1963 another was established at Kotri. Three further estates were subsequently set up at Sukkur, Peshawar and Multan, but the rate of occupancy has been slow and operations are limited. An extensive programme for large and medium-sized industry to be laid out on the lines of the Karachi estate, was shelved owing to sharp reduction in foreign exchange reserves following hostilities in 1965. Basic services are provided on all SITE estates, together with warehouses and some standard factory buildings.

The small-scale industry estates have not proved nearly as successful as those for large and medium-sized industries, such as at Karachi. Eleven small-scale industry estates (two very small) were established, mainly in the Punjab, between 1960 and 1965. Not all of them were preceded by thorough feasibility studies or careful selection of entrepreneurs. In addition to land, infrastructure and standard buildings, some of these estates were supplied with workers' canteens, guest houses and small workshops for artisans. The estates at Gujranwala and Sialkot have important service or development centres related to the major local industries located on the sites; the estate at Gujrat has a ceramic institute and the small-scale industry estate at Peshawar has a woodworking centre. Employment on these estates is estimated at 8,000, an investment of 3,160 rupees ($ 658) per worker.

Rates of occupancy vary greatly. The estates at Gujranwala and Sialkot have been fully occupied since the mid-1960s; however, not all the firms are small, some of them employing over 100 workers. Both estates have received financial assistance from the World Bank (International Development Association), and the Sialkot Estate is almost wholly concerned with the manufacture of local traditional products, sports goods and surgical instruments for export. Undoubtedly a major attraction of these two estates for local industrialists was the possibility of obtaining foreign currency and credits on favourable terms. Gujrat, the only other estate with a reasonably high occupancy rate, only began to fill up in 1974. It is located in a region which specialises in the manufacture of electric fans - at the time of the study, 155 electric fan manufacturers were established in the region. In November 1975, 19 firms on the estate were either in operation or under construction, and another 32 had received sanction. Occupancy in all the other small industry estates is very low, in most cases under 30 per cent.

In addition to the low rate of occupancy common to the majority of existing small-scale industry estates, most of the firms receiving foreign exchange loans are heavily in arrears with their repayments. Many firms are also in arrears with their plot costs, and quite a large number have refused to pay the maintenance charge. Despite these problems, the Government is planning to develop more small-scale industry estates, including some mini-estates near smaller towns.

The small-scale industry estates do not appear to have stimulated any new industry. The tenants on the Gujranwala and Sialkot estates were mainly existing firms seeking expansion and foreign exchange loans, while industrialists in most other towns seem to prefer their existing quarters, however cramped. Furthermore, these estates have not contributed greatly to employment. Of the 2 million people engaged in small-scale and artisan industries, only about 8,000 are employed in the small-scale industry estates. So far no satisfactory solution has been found to the problem of using the industrial estate as an effective tool for new small-industry development in Pakistan.

Senegal

Up to the time of the study (November 1975), the Government did not appear to have any clear-cut policy with regard to industrial estates. In 1967, it had handed over to the Société Nationale d'Etudes et de Promotion Industrielle (SONEPI), the site and buildings of a former French military camp at Thies, some 70 kilometres inland from Dakar. Established local artisans were recruited for this first industrial estate with the object of helping them to develop small-scale industries. Some persuasion was necessary to convince the artisans of the desirability of moving; however, nine firms employing 138 workers, are now on the estate, the investment thus far having been the equivalent of $ 296,480 with an additional $ 43,750 in international funds. Of the nine firms, five have demonstrably benefited from the assistance provided by the SONEPI technical staff, a UNIDO expert and three young French volunteers. This assistance has been directed towards: bookkeeping; maintaining relations with authorities and in obtaining credits; improving working methods and productivity; undertaking market surveys, sales promotion and public tenders; and sub-contracting.

All the firms on the estate are fairly dependent on government contracts, and all are working below capacity. Whereas the five firms cited above have managed to make satisfactory profits and to become small-scale industrialists, the other enterprises are financially unsound, their sales have remained static for about five years and two firms envisaged reduced turnovers in the current year.

Four other estates, including a free zone at Dakar, are either under construction or planned. The Thies estate, however, must be regarded as a pioneer effort in a country where indigenous industrialists have been non-existent hitherto. It has been shown that artisans can develop into industrialists in proper conditions, given substantial technical and managerial assistance. This notwithstanding, the estate is too small to be viable and is only maintained by a continuous injection of funds from SONEPI. The amount of "nursing" necessary has proved very expensive in relation to the modest results achieved and costs would probably be prohibitive if extended on a large scale.

Sri Lanka

The growth of industrial production in Sri Lanka was steady, if unspectacular, until 1975, when it rose sharply by some 16 per cent compared with the previous year. According to an industrial survey conducted in 1975 by the Central Bank of Ceylon, 1,489 manufacturing enterprises employed 107,944 persons and produced goods worth 5,966.6 million rupees ($ 638,983,000), the annual per capita output being 55,274 rupees. Performance has recently dropped owing to scarcity of foreign exchange which has led to a reduction in raw material supplies. The total number of firms registered with the Ministry of Industries and Scientific Affairs is 3,376, including the more important firms noted above. Most of these are small firms, within the Government's definition of the term, to which should be added another 2,000 unregistered companies, not including handicrafts workshops.

Three industrial estates have been set up in Sri Lanka. Of these, the Ekala estate near Colombo is fully operational and occupied, while that at Pallakelle, near Kandy, is 80 per cent occupied. The third estate at Atchuvely, in the north of the island only started operations in 1975 and is rather less than 30 per cent occupied, three firms having taken over ten units of the 36 available. At Pallakelle, several of the units are occupied by public service units. The number of units allocated or occupied on all

three estates totals 84, representing 39 firms or other bodies. Some 2,199 persons are employed and production is valued at 71.21 million rupees (₹ 8,222,863). Per capita annual output on the estates (32,382 rupees) can thus be seen to be considerably lower than the figure cited for industry in the Central Bank Group survey mentioned above. This difference may be partially explained by the fact that many of the units, especially on the Pallakelle estate, are non-manufacturing. The industrial estates provide accommodation for 2.6 per cent of the major firms and 2 per cent of the persons employed in manufacturing and account for 1.12 per cent of the production. Total investment in industrial estates has been 21,607,000 rupees (₹ 2,495,034), representing 9,826 rupees (₹ 1,135) per job.

On the evidence presented, the industrial estates programme in Sri Lanka can hardly be considered to have contributed significantly either to the growth of industrialization or to employment, all the more so since an important element on at least one of the estates consists of public service, non-manufacturing organizations. Only the Ekala estate, which was set up at the request of local industrialists, appears to be fulfilling its functions effectively.

Turkey

The industrial estates programme in Turkey differs from those in the other countries studied in at least one important respect: it was not initiated by Government agencies, but by the industrialists and artisans themselves. The programme is essentially a grass-roots action: the first estates were set up in the mid-1950s, several years before the Government launched its programme.

Formal government initiatives to promote industrial estates began under the first Five-Year Development Plan (1963-1967) with a view to relieving the fast-increasing congestion and dislocation in the cities caused by the presence of thousands of small workshops and to developing and using extension services more effectively. Turkish government policy is marked by two significant features. First, only existing small firms or artisans are accepted on the estates, it being agreed that promoting some of the innumerable, successful small-scale industrialists and artisans (170,123 establishments employing less than ten persons in 1970) is easier and more

profitable than trying to create new entrepreneuers. Secondly, before the Ministry of Industry and Technology even discusses supporting new industrial estates, an executing agency, usually a building co-operative with sufficient funds to purchase the site, must be formed, since the Ministry with its comparatively small staff can deal more economically and effectively with agencies representing a number of enterprises than with individual companies.

In November 1975, the situation as regards industrial estates was as follows:

	Estates		
	Operational	Under construction	Under consideration
Number of estates	28	44	13
Number of units	6,134	14,834	n.a.
Estimated total investment			
TL Millions	262,931	1,797,465	n.a.
$US Millions	18,781	128,390	n.a.
Estimated investment/unit (TL)	42,864	121,172	n.a.
Estimated new jobs	12,250	30,000	n.a.
Estimated investment/job			
TL	21,463	59,582	n.a.
$US	1,430	3,972	n.a.

The figures cited for estimated new jobs (and hence for the estimated investment per new job) have been extrapolated on the basis that, after arrival on an industrial estate, most firms seem at least to double the number of persons engaged 2/. Included in the figures are data relating to five estates with some 2,367 workshops, for which government support was not requested.

Most of the estates, at least in Western Anatolia (the most developed part of the country) are the outcome of relocation. Conditions in the large cities have deteriorated to such a degree that many industrialists are eager to move out to estates, and municipal authorities gladly help them by providing the executive agencies with land at favourable prices. In order to

2/ As of December 1976, 41 estates had been completed and were operational, 44 were under construction and 94 at the project stage.

ensure that industrialists occupy their holdings on the estates as soon as they become available, some municipalities impose sanctions on those who delay moving but ensure that no other firms can move in and take their places.

Government contributions are solely in the form of low-interest loans for building purposes. Land must be purchased by the executing agencies; infrastructural development and machinery purchases may be financed from bank loans. If approached, the Government provides specialized teams who offer technical advice on the siting, setting up and construction of estates. Although Government participation is restricted, appreciable sums are now being allocated annually. Whereas in 1964 only 10 million Turkish lire were allotted, some TL 420 million ($ 30 million) were appropriated in 1976, some TL 1,200 million ($ 86 million) being budgeted for 1977.

Most of the estates are located west of a line from Samsun in the north to Gaziantep in the south. The Government is endeavouring to promote estates in the eastern half of the country, which is much poorer.

The number of persons employed in small-scale industry on industrial estates, while still relatively small, is increasing rapidly. When all the estates at present under construction and in planning come into operation, a significant proportion of the firms will be devoted to small-scale industry. On most of the estates visited, it was estimated that the average firm had at least doubled its workforce and its turnover within two years of arrival. The success of small-scale industry within the context of the industrial estates programme has led to its emulation by large-scale industry, for which industrial areas are now being established.

The industrial estates programme in Turkey would appear successful and to be contributing to an increase in both industrial production and employment. Of the factors contributing to this success, a major one is the number of Turkish workers and artisans who after working in Western Europe return with some capital and improved skills. The programme costs the Government little in the long term. Apart from the expense of maintaining a rather small central administrative and advisory service, loan repayments and interest are re-cycled in the form of further loans; however, given the present rate of growth, Parliament has to be approached for additional funds each year.

Conclusions

On the evidence available from the country studies and other reports submitted to the Meeting, the contribution of industrial estates to over-all industrial development and to employment in the countries discussed was seen to be relatively small in statistical terms. Allowances had to be made, however, for the fact that the concept of industrial estates in many of the countries visited was quite recent and that investment in the estates was minor. One exception was Malaysia, where industrial estates had played a key role in the country's industrialization efforts. A further exception was the large-scale and medium-scale industry estate programme in Pakistan, notably the Karachi estate, which provided the prime source of industrialization in the early years of the country's independence, and which continued to offer employment to an appreciable number of those currently employed in the large-scale industry sector. Another country where industrial estates were beginning to contribute significantly to industrialization and output was Turkey. The Indian industrial estates programme, though the largest in the world in terms of estates developed and persons employed, represented only a comparatively small fraction of that country's output and employment in the small- and medium-scale industry sectors.

Nevertheless, industrial estates had had an impact in certain specific fields such as the promotion of high-technology industries and of specialized, skilled personnel. Industrial estates could also contribute to the development of specific regions, given the necessary incentives and other conditions for attracting industry or developing local entrepreneurship. However, the use of estates to promote rural industrialization or develop backward areas had not always been successful. This notwithstanding, it seems improbable that Senegal, for example, would have enjoyed its limited success without introducing an industrial estates programme.

The qualitative contribution of industrial estates had not proved easy to identify and analyse. Based on a study carried out in Mysore state, India, it had been suggested that the efficiency of firms on industrial estates was lower than that of comparable firms outside. Firms on estates in several other countries had continued to operate when they would have been regarded as failures elsewhere. This situation was due no doubt to lower rents and favourable conditions pertaining on the estates. While this situation might be tolerable where such firms occupied sites which would otherwise be vacant or whose closure would cause additional unemployment,

little justification was seen for the use of public money to support them - particularly if by so doing, firms likely to benefit were excluded from the estates.

Other reports, however, showed that lower efficiency was by no means universally true of firms on industrial estates, especially in the case of specialized estates, where efficiency was substantially higher. Further investigation was needed to establish the reasons for the higher degree of capital intensity on some industrial estates, which again might be due to easier and cheaper facilities offered to tenant firms for the purchase of machinery, particularly imported machinery. It was shown, however, that, in centres or regions without an industrial base, considerable investment in industrial estates had not contributed to entrepreneurial development to any significant degree.

