

POSSIBLE APPLICATION OF
TRADING ESTATES AND ORGANIZED INDUSTRIAL
DISTRICTS IN MEXICO

by

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ABSTRACT

Industrialization is a great need to accelerate Mexican economic development. Since the beginning of World War II, the government and private enterprise have launched diverse measures to promote industrial development. The ancestral concentration of population and economic activity in the central area of Mexico has been stressed significantly since the earlier mentioned movement started. As a result the country presents an unbalanced urban and industrial pattern which has been considered by successive governments as a serious problem.

The author recognizes the need for industrial planning at a national level to keep the country's industrial development expanding in a more ordered and in a faster way. The author estimates that British Trading Estates and American Industrial Districts have great possibilities to be a major tool in such national industrial planning process.

This paper, within the limitations of a thesis study, investigates the desirability of this type of development for Mexico. In this thesis emphasis has been placed on the second chapter where the author attempts to demonstrate that trading estates work better than other less organized approaches to industrial planning, to achieve the twofold purpose of developing Impulse Areas and of decongesting the Federal District. The author also tackled, in chapter III, the administrative aspects of the national industrial plan, analyzing at a national level the highlights of the British Development areas policy and also the American Industrial Districts policy at the local level. Design details were also pointed out, especially in chapter IV, where a case Study, based on the Monterrey Area, presents the planning implications, assuming trading estates can be successfully applied in Mexico.

Thus the main subject matter of this paper is to establish foundations for the applicability of such advanced industrial pattern as the Trading Estate. The author believes

that this development is possible to apply in Mexico, in the near future, provided further and more detailed studies are undertaken, and better prepared administrative and technical elements are formed. These near future conditions can make the Trading Estate concept one of the solutions for a better planned and more efficient Mexican industrial and urban development.

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PREFACE

Accelerated industrial development is one of the most pressing needs of Mexican Economy. Since World War II the government has been embarked in a large program to industrialize the country. More recently some institutions, and especially the government, have been seriously concerned with the concentration of population and economic activity in the Federal District and about the need and possibilities which the rest of the country has for more extensive development.

This concern has led to several important events such as: the enactment of a presidential decree aiming to curb industry and population expansion in the Federal District and thus facilitate economic development elsewhere; a monumental Satellite City to hold 200,000 people has been initiated at the outskirts of the Federal District, to assist its decentralization; an "economic and social planning commission has been created for the Federal District to tackle the problems of the Capital," etc.

The Province has reacted less radically than the Federal District; however, the fact that in the early fifties Monterrey established its Stock Market, together with the rumors about the possible creation of a third Stock Market in Guadalajara, are indicative of the Province's economic and

social awakening and of the potentialities for a more intensive public and private investment outside the Federal District.

Since the twenties the British government has been devoted to solving a problem of similar nature to that of the Mexican one; that is the redistribution of population and economic activity in the United Kingdom. The experience gathered during more than a quarter of a century has been extremely valuable and has contributed, with new techniques and tools, to planning advancement. Among these, Trading Estates has unanimously been considered the major contribution to the solution of the development areas problem as a government weapon and in the twenty-five previous years, as a successful private enterprise.

In the United States, Trading Estate's basic principles have been used under the name of Organized Industrial Districts. Its technical achievements and its assistance to community planning have been significant, especially since World War II.

In Mexico twenty years of relative intensive industrialization have considerably emphasized the inherited urban pattern. The Federal District has stressed its importance as the core of the country's activities, while most of the rest have been struggling for survival; and few others have steered some economic development but are still inadequately equipped to carry it on faster and more efficiently.

It is the author's consideration that Trading Estates, or Organized Industrial Districts, offer advantageous possibilities which could be used as a major tool in the implementation of a government policy to stimulate development outside the Federal District, and to assist the decentralization of the Federal District. The author estimates that such a concept is worthwhile investigating carefully and thoroughly. The present study aims to establish a precedent for future exploration.