Furthermore, in few cases were such aids to increased productivity as central workshops and production services, extension services for advice and training, inter-firm co-operation through contracting and division of labour, or common purchasing or sales, seen to be operating effectively: even in India, some of these had been discontinued or sold to private interest. Nor was much evidence found of inter-firm co-operation and contracting, except on estates confined to a single industry or related industrial branches.

Industrial estates had played an important role in relieving urban congestion, as, for example in Turkey, where conditions in many cities had impeded the expansion of small firms and artisan workshops. At the same time the presence of these units in crowded built-up areas had contributed to serious traffic congestion and prevented urban development and slum clearance. Unfortunately, however, in some other countries industries had moved out of cities to estates only to have their old sites taken over by new firms. As this naturally discouraged firms from moving, it was clear that municipal authorities would have to play a greater part in curtailing such abuse.

Prerequisites for effective performance of an industrial estate are: homogeneity of membership, and estate management which sees the estate as a coherent entity, acting and planning accordingly.

Industrial estates could also be effectively used to accommodate small ancillary industries. Such "satellite" estates might be composed of plants manufacturing products using the materials produced or supplied by a large

firm, as in the case of estates in Malaysia assembling electronic equipment or the Tiruvarambur estate, India, where 20 small units process a significant share of the output of a major electrical corporation. It was recognized, however, that if quality and production standards were to be maintained, the "parent" firm would have to provide elaborate controls as well as extensive technical and managerial assistance.

Even where no organic work relationship existed between large and small firms, estates containing a mix of sizes stood a better chance of developing successfully than those composed solely of small units, because larger firms, in addition to providing sub-contracts to or using in some other way the services of the smaller firms, could assist in matters pertaining to management, finances and personnel.

In attempting to assess the contribution of publicly financed and sponsored industrial estates to economic and, specifically, industrial development, account must be taken of the direct and indirect charges on public funds, as well as of the direct and indirect benefits derived from the existence of the estates. Direct costs, including both domestic and foreign exchange components, relate to those of land, infrastructure, common facilities and, where provided, industrial buildings. Other direct costs, such as the charges for operation and maintenance, might only be partly covered by rents and other contributions. Indirect costs, which are not so easily measurable, include such variables as planning resources invested at both national and regional levels in the establishment of an estate.

In the countries studied, benefits, which were usually considered to include increased industrial output, employment, national industrial and economic development, and decentralization of industry, have, with one notable exception, Malaysia, been marginal. External economies through public investment in roads, power supplies, drainage and other public works could be more effectively realized by concentrating industry on large but compact sites, rather than on dispersed smaller sites in several estates.

Chapter III

ALTERNATIVES TO INDUSTRIAL ESTATES

A critical view of industrial estates would be incomplete without looking briefly at the alternatives. Before doing so, however, it should be stated that the present study is concerned primarily with government-sponsored industrial estates composed of small and medium-sized private enterprises and used as vehicles for major investments of public funds. It is concerned neither with industrial estates wholly financed from private resources nor with those composed wholly of public enterprises, although the latter are discussed briefly below as representing one alternative to the estates programmes under discussion.

Three alternatives would appear to present themselves:

1. Non-intervention on the part of Government in private industry, except as regards basic legislation governing such matters as corporate and labour activities;

2. Promotion of and intervention in private industry through concessions, tariffs and quotas for specified industries, extension and training services, subsidies and other incentives;

3. Complete nationalization of the means of production and distribution, with centralized socio-economic planning.

1. Non-intervention on the part of Government

In none of the countries visited did this situation exist; in fact, it does not appear to exist in absolute form anywhere in the world, even among industrially advanced countries. The private sector everywhere is subject to, or in receipt of, some form of government intervention and aid.

2. Government aid to private industry

Government aid to private industry is common to most developing countries at all levels of growth, including the majority of those visited in the course of the study.

The study showed that Argentina, India, Iran, Malaysia, Nigeria, Pakistan and Turkey - all of which may be said to be industrializing rapidly - have an important and active small- and medium-scale sector embracing most of their industrial enterprises. The Governments of all of these countries give substantial aid to small industry, but further benefits to firms moving to industrial estates are often marginal, except, in some cases, where it is sought to attract enterprises to estates in rural or backward areas. (A notable exception is Malaysia, where the process of industrialization is closely dependent on the industrial estates programme.) National bodies for the promotion of small business usually cater for more firms off industrial estates than on.

The fact is that most of these countries have progressed rapidly without the benefit of industrial estates, and it is a moot point whether they would have progressed (or might still progress) any faster, or with greater economy of resources, especially public funds, if estates had been established earlier on a large scale.

When they wish, Governments can always direct industry into certain regions merely by prohibiting the establishment of new firms or extensions to existing ones in specified areas, viz. Iran and Ecuador. Too severe an application of such a policy, however, can lead to opposition by vested interests, unless it is softened by the offering of substantial incentives (a combination which has been most effective in Argentina and a number of European countries). Indeed, it can be shown that "pull" factors such as low rental or purchase price for plots or even buildings do not always suffice, unless "push" factors, such as extreme urban congestion, convince the industrialist of the reasonableness of an offer to move to a new location.

The real alternative, where a large private sector, especially of small and medium-sized firms exists, may well be to adopt the Turkish practice of promoting the establishment of estates financed by the industrialists themselves. In Turkey, although some promotional action was required from the Government in the early stages of the programme, its initial success soon persuaded industrialists and artisans all over that country of the benefits to be derived from industrial estates, whereupon the programme gained momentum. When industrialists establish estates upon their own initiative, and at their own cost, they ensure that no land is purchased or infrastructure developed until a sufficient number of firms have pledged participation to guarantee success. Under such circumstances, government action is limited to the provision of loans. In Turkey, the only direct

government loans are given for ths construction of buildings, those for infrastructure and equipment being provided by state banks. The Government also provides advice at the planning stage to ensure that choice of site, design of estate, membership of building co-operative, and so on, conform to standards known to be necessary for success. It is expected, however, that even this outlay of Government funds will prove unnecessary once developments have reached the level where repayments cover the cost of new loans.

3. Centrally planned nationalization of industry

This system has been adopted by all the socialist countries of Eastern Europe and certain others, including Cuba. In the latter country, which was studied in the course of the survey, planning is based on close co-operation between government departments and state enterprises. Private property is only to be found today to a limited degree in agriculture. One of the key features of central planning is the high degree of integration in any one plan period (usually five years), a balance being maintained in the development of the economic and social sectors through sectoral interdependence. Agro-industrial development, for example, is linked with that of agriculture; basic materials are produced in the variety and quantities needed to meet the planned outputs of the manufacturing sector; and technological education is geared to the development of technologically advanced industries.

Thus, in Cuba's Five-Year Plan, 1976-1980, the traditional emphasis on creating a physical and social infrastructure and modernizing agriculture has yielded to industrial development. In this sector, a balance is being struck among agro-industries (including the manufacture of agricultural machinery), building materials and consumer goods industries in order to absorb some of the increased purchasing power of the population.

The strategy of industrial development includes the relocation of industry away from the capital and its distribution throughout the provinces; and extensive mechanization and automation of production to offset increased labour shortages. As a result, emphasis is placed on large plants, and small firms (formerly private enterprises) have been merged with larger units. Small production units exist only where they have to be near the consumer, (e.g. bakeries and ice plants), or where demand does not justify a large unit. The concept of small-scale industries has disappeared to the extent that an official definition of small-scale industry does not even exist. This, however, does not mean total disinterest in small-scale industry, since the Government is concerned to have efficient production in those sectors of the market where demand is still restricted.

Industrial plants are set up and operated by state-owned enterprises. Project proposals, which are rigorously scrutinized as to their economic and technological feasibility, must be submitted to the National Planning Board for approval and allocation of priority.

Industrial estates as defined in this study are unknown in Cuba, where, however, industrial zones have been developed with the necessary physical infrastructure and facilities, including social amenities - an integral part of all industrial projects. These industrial zones have been set up in areas selected as "development poles", or they comprise one or two vertically or horizontally integrated industrial complexes, directed towards the utilization of local raw materials. The plants are grouped for reasons of economy, efficiency and ecology. The complexes have extensive social facilities, such as central kitchens and canteens, nurseries, medical centres and social clubs.

Two features of interest are worthy of mention. The first is an institution akin to an industrial estate, composed of eight workshops, three of them producing sporting goods and the others producing digital computers, radio sets, desk calculators, dry-cell batteries and television sets respectively. These are combined with a vocational training school providing tuition and board for 4,500 students, male and female (11 to 19 years). The students spend five hours a day at school and a further three hours doing factory work or agricultural work on the school farms. The factory workshops accommodate 2,100 students on three-hour shifts supervised by technical staff. They are run on a commercial basis, the products being sold through government trading organizations. Five such schools already exist and others are being established in the provinces. In view of the great demand for entry, only outstanding primary students are accepted.

The second feature of interest is the manner in which certain light industrial plants, such as textiles and garment-making, are located in residential areas so that housewives can take up employment close to their homes.

Of the difficulties hampering efficiency in the industrial zones, most notable is the need for more compact zoning, thereby minimising investment in infrastructure for a given level of occupancy and service. In the past, for example, the economic use of land, and possibly, cost consciousness have not been adequately emphasized. Problems have also arisen from insufficient consideration of common services, when establishing industrial zones.

As such, the industrial zones have had a negligible effect upon industrial development; they are the result of, and not the reasons for, decisions to establish certain plants in certain localities. From 1970 to 1975, the growth rate of Cuban industry averaged 7.7 per cent a year, varying from 2.3 per cent (mining) to 30.1 per cent (building materials).

When Government controls the finances of a country, industrialization can proceed at the pace Government deems sustainable, given the availability of foreign exchange (for the purchase of equipment and raw materials) and the financial claims of other sectors. Since regional development is an integral part of overall development, central decisions are taken as to the location of industry, subject to such techno-economic considerations as proximity to raw materials or ports. No meaningful estimates can be given of costs and benefits, since the criteria applied in centrally planned economies do not conform to those used elsewhere.

Conclusions

Of the three alternatives discussed, non-intervention on the part of Government was dismissed as being virtually non-existent. Centrally planned nationalization of industry was seen to have certain merits for the developing countries, particularly the least developed countries. However, as could be seen from the report on Cuba (and the summary account of industrial structure in China given at the Meeting), the implementation of such an approach hinged upon political factors and decisions which were wholly beyond the scope of the present study, further to which industrial estates did not exist in these countries in the sense in which they were examined in the study.

The most common alternative to government participation, or sponsorship of, industrial estates was the provision of government aid to small and medium-scale industry through financing, extension services and other schemes. Industries receiving such aid should have constituted the control group in the studies conducted: in fact, such a control featured in only one study not directly associated with the present series.

This alternative might be considered the norm in most countries, whatever their level of development, and had contributed appreciably to industrialization. Whereas it might involve lesser expenditure of public funds than direct investment in industrial estates, loss of revenue due to tax and other concessions could become considerable. Its effectiveness in

the promotion of industrialization depended, of necessity, to a large extent, upon conditions in the respective countries, as well as upon the manner in which the industrial estates programme, if any, was conceived and managed. Evidence showed that this alternative was likely to be less costly and more effective in accelerating industrialization than direct participation in industrial estates, unless the industrial estates programme was planned on a scale commensurate with the local needs, and given all the necessary financial, promotional and technical support. The experience of Malaysia suggested that when a Government was prepared to commit itself to a major and continuous effort in pursuit of a clear and consistent policy, industrial estates could have a significant effect upon industrialization in a medium-sized country.

The most viable alternatives to government-financed small-scale industry estates might be co-operative estates along the lines of the Turkish model or privately promoted estates, such as those near Buenos Aires and in developed countries throughout the world, both of which did not exclude the possibility of government sponsorship in specific cases.

Chapter IV

FACTORS CONTRIBUTING TO THE SUCCESS OF INDUSTRIAL ESTATES

The criteria of success have to be clsarly defined for both the industrial estates programme and the individual estates. The study revealed a tendency to measure success in terms of occupancy: the extent to which an estate had succeeded in attracting the industrialists for whose benefit it had been set up. It is true that no programme can succeed if the estates are not occupied; occupancy, however, cannot be an end in itself, except in the case of a purely commercial venture. The ultimate benchmark of success is the extent to which the estate or programms achieves the objectives envisaged by the authorities: objectives, however, which may vary according to the nature or the location of the estate, as well as to the level of development of the country or the region concerned. In practice, it is inordinately difficult to assess the success or failure of a programme, or even of a single estate, in terms of over-all objectives. Normally one cannot know what the result would have been, had the resources devoted to the industrial estate been used,for example, to provide direct subsidies to existing industries, thus enabling them to improve their equipment and working methods or to provide more intensive training and consultancy. Given the rate of investment per job on the Ahwaz estate in Iran ($ 7,000 in estate capital costs alone) a great deal of equipment and technical aid could have been provided. However, this is an extreme case, although investment per job was high in other cases.

Since measuring success against global or even local objectives is difficult, it becomes neceseary to return to simpler criteria, of which occupancy is important in a situation where firms are free to join an estate or not. The second obvious criterion is the increase in business efficiency enjoyed by a firm since moving on to an estate. This cannot always be measured with great accuracy, however, because innumerable small and medium-sized firms fail to keep accurate records or accounts and, even when they do, are not always willing to disclose them. A third criterion is measurable growth in terms of output and employment. This criterion was

particularly important in most of the countries studied, whose common major objective in setting up estates was to increase national and local industrial output as well as employment opportunities. A fourth criterion is the return to Government on its investment in an estate. As was stated earlier, this is very difficult to measure other than in terms of interest earned on loans or profit on sales of buildings or plots, since the objective of the investment is often itself difficult to quantify.

The World Bank has certain definite financial criteria by which it measures success: all industrial estates financed by the Bank should make an adequate return on the money invested in them. The present norm is a minimum of 10 per cent internal financial return when calculated over a 20-year period. In general, projects supported by the Bank are mixed estates composed of large-, medium- and small-scale industries. Under certain circumstances, an element of subsidy is acceptable in rents set for very small and financially weak firms. The Bank has found that such subsidies do not materially affect the financial performance of an estate investment, since they are small in comparison with the net income generated by the sale or lease of sites and services to the larger factories on the estate. If an estate project fails to show an adequate financial return or cannot be justified on national or economic grounds, it is considered a questionable investment.

Whatever criteria for success are applied, a number of factors can be seen to contribute to the success and failure of an estate, among them:

(a) General conditions and their conduciveness to successful programme development;
(b) National and local economic activities;
(c) Socio-cultural patterns;
(d) Estate location and size and related urban infrastructure;
(e) Government objectives in establishing estates;
(f) The depth of feasibility and pre-investment studies;
(g) Financing methods;
(h) Support by Government and other authorities;
(i) Selection of industries, product lines, technologies and entrepreneurs;
(j) Organization and management of the estate;
(k) Advantages seen by potential occupants.

General conditions and their conduciveness to successful programme development

This factor is of particular relevance to the least developed countries. The minimum pre-conditions for a successful industrial estates programme in the small-scale industry sector appear to be:

(a) Concentrations of population with sufficient purchasing power to constitute markets for a diversity of products and services which can be supplied by a number of small firms and artisan industries;

(b) The existence of a large number of small firms or artisan workshops in appropriate industrial sectors;

(c) Entrepreneurs able and willing to take advantage of the facilities and benefits offered by industrial estates;

(d) A nucleus of skilled workers or of workers who can be trained in various skills;

(e) Urban conditions hampering industrial operations and expansion;

(f) Clear-cut and consistent government policies with respect to the aims and objectives of the estates, and the willingness to provide the necessary incentives;

(g) Government institutions capable of planning and implementing the programme, and financial institutions that will provide loans and credits;

(h) Adequate infrastructure in terms of water, electricity and transport, at least within the region to be served by the estates;

(i) An adequate number of staff with training and experience in industrial estate promotion and management, as well as technical staff capable of operating the extension services;

(j) Ability to screen potential occupants.

These points are particularly relevant to the Sudan, where an industrial estates programme has yet to be launched. The population of the Sudan is concentrated in three main areas. Although communications between them are poor, they are the relatively rich areas of the country and would appear to have sufficient purchasing power to sustain a considerable number of small industries, as well as a few large ones. Many of the local entrepreneurs showed themselves capable of development under the right conditions, and a workforce exists with basic skills, capable of absorbing advanced training.

At present, the small firms and artisan workshops operate under very bad conditions and many have expressed the desire to relocate, if workshops could be provided at a reasonable cost.

Although it has not yet evolved clear-cut ideas as to what it expects from industrial estates, the Government is interested in exploring the matter further. It already offers substantial incentives to small industries, and additional inducements would most probably be the possibility for expansion at a modest cost and the provision of substantial site-services. Financial institutions already exist, as does a government structure which could plan and direct the programme. A nucleus of well-qualified administrative and technical personnel is on hand, but would probably need to be sent abroad for specialized training.

National and local economic activities

One of the special advantages usually attributed to industrial estates is that facilities, land, buildings, common services and the like are available at much lower costs than normal. In many cases, another advantage is the presence of firms in related, possibly complementary fields, able to provide one another with business opportunities or to operate co-operative purchasing and marketing schemes.

Like any well-conducted industry, industrial estates cannot be expected to succeed in conditions where national or local purchasing power is insufficient to sustain the increases in production which might be generated. Whereas an artisan estate might succeed under such conditions, one involving industry using highly productive equipment would not. Prior economic studies are essential and should investigate the following factors:

National

(a) GDP and GDP per capita, hence the available or potential purchasing power;

(b) Distribution of markets and industry throughout the country;

(c) Nature of industries and handicrafts throughout the country and their development potential, particularly through the exploitation of locally available raw materials and skills (for import substitution and export);

Local

(d) Nature of local activities, such as heavy or light industry, commerce, services, including repair services, and tourism, and the possibility of a large or medium-sized industry serving as the nucleus of a small-industry estate;

(e) Markets to be served by the estate and the latter's location: near a port or frontier (for export), at a road or rail centre, near large industries able to offer sub-contracts, or in an area of mechanized agriculture;

(f) Number and size of local industrial units;

(g) Level of local entrepreneurial development;

(h) Locally available raw materials such as wool, timber, kaolin, hides and agricultural products;

(i) Skilled labour and training facilities available.

Some of the factors listed above are identical to the general conditions cited earlier. In most countries, including least developed countries such as Senegal and the Sudan, scope exists for a few industrial estates which can be used to develop industries. However, where the general level of economic activity is low and many live outside the money economy, industrial estates may have to be considered long-term investments. On the other hand, in a relatively advanced economy such as Argentina, whose population has substantial purchasing power and is consumption-oriented, an estate set up at a distance from main markets and material sources may still succeed. Advantages can be offered to industry on the estate to offset the disadvantage of distance and the volume of production can be such that economical transport is possible, especially where the raw materials and finished products are light in weight and high in value. In Nigeria, which is enjoying a surge in consumer demand, the abundant entrepreneurial talent in need of direction into modern industrial channels suggests that a substantial industrial estates programme for small and medium-sized industry could be very successful.

The nature of industries throughout a country and their suitability for incorporation into industrial estates is an important factor. The most important single activity on the estates visited in Turkey is automobile repair and servicing, followed by agricultural machinery repair. Automobile repair is most suited to relocation on an estate since, as a sector, it is already distributed among a large number of specialists, each concentrating on one

element (engine, brakes, springs, electrical system and body). On an estate in Izmir, some 700 firms are engaged in such work, while an additional 878 repair shops are waiting to move on to the new estate at Gaziantep as soon as it is ready. This nation-wide pre-occupation with automobile repair owes much to the fact that many of the half million or more Turkish workers in Western Europe eventually return home with cars, often in rather poor condition to have them reconditioned at very low cost. Once on the estates, some of the repair shops develop into manufacturing units, and a few become suppliers of authorized spare parts to car manufacturers.

At the other end of the scale, the estate at Tulcan in Ecuador can hardly expect to prosper, since at the time of the study (1975) there were only 17 firms in the town, and the main local economic activity was importing goods from Colombia, to take advantage of the favourable exchange rate.

Socio-cultural patterns

This important factor is one of the most neglected in all studies of industrial estates. Although difficult to define, it nevertheless merits attention, as an effective industrial estate is a co-operative venture that will only really benefit its member firms if they can assist and support one another, working together towards common objectives. Furthermore, the benefits derived by individual firms will depend upon the quality of entrepreneurship and upon their capacity to take advantage of the opportunities offered for expansion, and of whatever advisory and training services may be available. The socio-cultural elements which might be expected to contribute to success in an industrial estate programme would include:

- Homogeneity (ethnic or commercial) in any given region;
- Tradition of honest dealing;
- Tradition of co-operation in business;
- Tradition of saving towards long-term goals;
- Tradition of craftsmanship, industry or commerce;
- Respect and desire for education and training;
- Initiative.

Some societies may have some or even all of these qualities to a marked degree; others may not, but in one or two case studies, attitudes were changing for the better. For example, thanks to the efforts of a few par-

ticularly dynamic industrialists at Rosario, Argentina, an estate will be opened shortly. Hitherto, the city's small industrialists have had little dealings with one another, but in working together on the estate committee they have acquired the habit of co-operation which has now extended to business.

The small industrialists and artisans in the Turkish provinces are a very close knit group with a tradition of honest dealing; consequently setting up the co-operatives needed before establishing an estate presents few difficulities. Members have rarely been known to default on payments or loans. In Ecuador, the Peguiche Indians possess entrepreneurial talents of a high order. They are skilled craftsmen, who maintain retail outlets for their handicrafts in both Spain and the United States. They are setting up a small co-operative estate without government aid, which has good prospects of success.

Estate location, size and related urban infrastructure

The experts engaged in this study rated location as a factor crucial to success, and the Indian government report on industrial estates referring to the low occupancy rates on rural estates stated that the most common mistakes were poor location decisions. The question of location comprises the following elements:

(a) Would the estate be suitably situated with respect to national markets, transport routes, raw material sources and skilled labour?

(b) Would an industrial estate provide the best and cheapest premises in the area selected?

(c) Would there be enough industries or enterprises willing to move to an estate of a given size?

(d) Would the industrial facilities and social amenities be enough to attract and hold industry and personnel from elsewhere?

This question assumes particular importance when it is envisaged to establish an estate in a rural or backward area. Sometimes locations are selected for political reasons, in which case the risk of failure is high. The failure of an estate can have a deleterious effect upon the development of a rural area. Such was the case in two estates in Mysore: Gulbarga

and Ramnagaram, which were set up with the object of attracting industrial units away from conurbations. Gulbarga remained largely vacant: the three units which moved on to it coming from the town itself and not, as had been hoped, from major cities. The Ramnagaram estate was rather more successful, in that five out of seven new units came from Bombay. This survey found that, in general, establishing new industries in, or shifting existing enterprises to, economically backward or rural areas was fraught with difficulties which could not be surmounted by simply setting up industrial estates. All the evidence suggests that, if it is decided for developmental reasons to locate an estate in a rural or backward area, the authorities must offer incentives sufficient to overcome the commercial and other disadvantages of the site, these costs being considered as part of the regional development costs. An example of this approach are the estates in Chubut, Argentina, which at first sight appear unattractive. The inducements offered by the provincial authorities, however, are such that industry has been attracted despite the estates' relative remoteness from markets and raw material sources.

The question of location in rural areas does not appear to have been sufficiently thought through. Too often, estates so located tend to be miniature urban estates, the only "rural" element being the land. Rural estates are most likely to succeed when:

(a) They are run on a comparatively modest scale;

(b) They are run by local people, and not by people coming from big cities;

(c) They are run in accordance with local objectives and activities, using as much as possible those materials and skills in which local people enjoy a comparative advantage.

In India and elsewhere, it is becoming apparent that the time needed to develop estates in rural or backward areas, and probably in least developed countries as well, may be much longer than was originally thought. A period of 10 to 15 years does not seem excessive in the light of recent experience. In the case of urban estates the development period may be expected to be much shorter. However, the example of the estates in the Santa Fé Province of Argentina would seem to suggest that even in the case of urban and semi-urban estates with entrepreneurs ready to move, the period between inception and full occupancy may still be several years.

One important factor of particular relevance to firms moving from cities to estates in rural areas would seem to have been completely overlooked. It relates to the purely human questions affecting the industrialists, their families and employees. In most developing countries, the difference between town and countryside is much more marked than in more advanced countries. Villages, and even comparatively large towns, may lack almost all the amenities to which city dwellers, even those in modest circumstances, are accustomed. The difficulties of persuading professional men, such as doctors and civil servants, to serve in remote areas is well known in some developed countries. It is understandable that industrialists, who have lived all their lives in a city and whose families are established there, should be reluctant to move to country towns. Their wives are likely to be even more reluctant to move and problems may arise regarding the children's schooling - all of which adds to the commercial and business problems involved.

While there would appear to be no statutory minimum size for towns needed to ensure the viability of an estate, the average population of towns supporting estates would seem to be 40,000. More essential to viability was the nature and intensity of local activity, and whether production was directed primarily towards the satisfaction of local needs or towards the requirements of large urban markets. Also important is easy access to local centres so as to permit quick deliveries, direct contacts with clients and short commuting distances for workers.

Site selection is governed primarily by the physical characteristics of the site: it should not involve too much earthmoving; it should be secure from flooding; and it should be equipped with the requisite public utilities. Furthermore, it should be so situated that environmental damage and urban encroachment are avoided.

The Ministry of Industry and Technology in Turkey pays particular attention to site selection prior to lending government support to estates seeking funds and the evaluation criteria it uses include price as well as technical and environmental suitability. The Ministry refused loans to building co-operatives purchasing sites which do not meet its requirements. Conflicts often arise between the co-operative reluctant to move away from cities and the Ministry which sees the potential dangers of buying land too close to cities.