In the first chapter the thesis presents the Mexican problem, introducing the reader to the Mexican pattern in the Federal District as well as in the rest of the country. The chapter emphasizes the existance of Impulse Areas, where the author estimates economic development should go, assisted by Trading Estates. The definition of both concepts concludes the chapter.

Chapters II, III, and IV give the answers to the following inquiries:

- II. Why is Trading Estates better than less organized approaches to industrial planning?
- III. How could such a program be implemented?
- IV. What would be the planning implications of the program if it could be implemented?

Chapter V summarizes the finding of such an inquiry and presents conclusions, giving the pros and cons of the possible application of Trading Estates as a major tool in the implementation of the National Plan. The Appendix, mexican background, concludes the thesis.

CHAPTER I

THE MEXICAN PROBLEM

Introduction

The aim of this chapter is to present the premises that may support government's concern about the concentration of population and economic activity in the Federal District and about the relatively small development in the rest of the country. Recent government and private enterprise action is briefly discussed as an introduction to the presentation of the Impulse areas concept, as well as to the definition of a Trading Estate, the tool that the author believes worthwhile exploring as one alternative to assist in the solution of the problem. The purpose, scope and limitations of the thesis conclude the chapter.

A. MEXICAN PATTERN

Among the multiple factors which have molded the present pattern of population and economic activity, the following ones seem to have significant weight:

a. The peculiar topo-climatic conditions of Mexico have favored human development in the central part of the country and specifically in the "Central Plateau." Thus important prehispanic cultures and the Spanish conquerors preferred this area for the establishment of their main cities.

b. The physical pattern inherited from three centuries of shortsighted colonial ruling, with some inconveniently located cities oriented towards Mexico City by means of a converging communication system. The exclusive exploitation of mineral resources, avoiding trade with any other nation but Spain, discouraging any kind of manufacturing that could compete with Spain; and,

c. The all time prime importance of Mexico City since the Aztec period, as the religious, commercial, political and cultural center of the Nation.

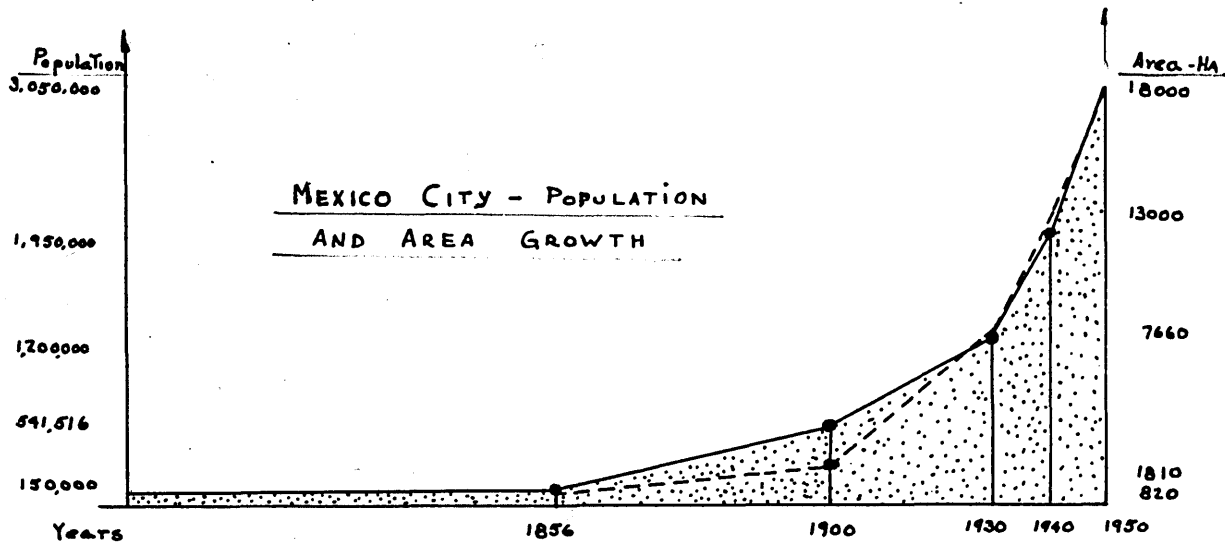
The present pattern of population and economic activity that has been claimed to be undesirable for the development of the country, because of its unbalance and disproportional benefit to few corners of the country only, and to some minority groups, is illustrated in Maps 1 and 2*