The Indian studies suggest a minimum estate size in terms of the number of firms below which central services and similar facilities cannot be operated economically. It is quite clear that when an estate only contains two or three firms, it ceases to be an industrial estate as such. There is also a minimum number of firms in the same or related industrial branches below which it is not feasible to have common facilities. Firm figures cannot be given since a number of factors have to be considered, such as the number and nature of the industries, industrial plant sizes, the method of common services being used, and the levels of development. Where market demand for an estate is so low that only a few firms may be expected to participate, it is not worth promoting.

There would appear to be no upper limit to the size of an estate: however, individual firm sizes are a decisive factor. In the course of the study, estates containing up to 700 firms were visited in Turkey, where a new estate at Gaziantep has 1,200 potential members signed up. However, the average size of the firms on these estates is very small; most are no more than artisan workshops with three or four employees. Few of them have common facilities, except on the estate at Gaziantep, which has been supported by UNDP/UNIDO. Despite the size of the toolroom, prototype shop, treatment shops and laboratories at Gaziantep, there is every possibility that they will be overwhelmed with work once all the firms have moved to the estate. At the other extreme, the large and medium-sized industries estate at Karachi, which contains 823 firms and provides employment for over 100,000 people, has no common services and the firms are not organically linked. Contrary to the general belief that, with respect to infrastructure and services, large industrial estates offer cost advantages, experience in some small countries suggests that establishing small estates near a number of smaller towns rather than one large estate near a major town may serve to provide more employment to local people since they are not obliged to travel long distances daily.

The infrastructure of the nearest town is decisive in its effect upon the cost of supplying public utilities, communications and transport facilities to the estate. The absence of such an infrastructure may make the cost of estate development prohibitive. It may also be important that the firms on the estate be able to purchase raw materials, spare parts, minor tools and equipment, and office supplies in the nearest town, in addition to acquiring legal and other professional services.

Government objectives in establishing estates

In the countries visited, the declared objectives of the Governments for promoting and supporting estates were diverse and sometimes contradictory. For example, decentralizing in favour of backward regions, which are likely to be distant from main markets and with poor communications, may conflict with efforts to attract new or foreign firms. This happened at Cuenca, Ecuador.

The objectives of an industrial estates programme cannot be divorced from national economic development and industrialization aims. An estates programme is but one tool of the many needed to further these aims and, like any tool, it has to be used to do the job for which it is best suited. In the same way, an individual estate must have organic linkages with the region in which it is located and have a role to play in the development of that region. For this reason, administrative power over industrial estates programmes should be decentralized and delegated to the lowest feasible level (e.g., provincial or municipal). Most countries which have federal structures appear to have done this, among them Argentina, India, Malaysia and Turkey.

Objectives may be classified as primary or secondary. A primary objective may be the creation of employment and the generation of additional output; a secondary one may be the removal of industry from cities to relieve congestion. Experience suggests that these objectives are compatible, since relocation to more spacious premises with improved working conditions enables workshops to become more productive and, in the medium term, permits increases in the number of machines and workplaces, which in turn provide more employment. On the other hand, setting up estates in rural areas with the primary aim of diversifying economic activity in those areas may be conditional on accepting, for some years, a lower level of productivity in the estates' enterprises than would be acceptable had they been established in urban estates.

One factor emerged clearly from the studies conducted: whatever objectives the Government may set, they should be rigidly adhered to (after all the necessary preliminary studies have been completed) and not changed unless the conditions which governed their original formulation also change. Malaysia's successful estates programme undoubtedly owes a lot to the Government's having tailored it to the realities of the

situation and then establishing a system of incentives and taken other action in support of policies consistent with the objectives. In Argentina, on the other hand, the Government, at both federal and provincial levels, has undertaken an extensive series of feasibility studies, but has not, in the main, pursued its campaign very vigorously. The delays in Santa Fé province are specifically ascribed to changes in policy resulting from changes in Government over the past few years, incoming ministers and civil servants having to be convinced anew of the importance of the programme. Other provinces, however, notably Chubut and Neuquen, have adhered to the original concept and are beginning to reap the rewards.

In India, the objectives for specific estates are as diverse as the estates programme is vast. In the case of the estates specifically designed to promote technologically advanced industries or specially qualified groups of entrepreneurs, there is evidence that the original aims have been pursued and that all necessary facilities and incentives for success have been provided. In any case, in the 20 years of the programme's existence, the Government has continuously reviewed its performance and modified its objectives whenever they were seer to be unrealistic.

In a modest way, the Nepalese Government seems to be achieving its aims. In centrally controlled economies such as Cuba the problem does not arise, except in so far as the policies themselves may prove faulty and an industrial zone be established in an unsuitable location.

The depth of feasibility and pre-investment studies

An industrial estate is a business venture, even if it is not required to show a profit in the accepted sense of the term. It involves the often considerable investment of public and private funds and the element of risk inherent in any new venture. It is the duty of prudent management to minimize risks in decision-making by ensuring that all relevant factors are taken into account and appropriate information collected in the course of feasibility studies. The factors which should be taken into consideration include most of those listed earlier in this chapter.

Since setting up new firms or moving existing ones on to an industrial estate may be expected to increase productive capacity, market surveys must

project the possibilities of market expansion. Productivity in enterprises in developing countries is often very low - sometimes insufficient to meet market demands, which sometimes leaves industrialists with the impression that they can sell everything they produce. However, it can happen that even small increases in productivity on the part of a few firms, such as might be expected after moving on to an industrial estate, may saturate the market to the extent that firms find themselves operating below capacity. At local levels, the elements governing location, discussed above, should be carefully assessed in pre-investment studies.

Further to influencing size, location, and other estate parameters, the findings of the feasibility and pre-investment studies will determine the supporting action to be undertaken, be it financial aid, fiscal concessions, subsidies and other incentives, or the provision of various facilities and services. The types of support or incentive needed can only be determined when the actual requirements revealed by the studies are examined in the light of the declared objectives of the programme or estate. The objectives may, thus, be modified as a result of the findings.

Such studies should take into account not only government policies and objectives, but also the views and attitudes of the industrialists expected to settle on the estate. The potential users should be associated closely with the studies at all stages. The cost-benefit estimates made in the study should be related not only to the objectives of the Government, but also to those of the firms it is hoped to attract.

It is recognized that decisions as to the location of industrial estates are often governed by political motives. An industrial estate established in a community through the efforts of a local politician is tangible proof of his having worked on behalf of his constituents. Nevertheless, a decision to establish an estate should never be based on such motives alone. The appropriate authorities should at least be in possession of the relevant survey data in order that they may see clearly the risks involved if they choose to disregard the findings. Contradictions between the declared objectives and the possibilities of implementing them must be pointed out.

In Argentina, feasibility studies are mandatory if a project is to receive official backing. In India, feasibility studies are normally stipulated by the Government; however, these have not always been carried out effectively in the past, leading to bad choice of location. In Turkey, the Government

does not insist on feasibility studies, but when approached to approve an estate, it carries out a two-phase survey, comprising a questionnaire directed to the local authorities and a field survey conducted by an official team. The questionnaire is designed to obtain information on the socio-economic structure of the small industries in the town and on all matters relative to the proposed estate and its member firms, including their credit ratings. The team, which consists of an industrial economist, an architect and a mechanical engineer, follows up the questionnaires, discusses the data obtained with the representatives of the group promoting the estate and the local authorities, and examines the proposed site. The Turkish programme differs from most normal government-sponsored programmes in that the decision to establish an estate is taken by a group of industrialists who ensure full occupancy while the contribution asked of the Government is comparatively small, the main risk being borne by the industrialists themselves.

Financing methods

In general, the ready availability of funds to both estates and individual enterprises is considered more important to success than, for example, a low rate of interest. Most countries have institutions capable of financing estates, but in many cases Governments do so in the form of direct grants or loans. In countries with federal structures, the central Government usually finances industrial estates programmes through provincial or state Governments, leaving the provinces to administer the distribution of funds to individual estates.

In Turkey, the Government grants direct credits to executing agencies for buildings only. These may cover up to 70 per cent of the construction costs of both industrial and administrative buildings in standard regions, or up to 100 per cent in economically depressed regions. The loans are paid back over 10 years at an annual interest rate of 5 per cent - well below normal commercial rates. It is a condition of government aid that land be bought by the industrialists themselves, while the cost of infrastructure can be met through loans from a government bank set up especially to cater for municipalities.

Whereas in Turkey all the buildings are accounted for before the estate is approved, in other countries large sums of money have been invested in

buildings which remain vacant for years. Today, it is considered best for the authorities to invest in the land and infrastructure, and subsequently to provide tenant industrialists with low-cost, long-term loans to build (if necessary to approved designs) since such an approach involves less capital being tied up. Plans for phased development should also be built into estate projects where occupancy rates are uncertain.

In Turkey, where the buildings on any one estate are generally of a very functional standard design, building costs vary widely. For example, on the estates completed up to the end of 1975, the average unit cost varied from 7,954 to 73,324 TL. Admittedly, the cheapest buildings may be nothing more than small artisan workshops on very small estates. If, however, the highest and lowest unit costs quoted are eliminated, there is still no correlation between (a) costs and the number of buildings, or (b) (within certain limits) costs and the date of construction. It has been observed that when Governments and other public bodies are directly responsible for building programmes, costs tend to rise, a possible explanation being that Governments tend to demand higher specifications than private firms. A second explanation could be that the bureaucratic handling of contracts incurs greater overheads. Whatever the cause, it would seem that the financing agency should monitor to some degree the building operations, including tendering and cost control.

Support by Government and other authorities

The survey showed that in practically all oases, government benefits to small industry comprised:

(a) Direct financial aid to enterprises;

(b) Fiscal concessions;

(c) Marketing assistance and guaranteeing supplies of raw materials;

(d) Technical assistance, including extension services.

Direct financial aid includes loans, credits and grants for the purchase of land, plant and equipment, the construction of infrastructure and buildings and low-interest loans for working capital and subsidized rents. Such financial aid is a major incentive to move on to industrial estates, especially when it is provided more readily to estate firms than to firms

outside. One of the problems common to industrialists everywhere is that if they do not have security in the form of land or buildings, development banks are reluctant to provide loans. In Turkey, where the Government had accepted land as collateral for building loans, firms encountered great difficulty in obtaining loans for equipment purchase from the appropriate state bank. In most countries, banks are generally unwilling to grant loans against equipment, even when approached by co-operatives. Development banks should be encouraged to adopt more liberal criteria for approving loans to small enterprises than those applied by commercial banks: they should place more emphasis on project merit than on collateral. At the same time, they should supervise the use of their funds closely. This in turn might demand specially qualified bank personnel who, in several countries, have already been given training in project development and management.

Most schemes designed to assist firms to purchase land and buildings on industrial estates feature loans repayable over a number of years at a low rate of interest. In the Santa Fé Province, Argentina, the provincial government offers loans for the purchase of land and the construction of infrastructure. This has to be repaid over 5 years at an interest of 8 3/4 per cent, calculated half-yearly and indexed. Up to May 1976, of a total of 469 million new pesos invested in infrastructure in seven estates, 342 million had originated from the provincial government, the balance coming from the private sector and other bodies such as municipalities.

On the estate at Trelew, in Chubut province, cheap land may be bought in four six-monthly instalments at commercial interest rates. Mortgages are available through the national development bank and the provincial bank. Firms are required to submit progress reports every three months and to erect buildings covering not less than 30 per cent of their sites within five years of the date of purchase.

The financial benefits offered by the Indian Government to small irdustry include loans for fixed assets and for working capital, guarantees for loans by commercial banks (through a credit guarantee scheme of the Reserve Bank of India), as well as hire-purchase schemes for plant and machinery (through the National Small Industries Corporation and State Small Industries Corporations). Firms on industrial estates may also enjoy subsidized rents and hire-purchase facilities for land and buildings.

Such benefits as subsidized rents and the estates authorities' readiness to allow rent arrears to mount over long periods, have, however, undoubtedly prolonged the existence of firms on estates which would otherwise have disappeared in a standard commercial environment. The answer to this probably lies in a stricter selection of firms in the first place. This subject is discussed in the next section.

Fiscal concessions are widely used to promote small enterprises and to attract firms to industrial estates, especially those in economically depressed regions. The Malaysian Government appears to have been successful in decentralizing industry using this policy. Companies accorded "pioneer" status are exempt from income tax for two to three years, while those not so classified can obtain other forms of tax relief, such as labour utilization relief (based on the number of full-time employees) and investment tax credit, which allows companies to deduct from their taxable income a sum equal to at least 25 per cent of the amount spent on fixed assets. A further 5 per cent may be deducted if the factory is situated in an area earmarked for development.

The Argentine authorities consider that their incentive system, which includes substantial relief from duties and taxes, has contributed appreciably to the success of their decentralization policy. Among the incentives offered by Chubut Province are:

(a) Exemption from, or reduction of, various taxes, including sales tax and value-added-tax on finished products and raw materials;

(b) Until 1980, exemption from the (heavy) tax on buildings;

(c) Until 1980, exemption from stamp duties;

(d) Exemption from vehicle tax;

(e) Low tariffs on water and electricity.

The last concession is of particular importance to the artificial fibre and textile industries.

In Ecuador, small industry benefits from a similar range of concessions, which, however, seems to have had no effect on the industrial estates. In Turkey, on the other hand, small firms, on industrial estates or off, receive few fiscal concessions. Full import duty is levied on machine tools imported by workers returning from Western Europe for use on industrial estates.

India is particularly active in providing marketing assistance and guaranteeing supplies of raw materials to small industry, on or off estates. Under the Government stores purchasing programme, 222 items are tagged for procurement from small-scale industry. The Small Industry Service Institutes provide market surveys, feasibility studies and industrial-potential surveys. The development of 177 products is restricted to small-scale industry. Small industry enjoys set quotas of scarce raw materials, and local supply depots are maintained. In Iran on the estate at Ahwaz, and in Senegal on the estate at Thies, firms are given assistance in dealing with the authorities and in obtaining scarce raw materials. In Pakistan, a major attraction of the estates at Sialkot and Gujranwala was the foreign currency credits made available to estate members, but unfortunately, many firms have slipped heavily into arrears.

One major advantage which industrial estates might be expected to have over firms outside lies in the ease with which they can avail themselves of extension services and use common facilities, such as treatment shops, toolrooms, quality control laboratories and foundries. Grouping firms together makes it easier to run technical and management training programmes, and to provide advisory services. In Turkey, the industrial estates are given priority in the training programme drawn up by the Ministry of Industry and Technology. With the exception of those in India, few estates have set up effective central services, and even in India, a third of the common facilities originally set up have since been shut down or handed over to the state or private enterprise.

It is only advantageous to install common facilities on an estate, when it is (a) of a minimum size in terms of numbers of firms and of demand; or (b) when there is a sufficient number of firms in the same or kindred branches of industry to make it worth maintaining such services. It is therefore essential that careful assessment be made at an early stage of the degree of utilization of any proposed facilities. In two of the estates visited, Ahwaz in Iran and Yaba in Nigeria, the workshops were disproportionately large for the numbers of firms using them, and the estates in any case were mixed, with the result that few firms were able to take advantage of the common services. The well-equipped central workshops and laboratories of the Gaziantep estate, on the other hand, were much utilized and appreciated by firms in the city while still waiting to move out to the estate. When fully occupied, this estate will hold some 1,200 small firms, which should keep the central workshops busy.

Firms moving on to industrial estates rarely appreciate the possibilities they offer, apart from the tangible subsidies or incentives. It has always been difficult to sell the idea of training and the use of specialized services to the mass of industry, and firms on industrial estates are no exception. Since most incentive schemes and fiscal concessions are applicable to small firms regardless of whether they are on industrial estates, the real attraction, apart from low rents and cheap sites, lies in the possible benefits to be gained from proximity to organized joint training and advisory services and, where applicable, common workshops and similar facilities. It is up to the authorities creating the estates to ensure that each of them is so structured that the fullest possible advantages can be derived.

Selection of industries, product lines, technologies and entrepreneurs

An industrial estate can rarely be effective and yield the optimum benefits in terms of inter-firm contracting, common facilities and extension services if it has too few firms on it belonging to the same industrial branch. In such circumstances, the main benefits might be the subsidized rentals, the cheap plots and buildings, or possibly the convenience of having certain amenities such as banks, shops or canteens at hand. The estate would contribute nothing, however, to the improvement of the firms' performance, nor to their increased trading.

There is considerable scope in several industries for firms to complement one another and to profit from central workshops and other facilities. In India, the most successful estates appear to be those which house specialized industry groups, as well as estates where small firms are ancillary to larger ones.

The choice of product lines and their associated technologies is especially important in selecting industries for estates in rural areas and remote from large urban centres. As far as possible, product lines of firms on these estates should exploit local materials. When artisans and small industrialists on rural estates attempt to imitate slavishly the products of urban firms, they inevitably find themselves at a disadvantage, if only because they do not easily dispose of the materials and skilled labour necessary for the manufacture of such products.

In developing countries as a rule very few officials or industrialists are capable of assessing the optimum plant mix for an enterprise working in a given economic environment, let alone know the range of equipment available to any one industry. Thus, officials charged with purchasing capital equipment and industrialists or their technical managers are more or less at the mercy of salesmen who, quite naturally, are more interested in selling their products than in giving impartial advice.

This, obviously, is an area that needs attention. UNIDO already provides assistance to industries in developing countries in the selection of plant and equipment, but this service might be expanded and improved. In the meantime, financing authorities should maintain better control over low-interest loans to ensure that they are spent as efficiently as possible, which would appear to be more rational than suppressing them altogether because a minority may misuse them.

Finally, if an estate is to achieve its objectives, the industrialists accepted for participation must be those best able to take advantage of the benefits offered. Government money spent on establishing an industrial estate will have been misused if the firms on the estate fail to develop as anticipated. If an estate has been set up to provide employment, there may be some justification for maintaining inefficient firms as a form of unemployment relief; but if the intention is to support efficient small industry, such tolerance is hardly justified.

Any population with a normal distribution will include a small percentage with outstanding entrepreneurial abilities. These can be counted upon to prosper in the long run without much external intervention, and if facilities are provided, they will derive more benefit from them than most. Next come a percentage which, though able businessmen, nevertheless need some support to attain peak performance. The last category ranges from the competent to the altogether incompetent.

Industrialization cannot be carried through by the first category alone: it needs a mix of all three categories. Those who may not be very good at running businesses may still be competent craftsmen.

When it comes to selecting entrepreneurs for places on heavily subsidized and assisted industrial estates, there seems to be a case for choosing those who have proven or potential entrepreneurial acumen. It is often difficult,

however, to select such entrepreneurs from among the myriad firms, often operating under adverse conditions, in cramped premises, and comparatively ignorant of modern technological and managerial matters. Studying a firm's past performance, especially its financial records, and assessing the reputation of its owner (part of the procedure adopted in Turkey) are standard methods of detecting entrepreneurial ability even among relatively new small-scale undertakings. In India, however, the authorities have become increasingly selective, particularly in the case of the specialized estates. Since 1971, the Gujarat Industrial Development Corporation, together with two state financial corporations concerned with industrial development, have run entrepreneurship development programmes. These are designed to develop a class of new young entrepreneurs from among technical graduates and others employed in industry and business (including unemployed engineers), and to encourage them to set up their own industrial ventures.

An intensive selection process lasting several days and culminating in a series of interviews is used to determine the candidates' entrepreneurial potential. The rigour of the selection process is illustrated by the fact that only 55 out of the original 540 applicants were accepted for the training programme. The methods used include modifications of the "achievement motivation" programmes developed by Professor McClelland of Harvard University. His techniques are currently being used in some UNIDO projects, notably in Indonesia, where preliminary results are promising. Although it is not suggested that estates applicants be necessarily subjected to tests as rigorous as those conducted in Gujarat, some degree of testing might weed out potential failures.

Organization and management of the estate

This factor was not examined in any depth in the course of the studies. Its relative importance to the success of an estate clearly depends on the degree to which the estate is an organic entity and the degree to which it is simply a number of firms grouped closely together, linked by service roads in a zone reserved for industry. In the latter case the estate management is limited to service operations, road maintenance, rent collection or similar "municipal" duties.

The co-operative nature of the Turkish estates ensures that, even after all the land and buildings have been paid for, a collective spirit remains. As a rule, estate management is entrusted to a board elected from among the members of the building co-operative, all of whom are industrialists. The services given by the members, including those of the chairman, are voluntary. In only one instance did an estate have a full-time, salaried director to manage the building co-operative. It may be significant that on this estate the time that elapsed between the initiation of the idea and the completion of the estate was notably shorter than average. Co-operatives have the added merit of requiring much less government financial commitment than estates directly promoted by the Government, and they can be dealt with more simply and cheaply than individual firms.

Estate management is an all-important point and calls for a person with the appropriate experience and qualifications. When central services are available, he should be responsible for their management and proper functioning. At Gaziantep, estate management involves not only control over workshop and laboratory facilities, but also common services provided by the huge estate.

Even where common services do not exist, the estate manager can play an important role in helping member firms in their contacts with the authorities. The management at both Ahwaz and Thies, for example, apply on behalf of tenant firms for the permits or quotas needed to obtain raw materials and other goods. Some estates, for example Yaba in Nigeria, have managers who are technically or managerially qualified and can help and advise estate members with their technical and managerial problems.

In the least developed countries and in economically depressed areas, professionally competent estate management is essential. This may have to be provided in the early years by international experts or expatriate staff. In any event, future estate managers as well as officials associated with industrial estate programmes should be thoroughly trained at home and abroad so that they can participate effectively from the outset.

Advantages seen by potential occupants

Potential occupants must be convinced of the advantages of moving onto an estate, decisive factors being:

(a) The advantage of estate premises over present premises, in terms of space, expansion possibilities and working conditions;

(b) Policy of urban planning authorities, with respect to zoning and relocating industry;

(c) Comparative cost of purchasing or renting land and premises;

(d) Proximity to customers, suppliers and markets and the possible risk of competitors taking over favourably located former premises;

(e) Possibility of doing business with firms on the estate or, conversely, possibility of losing business previously enjoyed with other firms;

(f) Access to common facilities, such as warehouses, central workshops or training programmes;

(g) Eligibility for credit facilities, fiscal and other benefits offered by Government or other public authorities.

In Turkey, active promotion on the part of the Government was needed to overcome initial inertia on the part of industrialists. Conditions, even in many medium-sized towns, were particularly conducive to the establishment of industrial estates in that the workshops were intolerably cramped and expansion and increase of business often impossible: in Gaziantep, for example, a number of important plants were operating in caves. Municipal councils, anxious to reduce urban congestion, were willing to offer land at very favourable prices, and to guarantee that premises vacated would not be re-occupied by rival businesses. This guarantee was particularly appreciated since the fear of losing their old customers had been a powerful deterrent to moving to estates.

In Santa Fé Province, Argentina, some of the more forward-looking industrialists joined with United Nations experts in convincing other local businessmen that the proposed estates would benefit them. The manager of commercial estates near Buenos Aires suggested that the most decisive factor, particularly for medium and large-size firms, was the time saved in moving to an area where the infrastructure was prepared and no planning permission had to be obtained. In Buenos Aires, this could mean a time-saving of up to two years, since not only were there bureaucratic delays at every juncture, but power, water and natural gas might also have to be brought considerable distances at great expense.

Conclusions

The success of an industrial estate and of a programme lay ultimately in the success of participating enterprises. Industry, whether on an estate or off, could not succeed if national or local purchasing power was insufficient or if the products manufactured did not correspond to market needs. The determination of such market needs should, therefore, be a major feature of feasibility studies carried out prior to the establishment of an industrial estate. Moreover, whereas, under normal circumstances, the type of industry selected for an estate should correspond to the industries and skills already available in, or which could be attracted to, the area, completely new industries had been successfully developed in areas with no industrial tradition.

Failure to pay sufficient attention to the location, siting and size of the estate, and to the urban infrastructure, had resulted in the comparative or even complete failure of estates.

These elements assumed particular importance, however, when it was a question of locating an estate in an economically depressed area. Rural industrial estates needed more systematic conceptualization than they had been given in the past. Apart from the techno-economic problems associated with their establishment, socio-cultural problems could arise when introducing an estate in an area hitherto untouched by industry. The transfer of entrepreneurs and staff, together with their families, from urban to rural environments could give rise to domestic and other tensions. Rural estates must be assured support on the part of the local community.

If industrial estates were established in economically depressed areas to stimulate industrial growth, greater investment in terms of both money and effort would be needed than in those located in economically prosperous areas. Consequently, it might be necessary to accept, over a long period of time, a rate of occupancy below the normally accepted level. In the case of larger estates, planners would be wise to consider realistic phasing of development stages.

If common facilities in the form of workshops and laboratories were to be provided, an estate should comprise not only a minimum number of firms essential to economic operation, but also a minimum number in the

same or related branches of industry. Market demand, and, in certain cases, local demand, would also be a factor determining the size of any given estate.

Despite the declared preference for large estates which enjoyed economies of scale and a greater impact, in many cases the establishment of smaller estates near scattered townships would be more appropriate. This, however, depended on the distribution of population and resources and on the potential development of physical and social infrastructure in the country concerned.

An industrial estate programme could not be carried out in isolation from the national economic and industrial development effort. At the regional and district level every effort must be made to involve local population authorities from the outset, otherwise the estates would be seen to be an imposition from above.