* See pages 22 A and 22 B

B. MEXICO CITY AND THE FEDERAL DISTRICT

Since the end of the Revolution, Mexico City has been experimenting a constant population and aerial expansion, as illustrated by the following chart.

Chart 1



Source: Banco Nacional Hipotecario Urbano y de Obras Publicas. S.A. Estudios 6. Mexico. Nov. 1952. Illustration 1.

The Federal District, created in the late twenties when Mexico City was incorporated to its environs under one unified Municipal Council, had in 1957 an estimated population of 4,460,413,¹ 14.2 per cent of the total population of the country. This demographic concentration has been originated mainly by a high natural growth - mexican characteristic in the last three decades,² and by continuous immigrations from other parts of the country. This phenomenon has been stimulated by the specific attractive features of the Federal District, the only Mexican Metropolis - greater and better job

opportunities, higher standards of living, unique amenities, existence of basic institutions, etc. This event has been stressed by the shortage of crop land to support the rural population, that either has been displaced by the mechanization of agriculture, or decides to migrate abroad or to the large city.

The multiple implications of such a disordered growth, are characteristic of large growing conurbations all over the world, so well known to the reader: Land speculation, housing shortage, traffic congestion, soaring land values, blightness, delinquency, inefficient municipal services. The efficiency of the City has been declining, while annual budgets have been rising:

By 1957, 675 millions of pesos will be spent in the Federal District, which constitutes 9 per cent of the Nation's budget, higher than the expenditures of 8 of the most important States,³ which hold 30 per cent of the country's population.

In addition to these typical urban problems, Mexico City has the unique disadvantage of being built on a soft and mobile soil. As a result, sinking and hydrological disequilibrium are endangering building stability.

The problem, far from being solved, is becoming more acute and threatens the habitability of the city. A special commission has been tackling this specific problem and many steps have been taken; but still, as Dr. N. Carrillo says: "There are many things unknown and the required projects will be extremely expensive."⁴

Furthermore, the scarcity of water, horizontal expansion due to soil instability, technical problems and burdensome costs of already required rapid transit lines, etc., are all problems of paramount importance for the development of the City and which demand immediate future solution.

C. THE REST OF THE COUNTRY

Outside Mexico City region the relative picture presents two sides: a poor and sad one, and an active and promising one. Unfortunately the former one is better known, because of its continuous presence. On the other hand, in spite of not being the extremely wealthy country people boasted about some years ago, Mexico has a wide variety of natural resources scattered all over the country. As economic development advances, more, new, or more accessible deposits of natural resources are being discovered. Basic elements for the industrialization of the country, such as, iron ore, coal, oil, gas, etc., have been found in different locations of the Province. In addition Mexico has one of the fastest growing populations in the world, 3.1 per cent as of 1957, with a growing demand for consumer goods as a result of higher standards of living, larger labor force, changing tastes, etc.

Population and income increase make demand rise. This permits mexican market to absorb many investments which are urgent to do, says Banco Nacional de Mexico S.A. It added that to satisfy the growing demands and achieve a greater capital investment, it is necessary ~~for~~ an orientation to make profitable investment in productive activities, by means of ... state investment in production, etc.

This recent statement given by such a serious institution is indicative of the potentialities of the country for a faster and more intensive industrialization, which has been concentrating in Mexico City Metropolitan Area.