Objectives must be determined on the basis of proper economic, social and technological studies. Failure to carry out such studies could seriously jeopardize the effectiveness of industrial estates and sometimes of whole programmes. The feasibility and related preliminary studies, while remaining wholly objective, had to be carried out in the context of, and related to, government objectives and policies. At the same time industries and industrialists, potential participants in estate programmes, should be associated with the preliminary studies and their needs related to government policies. Once the objectives of a programme or of an individual estate have been determined, the responsible authorities must provide whatever support (financial, fiscal, promotional and technical) is needed.

Estate buildings constructed by the Government were usually more expensive than those constructed privately, possibly due to the application of unnecessarily high standards. Furthermore, the economies of scale had not often proved applicable to the construction of infrastructure and buildings on industrial estates.

Government support in one form or another was essential to practically all industrial estates for small-scale and medium-sized enterprises in their early years. In the least developed countries, such support would be needed for a longer time.

Very few Governments - India being the most notable exception - offered a comprehensive range of support, while the range of such benefits and concessions offered in other countries applied to small-scale industry in general.

Financial aid, while recognised as a major incentive to move on to industrial estates, should be supplemented from the industrialists' own funds. Exceptions might be made for highly qualified craftsmen lacking personal capital whom the Government might wish to develop into industrialists. Similarly, an exception might be made for entrepreneurs in economically depressed regions and least developed countries.

As part of their integrated programmes of assistance to small-scale enterprises, developing countries should consider instituting systems of credit guarantees and rediscounting by central banks or other government institutions as a means of reducing the risk to the lending banks and of spreading resources among many more borrowers. The availability of credit was often more important to small businessmen than low interest rates.

Where low interest loans were provided for the purchase of machinery, especially when combined with partial or total remission of import duties, industrialists were apt to purchase equipment that was more expensive (and sometimes more advanced) than strictly necessary. This represented a serious misuse of scarce resources in countries suffering a shortage of capital and foreign exchange. Large sums of foreign currency could be saved, if advisory services on the matching of imported machinery to local conditions were made available in the developing countries.

Incentives in the form of guaranteed quotas and supplies of raw materials at controlled prices constituted an effective means of attracting firms to take up places on industrial estates.

Chapter V

ECONOMIC AND SOCIAL EFFECTS OF INDUSTRIAL ESTATES

Indirect economic benefits

The indirect economic benefits of industrial estates usually fall under two principal headings: first, the increased use of local materials; and, second, the promotion of local industry and commerce ancillary to the estates, as well as the general stimulation of the local economy.

Of the countries covered in the survey, however, only in Malaysia and Nepal was much use of local raw materials reported. In Malaysia, rubber, timber, leather, coconut fibre, coffee, vegetable oils and other local agricultural products are among the materials used by firms on the estates; and since most of the firms are new, this suggests greatly increased utilization of national resources. In Nepal, much use is made of local materials, including leather, cement and timber.

The survey did not uncover much evidence either of the second category of indirect effect. Most of the indirect benefits registered were enjoyed by the service industries - from stalls set up at the gates to sell food to the estate workers, to the estate's restaurants, banks, post offices and shops, all of which provided employment.

It stands to reason, however, that a large industrial estate with thousands of employees will bring additional prosperity to any town, especially a small town. The impact of 3,000 new jobs on Trelew, Argentina, a small town which already enjoyed full employment, has been considerable. The side effects are also visible: as most of the firms on the estate have their headquarters in Buenos Aires, 1,400 kilometres away, there is a steady coming and going of executives and other head-office staff, all of whom patronise the local shops, hotels, restaurants and other services.

A new concentration of industry would have the same effect, but it may be that an industrial estate brings it about more intensively than a slow buildup over a long period. This is most dramatically shown in Malaysia where some estates have given birth to completely new towns.

Social effects

Social effects are difficult to identify and isolate. In most countries, industrial estates are essentially "rationalised workplaces", social considerations being considered of secondary importance. In Malaysia, for example, the strictly functional character of the estates is attractive to the industrialists as it keeps the cost down.

The social aspects of industrial estates may be grouped as follows:

(a) The development and upgrading of human skills;
(b) Amenities and common facilities for employees;
(c) Safety and health;
(d) Trade unionism and industrial relations;
(e) Effects on specific groups;
(f) Interaction with the local community.

The development and upgrading of human skills

Industrial estates should, in theory, greatly facilitate all forms of training. The Thies estate in Senegal was set up with the specific aim of grooming artisans to become industrialists. In India the Craftsmen's and Technocrats' estates have similar objectives, while management training is available on Sri Lanka's Pallakelle estate.

The Turkish Ministry of Industry and Technology includes management training in its programmes, priority being given to participants from industrial estates. In several countries, industrial estate firms use the facilities offered by local technical schools and colleges for the purpose of upgrading their workers' skills. It has been noted that the presence on an estate of many firms in the same branch of industry stimulates employers to provide further theoretical and practical training for their staffs.

Nevertheless, from the point of view of economy and flexibility of operation it is probably better to have extension services and training facilities servicing industry as a whole and operating independent of industrial estates. Only very large and homogeneous estates can afford the luxury of their own comprehensive extension and training services. If, however, an extension service or technical institute is located on an industrial estate, it should also be capable of serving firms on the outside.

Amenities

On the whole, employee amenities on the estates visited were few. Some of the Indian estates had central canteens, and one had a restaurant. Six estates had post offices and bank branches (which were at least of as much value to the management as to the workers) and had a school.

In some estates in Argentina, canteens, restaurants and other facilities are planned. Most estates in Turkey had restaurants serving meals at low prices, and a number had shower facilities and barber shops.

In Malaysia, estates located at a distance from towns provide housing for their workers; in some cases complete new towns have been constructed. Some of the Indian estates also offered housing for the workers. These were generally rare cases, however, since estates in most places were located near urban centres.

Health and safety

In general, working conditions on industrial estates were found to be better than on the outside, if only because the buildings were better constructed, more spacious and with better lighting and ventilation. One of the claims made for industrial estates is that they make labour inspection much easier. This was specifically mentioned in Nigeria, where working conditions were seen to be much better than in small firms outside. Protective clothing and machine guards were used fairly consistently.

In Malaysia, the regular use of machine guards and safety clothing on industrial estates has resulted in a sharp drop in accidents. In addition, each factory is obliged to have first aid facilities; large plants are required to have doctors and even clinics for the treatment of workers' families.

In Nepal, although working conditions in general were far superior in estate firms than in firms outside, safety left something to be desired. It is reported, however, that welfare measures pioneered by the Balaju Estate Shantra Factory have been adopted in recent welfare legislation. Several firms on the estate were forced to adopt them even before the legislation was passed.

In Sri Lanka, working conditions in estate firms are reported to be better than in firms outside. In Turkey, on the other hand, much has to be done to enforce the adoption of safety measures by firms on the estates.

Trade unions and industrial relations

The level of trade union activity in firms on industrial estates depended upon the general level of development of the country concerned. In Malaysia, a widespread and active trade union movement, with a high level of membership, exists on estates and labour relations are said to be cordial. In Argentina, trade union activity had been suspended at the time of the study. Normally, there is little or no unionism in small firms, but a high percentage in large ones.

In Sri Lanka trade union membership is general; it is reported to be welcomed by the large firms and tolerated by the small ones. Labour relations generally are good. Nepal does not have trade unions as such, but workers are incorporated in a national movement, and a structure exists for handling disputes (which are few). Nigeria has an active but rather splintered trade union movement, but no unionism was found on the small industry estates. Turkey also has a strong trade union movement, but membership is rare on small industry estates. On one estate visited, it was beginning to make inroads, but was meeting with hostility from employers. Trade unions are active on estates in Pakistan, but seem to have had little effect on working conditions.

Finally, there is no evidence to suggest that small industry estates in themselves promote trade unionism when it is not already active, nor that they improve labour-management relations.

Effects on specific groups

The only specific groups which appeared to have been affected by the introduction of industrial estates were women, in Argentina and Malaysia, and the engineers and craftsmen on the specialized estates in India.

At Trelew, the large-scale employment of women, many of them Bolivian and Chilean immigrants, in an area where female employment was previously lacking, may, in the long run, have social repercussions. Malaysian women who until recently led very circumscribed lives, especially in the villages, are now finding employment in factories on the estates and working alongside men.

Interaction with the community

An estate and the region to which it is expected to contribute

economically and socially should interact, particularly when the region is a rural one. In none of the countries studied, however, was there any evidence of real interaction with local communities other than, perhaps, the improvement of some roads, street lighting and bus services to the estate. In Malaysia, public amenities, such as playgrounds and golf courses, have sprung up around the estates. A former squatter resettlement area at Petaling Jaya now boasts several cinemas, a bowling alley and a five-star hotel. When an industrial estate is associated with the development of a particular town, the planners normally provide for a shopping centre, recreational facilities and schools. Even in the most modest estate housing scheme, space is allocated for schools, shops and recreation facilities.

Little evidence of any special interaction with the community was found in Turkey, perhaps because all the firms on the small industry estates had been long established in the towns before moving out a few kilometres. The benefits to the towns involved were less congestion and the clearance of old and decrepit buildings, thus making for aesthetic and environmental improvement.

Conclusions

Evidence is not forthcoming that industrial estates, in themselves, have either a significant or indirect economic effect on local communities other than would occur upon the establishment of substantial industries or through the generation of increased employment by other means.

Chapter VI

INDUSTRIAL ESTATES IN THE LEAST DEVELOPED COUNTRIES

Although no studies were made specifically of the role of industrial estates in the least developed countries, three countries in this category, Nepal, Senegal and Sudan, were visited. At present, Sudan has no industrial estates, but was studied with a view to determining the pre-requisites for an industrial estates programme.

Least developed countries are comparable to economically depressed areas in some of the more industrially advanced developing countries, such as India. They can be identified on the basis of three major characteristics: 10/

(a) Per capita gross domestic product of $ 125 or less at 1970-1972 prices;

(b) Share of manufacturing in gross domestic product of 10 per cent or less;

(c) Proportion of literate persons in the age group 15 years and over of 20 per cent or less.

Typically, least developed countries lack: sound physical infrastructures; adequate financial institutions for the promotion of industrial development; mechanisms for foreign trade; governmental structures; and personnel capable of managing public finance and formulating and implementing programmes, policies and projects. As these countries differ considerably in the development of their resources, there can be no rule common to them all for the establishment of industrial estates. The populations of these countries also vary greatly which has a major bearing on the size of domestic markets, the potential for mobilizing entrepreneurial talent, and the availability of managerial and technical cadres. Of the 29 countries rated as least developed by the United Nations, the population distribution is:

10/ United Nations Committee for Development Planning: Report on the Seventh Session, pages 15 and 16; Report on the Eleventh Session, page 31; Identification of the least developed among developing countries: A Review in the Light of recent Information, E/AC.54/L.72, page 7.

Millions	
Less than 1	5
1 to 5	13
5 to 10	4
10 to 25	5
25 to 30	1
Greater than 70	1

The main problem in the least developed countries, apart from the obvious one of market size, is a lack of entrepreneurial, managerial, technical and skilled manpower capable of setting up, constructing and operating industrial enterprisee. The potential for industrial entrepreneurship is contingent upon several known and unknown variables, which include:

- Division of labour and monetization in the economy;
- Share of commercial farming in agriculture;
- Average size and distribution of cultivated holdings;
- Technical level of indigenous agriculture and handicrafts;
- Proportion of indigenous sector in foreign trade;
- Size of GNP;
- Structure of educational establishment.

Common to all least developed countries is the industrial sector's low share in GDP, partly attributable to an acute shortage of industrial entrepreneurs as distinct from the numerous non-industrial entrepreneurs in trades and services. Two other contributory factors are the grossly inadequate supply of trained manpower and the general absence of the ancillary facilities needed by industrial enterprises. Compensating mechanisms for these deficiencies have to be woven into, though not necessarily integrated in, the planning of industrial estates.

Potential industrial entrepreneurs are to be found in practically all least developed countries. The difficulty is to identify them, encourage them to become industrialists, and to train them accordingly. The feasibility of such an approach was reflected to a modest degree in the achievement motivation programmes designed by Professor McClelland and run in an ILO management development project in Uganda in the late 1960s. At that time, virtually all Ugandan industry and commerce was in the hands of non-Africans and the objectof the programme was to identify and promote indigenous entrepreneurs. A similar programme is currently being organised by UNIDO in Indonesia.

The enterprises set up by these neophyte entrepreneurs are, as may be expected, very small at first. Many of them are artisans, and their "factories" little more than enlarged workshops. As they may well have to undertake technical and manual work for some time, they may need technical training, especially in the use of more advanced production equipment. They will also require managerial training, covering financing, marketing and the organization of production and cost control.

In establishing training facilities it has to be borne in mind that many people with considerable entrepreneurial potential may well have enjoyed only little formal education and are thus quite unaccustomed to intensive study. On the Turkish estates, many burgeoning entrepreneurs were virtually illiterate and unable to read production drawings; however, this did not prevent them from making accurate copies of complicated machines and parts by measuring existing models. Courses in reading machine drawings were among the most popular in the extension programmes.