The city lives from the country, and the "Capital" from the Province. But the real wealth of Mexico is the country and the Province.
in in

D. GOVERNMENT ACTION AND PRIVATE ENTERPRISE INITIATIVE

Successive governments, especially since World War II, have applied diverse pro-industrialization measures, unfortunately with neither, a pre-conceived plan in mind, nor clear goals. Some of the most important measures are: local and federal tax exemptions, the industrial saturation law, creation of different committees and decentralized institutions like Nacional Financiera, Council of Promotion and Coordination; and constant and intensive public works investments. Most measures have been launched to industrialize the country as a whole, without too much concern on the regional and local implications. At the same time those government attempts to develop potential regions, such as Papoloapan, Grijalva, etc., with spectacular expensive projects, have been claimed to be, if not a waste, a misuse of financial resources; first because money is scarce, and then because there are other developments which could bring about greater short run returns.

In the second part of this decade there has been a tendency to concentrate attention on the urban problems of the Federal District and on its National consequences. This has led to the enactment of a presidential decree in January of 1958, attempting to discourage industrial development in the Federal District and thus give more opportunity to the rest of the country to develop.

Private enterprise, as well as several institutions, and professional groups have made public their dissatisfaction concerning the size that the Capital is acquiring, and the economic activity that it is absorbing. The most recent and largest private enterprise contribution to the solution of the Federal District urban problem, has been the opening to the land market, of a huge 150 to 200,000 inhabitants Satellite City, located in the fringe northern side of the Federal District; and finally, it has been created the economic and social planning commission for the Federal District.

It is too soon to express any weighty opinion on the measures taken by the government and by the private sector; however, the tendency seems to halt and decentralize population and industry from the Capital without giving equal or more importance to the development of the rest of the country, to attract and absorb the decentralization of people and economic activities. If this is done, it should not be done in the usual improvised way, but based on a well planned list of priorities to guide and channelize private and public investment, according to a National Plan. Those areas of high priority

could be called "Impulse Areas."

E. IMPULSE AREAS

As was said, financial resources are scarce, and those available have been many times misused. On the other hand, assuming government's decentralization policy is well justified in order to carry it out, the author estimates that some pre-selected receptacle areas must be prepared. Otherwise if the program is just implemented negatively, without providing alternative schemes where decentralized investment could go, the policy will most probably achieve poor results. Based on these considerations, the author's feeling is that almost defunct, or potential but underdeveloped areas should not be attempted to be resurrected, because they still require large government overhead investment before relative intensive development may occur. Instead it is recommended to develop those areas which to begin with have resources, have started steering its economic development, and in general, present favorable conditions to benefit from the shot-in-the-arm, provided by Trading Estates and other inducements, suitable to Mexican conditions. This program of Impulse areas demands the formulation of the first stage of a National Plan, aimed at the development of Impulse areas and to start the decentralization of the Federal District. Trading Estate concept could be the major government weapon for the implementation of the Plan, established on an experimental basis. Its potential long run success could stimulate and promote a more extensive use of the tool in existing or new impulse areas.

F. IMPULSE AREAS AND TRADING ESTATE

Impulse Areas

An impulse area could be defined as an area that presents a relatively high degree of economic, social and urban development, and one showing the possibilities of keeping those conditions in an upward trend in the future, with or without the shot-in-the-arm just mentioned. More specifically an impulse area could be qualified according to the following features;

- a. Amount and diversification of natural resources, in exploitation and in reserve.
- b. Degree of urbanization, population growth, life expectancy, etc.
- c. Degree of suitability of human resources for an industrial society, or its potential flexibility to adjust to it. Percentage of illiterates, food consumption, of population wearing shoes, etc.
- d. Amount and type of overhead investment. Transportation and communication conditions; supply of water, energy, fuel, housing, sewage, etc.
- e. Availability of basic institutions, financial, educational, cultural, administrative, etc.
- f. Average per capita income, market potential, volume of trade and economic transactions. Volume of Bank deposits, etc.
- g. Other factors.