The above also applies in some measure to the economically depressed areas in the more industrialized of the developing countries. The essential difference is that firms in such areas have access to larger national markets and governments generally dispose of the financial and human resources needed to develop industry. In addition, the institutional infrastructure, albeit not as sophisticated as in the highly industrialized countries, at least offers a foundation for the development of the necessary technical assistance, as evidenced by experience in India.

Senegal's single estate, set up at Thies in 1967 with the object of helping artisans to become small industrialists, has enjoyed a modest success: over the years, five firms of the original nine established have reached the point where they are operating fairly profitably. Of the others, two are just breaking even and two are ailing. This result has been achieved at considerable capital cost and with a substantial and continuous injection of national and international technical assistance, which it is doubtful, could be sustained on a much larger scale. The estate is recognized as too small to be efficient, but a larger number of firms could be serviced without a proportionate rise in costs.

Nepal's industrial estates programme is small in relation to its total volume of industry, although about three-quarters of the industrial enterprises and rather less than 50 per cent of the employment is in rice milling and oil extraction plants. The industrial estates have a rather higher percentage of firms in the modern industrial sector. At the time of the study, some 114 establishments (of a potential 250) were operational on three estates, in which $ 2,132,516 had been invested. All the estates have rather large staffs which might be substantially reduced as they are primarily administrative. Training and management advisory services are supplied by various institutions and through international aid not directly connected with the estates.

The study of estates in least developed countries was too limited to allow far-reaching conclusions to be drawn. It does appear, however, that industrial estates are a valid means of developing industrialists in countries at the lowest level of industrial development, but that programmes so oriented demand substantial inputs of financial, technical and training resources, at least over ten years. These have to be considered, however, part of the over-all costs of a country's industrial development. The entrepreneurs have to be groomed closely and continuously at first to implant in them sound industrial "habits". To launch the first estates at minimum cost, and to get firms into operation, it may be necessary to compromise with standards of building, roads, working conditions and the like. No compromise, however, can be permitted in technical services and sources of power.

Estate size poses a problem. The Thies estate, in Senegal, for example, is considered too small to be economically viable. Certainly, if central workshops and other common facilities are to be made available, the size of the estate and its membership have to be above a certain minimum. One of the problems in the least developed countries is to find enough entrepreneurs in the same branch of industry to warrant the establishment of an estate with common services. In most cases (as in Nepal) it will be necessary to rely on service institutes covering small industry in general.

In least developed as in other countries, industrialists and their staff should be trained and machinery ordered while the estate is being constructed. This can only be done effectively, however, if the whole operation of selection and training, financing, capital goods purchase and

planning and construction of the estate are treated as one integrated operation. If this is not done, the various elements may get out of phase, resulting perhaps in delays of years in completing the estate, with trained personnel and their production equipment waiting to be admitted, thus tying up capital and causing frustration and disappointment.

Annex I

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Annex II

DOCUMENTS PRESENTED AT THE MEETING

Symbol	Title
ID/WG.231/1	Evaluation report on industrial estates No.1 - Turkey C.R. Wynne-Roberts
ID/WG.231/2	Evaluation report on industrial estates No.2 - Cuba F.C. Helm
ID/WG.231/3	Evaluation report on industrial estates No.3 - Ecuador C.R. Wynne-Roberts
ID/WG.231/4	Evaluation report on industrial estates No.4 - Pakistan J. Sigurdson
ID/WG.231/5	Evaluation report on industrial estates No.5 - Senegal C.R. Droesch
ID/WG.231/6	Evaluation report on industrial estates No.6 - Iran D. Wall
ID/WG.231/7	Evaluation report on industrial estates No.14 - India (Mysore State) [Conclusions of the book listed below] N. Somasekhara
ID/WG.231/8	Evaluation report on industrial estates No.9 - Malaysia A. Neilson
ID/WG.231/9	Evaluation report on industrial estates No.10 - Nepal A. Neilson
ID/WG.231/10	Evaluation report on industrial estates No.12 - Sudan C.R. Droesch
ID/WG.231/11	Evaluation report on industrial estates No.7 - Nigeria C.R. Wynne-Roberts
ID/WG.231/12	Evaluation report on industrial estates No.13 - India M.V. Hogg
ID/WG.231/13	Evaluation report on industrial estates No.11 - Sri Lanka R.K. Vepa
ID/WG.231/14	Evaluation report on industrial estates No.8 - Argentina C.R. Wynne-Roberts
UNIDO/IOD.16	Report on the industrial estates programme in six countries
ID/WG.231/15	Consolidated Survey C.R. Wynne-Roberts
	Major issues in planning and design of industrial estates in the least developed countries UNDP
	The Efficacy of Industrial Estates in India N. Somasekhara, Delhi, Vikhas Publishing House Private Ltd. 1975

Annex III

GUIDELINES FOR CONSULTANTS CONDUCTING THE STUDY

Outline

1. A large number of industrial estates are today operating in a variety of developing countries. However, it is known that in these countries, only a few of the industrial enterprises, and in some cases very few, are located in these estates. The aim of this evaluation study is to find out in what circumstances the investment in industrial estate programmes have proved justifiable and what the factors are that influence the successful outcome of these projects. What type of enterprises fit into the industrial estate programmes? What is the optimal size of an industrial estate under different conditions?

2. The prime objective of the study is to use the results and conclusions as a guide to policies in relation to support programmes for industrial estates, in particular programmes for the promotion of small and medium-scale industries. The data, therefore, should be collected in such a way that the impact of the industrial estate programme can be evaluated, and in particular, its contribution, successful or otherwise, to the development of industry in general in the country, and more specifically in the region and locality being studied.

3. The necessary information for the analysis should be collected at different levels and from different sources. These should include:

(a) Central or national government departments and ministries;

(b) Local and regional government officials;

(c) Regional government development agencies, institutions or corporations;

(d) Specialized agencies or institutions such as those responsible for the establishment of specific industrial estates or for the promotion of small-scale industry;

(e) Industrial estate managers and local staff or international experts assisting in the industrial estate project;

(f) Factory owners, managers and employees.

4. Industrial estates have been used to further two main objectives:

(a) The promotion of new industries, mainly small and medium-scale;

(b) The relocation of industries because of inadequate facilities due to limitations on expansion or urban renewal programmes.

Detailed statistics are required to find out to what extent different estates contribute to these two objectives, always bearing in mind that the process of relocation usually includes expansion and modernization.

5. An important factor to be analysed in evaluating industrial estate programmes are the costs incurred in establishing such estates. These investment costs in infrastructure, factory buildings and services are known to differ widely from one estate to another, and from one country to another. It is important also to differentiate between planned costs and the real costs incurred. It is also of significance to establish costs of industrial estate programmes in relation to various possible locations and per unit such as factory output or employment created. It is also of interest to establish the costs of industrial estates, relative to alternative programmes that can have similar objectives. Also of interest here would be the classification of costs of different estates according to the number of facilities made available. In this respect we can consider three categories of estates, although in some respects one would be designated only as an industrial area. The nomenclatures used should be those of the country concerned and if these are described as industrial estates they should be included in the study, even though in an international classification they might not be considered estatee as such.

6. The three types of industrial estates can be described as follows:

(a) Tracts of land with suitable infraetructure, in which plots are sold or allocated to entrepreneurs and on which they build their own factories, usually acoording to some building code and regulations;

(b) Land with infrastructure divided into lots which are either offered for sale or rental to entrepreneurs to construct their factories or on which standard factories are constructed by the estate authority and offered for sale or rental;

(c) Land divided into lots on whioh standard factory buildings are constructed for rental and on whioh servicee are provided.

7. It is important to investigate the relative sucoess of eaoh of the types of estate project mentioned above, particularly in relation to ooste and speed of oocupancy as well ae the extent to whioh each eatisfied the

functional requirement of the entrepreneur and his financial resources. Detailed data on sale, cost of land lots, factory space and rentals, where applicable, are needed.

8. Industrial estates endeavour to offer different services. In fact it is claimed as one of the prime advantages of estates that they are able to offer such support services in a concentrated form to help the small enterprises. The services offered are wide and differ greatly from one case to the other. In some estates they are confined to such utilitarian services as a petrol filling station, a worker's canteen, or a bank. In others, they include common facility workshops, extension or marketing services or possibly a technical design office and/or laboratory. The technical service function should be evaluated with regard to efficiency in relation to and cost usage or any other relevant measurements. It might be of interest to measure also the degree of utilization of the services by clients outside the estate, if this should be the case.

9. The data should be collected on two levels: national data and data for a specific estate(s). While data should be collected from a number of estates in each country where possible, the focus of the enquiry should be on individual estates rather than on the national estate programme as a whole. It should be noted that although all efforts should be made to collect information in a quantified form, some qualitative descriptions of situations which cannot be quantified should also be provided.

10. Sources of information should be identified giving names, addresses and telephone numbers where possible, to indicate where the information was acquired and where, if necessary, additional information could be obtained or checks made.

11. <u>National data:</u>

(a) Identify the number and, if possible, the locations of industrial estates in the country; when they were established and since when they have been fully occupied. It is important to obtain data on the time lags between planning the estate, its construction, and full occupancy. What incentives were given for settlement on the estates?

(b) Quantify financial resources allocated to the estate programme, indicating sources of financing, whether foreign or domestic. In indicating the resources, these should be separated into funds for construction or land purposes and financial costs for technical expertise, whether foreign or domestic.

(c) Using a size distribution of firms of 1 - 5; 6 - 10; 11 - 50; 51 - 200; and 200+ employees, specify the distribution of industrial enterprises throughout the country and their distribution on the different industrial estates.

(d) Describe the types of industries from the point of view of sectors set up on the industrial estates.

(e) Specify the total employment - in industry throughout the country - in industrial estates only.

(f) Specify the geographical distribution of industrial estates, giving number of enterprises and workers - in large urban centres (over 200,000 inhabitants), in smaller urban centres (20,000 - 200,000), and in rural areas (less than 20,000).

(g) Quantify the structure of enterprises occupying the estates (according to size, relocated industries, and new industrial units).

(h) Quantify the rate of turnover of enterprises, indicating the number of enterprises that have left the estate, reasons for so doing and the major factors that have effected the rate of turnover. Indicate also the planned and actual number of enterprises in each estate, describing the selection criteria.

(i) What has been the return on investment in the estates - indicating the total revenue in rents or sales of factory space and technical services? Where appropriate, infrastructural costs and those for factory premises should be separated. A return on investment on technical services only should be calculated as well.

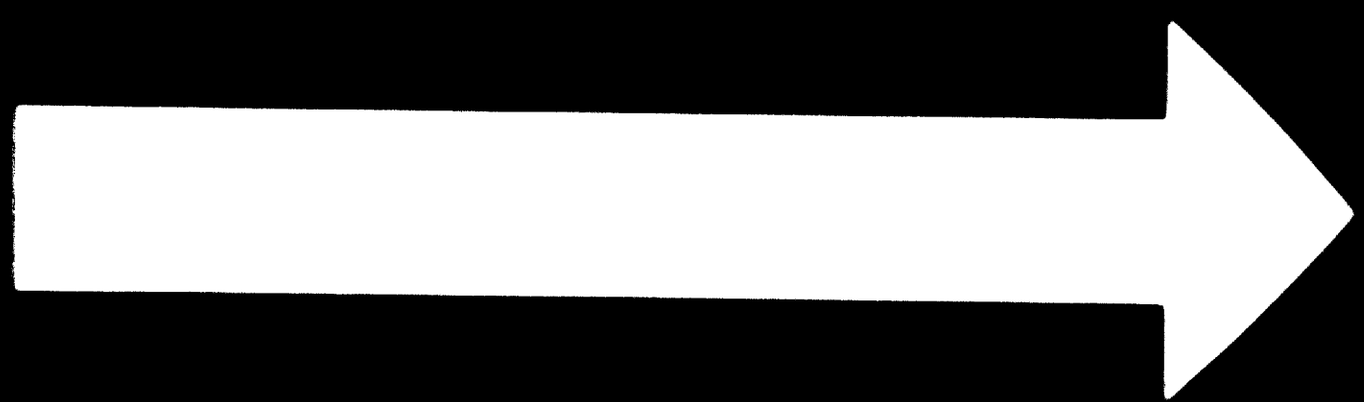
12. <u>Plans for new estates</u>

(a) Number of new estates planned and expected number of factories and employment;

(b) Total costs, and sources for financing;

(c) Schedule of estate expansion programme.