7

Illustrating the case the North Zone, one of the five zones in which the country has been subdivided for study purposes, features characteristics which are indicative of the existence of Impulse areas. In 1900 the North accounted for 49 per cent of the total railroad mileage of the country, which by 1945 reached 55 per cent. It held 74 per cent of the total area opened to irrigation in the period 1926-50. By 1944 it had 129 agricultural colonies, 73 per cent of the total. The estimated average per capita income as of 1956 ranked second, not far from the first, and ranked first, if the three least developed states of the North are not included (Durango, Sn. Luis Potosi, Zacatecas). The zone has a very fast growing population of hard workers with less illiterates; more people wear shoes and eat bread. The six fastest growing cities of the country are in the North (Ciudad Juarez, Nuevo Laredo, Gomez Palacio, Monterrey, Durango, Torreon). These cities have basic natural resources which are well diversified: iron, coal, oil, land for irrigation, for cattle raising, etc.

Within this framework of relative advantageous features, there are urbanized areas which score high in the balance between assets and liabilities for industrial and urban development and which qualify as Impulse Areas. In spite of this brief clear picture, the selection of Impulse Areas requires extensive and careful studies which are beyond the scope of this thesis; however, roughly speaking and to complete the example of the North, some areas could be pointed out as possible Impulse Areas, and worthwhile for further investigation.

Such urban complexes are: Monterrey-Salttillo, Torreon-Gomez Palacio-Lerdo, Matamoros-Reynos a Brownsville (U.S.), Tijuana-Ensenada-Mexicali-Sn Diego (U.S.) and others. These centers present, in addition to the accessibility to natural and human resources just mentioned, the advantages which provide the already existing economies of urbanization and of scale.

It is important to point out that this is a mere illustration of the concept. It should not be implied that only the North has Impulse areas. The North Pacific, Central, South Pacific, and Gulf Coast also have areas potential for development; but at the same time, it is not difficult to observe from table No.1 that the North Pacific, and the North score higher than the rest. In fact the accurate State ranking study of the Bank of Mexico, based on the high correlation between different economic and social facts most of which are included in table No.1 shows similar results in what the top States are concerned. In sum, Impulse areas selection will have to be handled with extreme care to avoid political implications and economic wastes; but to facilitate the administrative aspect, it will be necessary to make compromises and to draw a line separating Impulse from non-Impulse areas. Map 2 gives a geographical view to potential impulse areas.

G. BRITISH EXPERIENCE AND TRADING ESTATES

In general the pattern of the Federal District, explained earlier, shows similarity with the process and the problems that London has been facing in the last decades:

Increasing congestion, growing traffic, transportation, housing problems, population, aerial expansion, etc. As to the rest of the country, aside from the factors that the distribution of population and economic activity is undesirable for the development of the country,

"that the major planning problems, economic, social and physical, are related to and arise from the uneven economic development of the different regions of the country."⁸

More specifically, in the British case the so-called "Development Areas" and in the Mexican case the assumed "Impulse Areas," either by motives of high unemployment or by relatively slow development, are both in need of more economic activity.

In both cases the measures adopted to achieve the goal could be of similar nature, that is, attempt the decongestion of overswollen spots, and at the same time stimulate and steer development into those areas where better and faster development would benefit the country as a whole.

The relevant point of this discussion is to point out the important contribution of Trading Estates to the development areas policy. In relation to history, different types of Trading Estates have been developed in Great Britain. Commercial Trading Estates have had more than fifty successful years. This has been emulated by a few local Trading Estates. And finally the most significant aspect of such type of development, took place during the thirties under the sponsorship of the Government.