C-674



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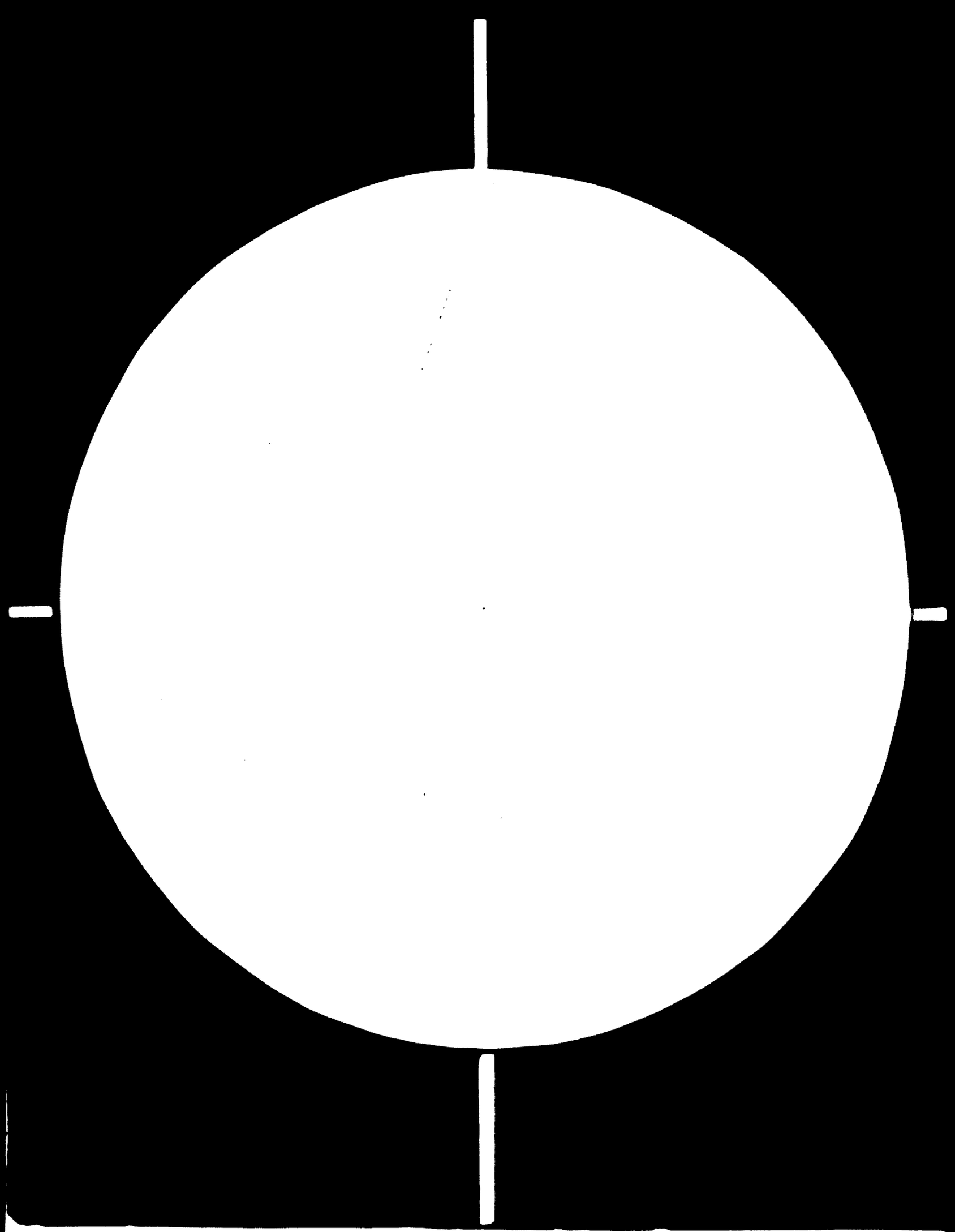

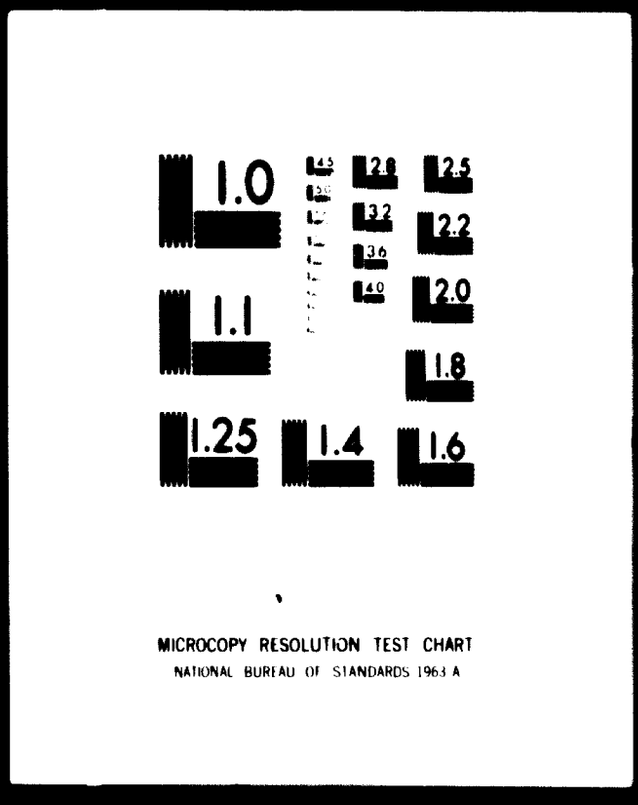

13. A description should be given of the geographical location of the estates and whether they are primarily aimed at relocation or new industrial development. Some indication should be given of the criteria used for selection of sites for new estates.

14. Describe the secondary and tertiary industries and services that have arisen from the estate programme, quantifying the estimated employment in such cases.

15. What infrastructure, local or regional, has developed which can be attributed directly or indirectly to the industrial estate programme? This should include roads, electrification, water supply, sewerage, urban housing, etc.

16. Has any subcontracting developed on the industrial estate, i.e. interrelationship between large industries and smaller ones as suppliers? If so, indicate the products and estimate the production value of such subcontract orders. Where applicable, describe the future potential for such subcontracting relationships.

17. Has the industrial estate programme contributed towards exports? If so, estimate the total export earnings of each estate. Identify the major export products with some indication of future possibilities.

18. To what degree have small-scale industries developed outside the industrial estates? Have these been more or less successful than those on the estates? Indicate the types of enterprises and product categories of those industries that have mostly developed outside the industrial estates. Indicate main reasons for success or failure.

19. What social development, if any, has resulted from the industrial estate programme (in particular housing projects on improved social amenities that may have been developed on the estate) in the locality or in the region?

20. Have trade unions developed on the industrial estates? Give details.

21. Identify the main environmental problems affecting the estates. Mention special points with regard to the supply of electricity, gas or water, or the disposal of refuse or effluents.

22. Data required on specific estates:

(a) Identify the costs of establishing the estate, and sources of financing - foreign or domestic.

(b) What type of management does the estate have? Is it publicly owned, private or co-operative? Comment on the efficiency of the organization, in particular in relation to the allocation of space.

(c) Specify details of the physical facilities available in relation to factory space, storage areas, etc. Also, as regards services and/or technical service centres, financial services, marketing services, including product exhibition, as well as promotion facilities. Are there any problems with regard to provision of services and estate-client relationships?

23. Give details on the use of services on the estates, particularly of any technical services centres or extension services.

24. What is the return on the investment relating revenues to capital investment (separating total investment into investment in infrastructure, factory premises and investment in technical services)?

25. By what principles are prices determined for factory space or for rental - or for use of services? Identify any changes in prices or in pricing principle that have taken place during the history of the estate.

26. Identify the major industrial sectors on the estates and the products they produce. Furnish details on employment.

27. Quantify exports and export earnings of factories on the estate (volume and value); identify major export products and identify future potential.

28. Subcontracting:

To what extent is subcontracting prevalent on the estate? Give approximate value, and identify the major items involved in the subcontracting relationship. What are the prospects of expanding the volume of subcontracting?

29. To what extent have local raw materials been used in the manufacturing processes of the factories on the estate?

30. What potential is there for further factories based on the local processing of local raw materials?

31. To what extent are the estate's products sold locally? Are products or services offered which satisfy local needs and which previously were imported from other regions?

32. Has any form of advisory or extension services or training programme been provided for these industries on the estate? What effects have such programmes had?

33. Are the estate's enterprises:

(a) Foreign-owned?

(b) Owned by nationals of the country, but outside the region?

(c) Owned by local entrepreneurs?

34. How many of the estate's factories(give size distribution of enterprises) are:

(a) Relocated from inadequate local urban premises?

(b) New industrial units?

(c) Transferred from other parts of the country?

35. How many of the factories established on the estate have left? Because of:

(a) Business failure?

(b) Transfer to larger premises?

(c) Other reasons?

36. Identify social and economic background of entrepreneurs by describing previous occupations. This should, if possible, be separated for the relocated units from the new industries.

37. What is the general financial situation of the enterprises? If possible, quantify the number of enterprises making a profit and those breaking even or losing. What are the main problems of those enterprises not succeeding? To what extent have small-scale industries outside the industrial estate developed in the same locality? Identify the types of enterprises and their product categories. Have enterprises outside the estate made any use of the services of the estate?

38. What social effects, if any, has the estate had on the community? Describe any community developments that have taken place, directly or indirectly, as a result of the establishment of the industrial estate.

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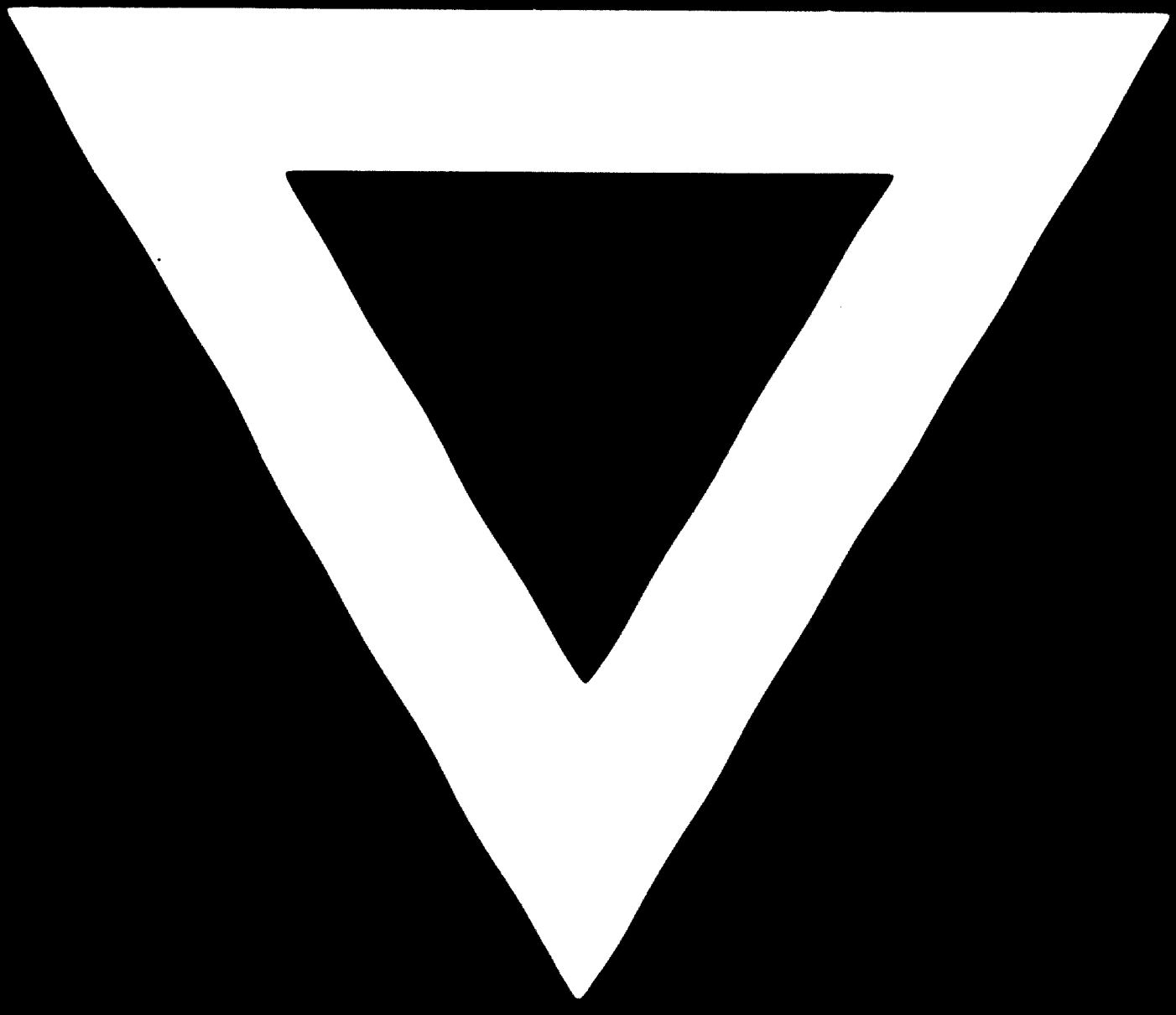

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