The general concensus about Trading Estates' significant assistance to relieve the development areas problem, is illustrated in the following statements:

"Trading Estates' rented factory has been considered unanimously by far, the most effective inducement that can be offered to attract industry to a particular area. In addition, from the total industrial floor space footage constructed by the Government since the War, 31 per cent was to let to private enterprise."⁹

"Different investigators, no matter the area studied, always admitted that Trading Estates were the only really important pre-war achievement to revive the Special Areas."¹⁰

In spite of these statements, it would be unfair and unrealistic to give to the Estates all the credit for accomplishment. They needed the assistance of other measures such as the industrial development certificate and of financial inducements and subsidies, Government contracts, control of building materials, etc.

This fact lends to say as an a priori conclusion that:

"While Trading Estates alone are obviously not a panacea for these problems, it can serve an important function when applied judiciously."¹¹

American Organized Industrial Districts

In U.S., Organized Industrial Districts, following the same basic principles of the British Trading Estates, have been successful private enterprises for more ^{than} of fifty years. Technically they have been significant achievements as community planning tools. Among the early ones Clearing Industrial District of Chicago began operations in 1899, but the real prominent development has come since 1940. From 122

Industrial Districts established since World War II, 75 per cent have been Organized Industrial Districts.¹² The basic factor accounting for its extensive development in U.S. is expressed in the following statement:

Referred as Organized or Planned Industrial Districts, this relatively new concept is recognized as an important tool for communities in their efforts to direct future urban growth into more aesthetic orderly, and efficient patterns. In addition, it has been called "the most specialized methods of land use known to American industry - the establishment of planned communities of industry which are counterparts of modern residential subdivisions."¹³

Possible Solution - Trading Estates

The author, in looking for an alternative way to implement the government's policy, estimates that American and British experience with Trading Estates and Organized Industrial Districts presents features worthwhile of careful examination to apply them in Mexico. Based on such experience and on Mexican conditions, a Trading Estates in Mexico could

be defined as: an area planned and developed by a government or private company for use of several industries, and financed, partially or totally by the government, with capital at low interest rates and long term amortization. It comprises basically, factory sites and buildings for lease or sale, on which commercial facilities such as power, gas, electricity, transportation, streets, sewage, waste disposal, lighting, landscaping, technical consulting services, etc., are provided. Depending on the size of the Estate and on local conditions, recreation, cultural, social, welfare, and educational facilities could be added to the other more essential ones.

H. PURPOSE, SCOPE AND LIMITATIONS OF THE THESIS

Sharing government's concern about the present pattern and assuming the decentralization policy is well justified, the author advocates the idea that British and American experience with Trading Estates and Organized Industrial Districts can assist the implementation of a National Plan for the distribution of population and industry in Mexico.

Assuming that:

- a. Government's and public concern about the concentration of population and economic activity is well justified.
- b. That to achieve better and faster results in implementing government's policy, it is recommended to develop impulse areas and if possible, decentralize and disperse economic activity from the Federal District.
- c. That Impulse areas will be receptacles of the Trading Estates program, at least in its first stage.

Based on former assumptions the purpose of the thesis is to examine the possible application of Trading Estates to a National Plan for the distribution of population and economic activity. More specifically, the possible assistance such complexes may provide in:

1. Stimulating organized growth in Impulse areas outside Mexico City, and
2. In decentralizing population and economic activity from the Federal District.

Scope

The content of this thesis is developed in five chapters. The first chapter presents the Mexican problem. It illustrates the Mexican urban and industrial pattern, pointing out the premises which may support the government's policy of decentralization. The chapter explains what an Impulse Area and a Trading Estate are.

The second chapter, answering the question why Trading Estates could work better than less organized approaches to industrial planning, presents the similarities between Mexican impulse areas and British development areas, stressing the contribution of Trading Estates in such a policy. Secondly, the chapter analyzes the role that Trading Estates may play in the industrialization of Mexico; and finally, as the major part of the chapter, the benefit that a Trading Estate may bring to the Community, to the industrialist, and to the employee will be discussed.

Chapter III answers, how to implement the plan, and illustrates the basic studies that are necessary to steer the program and the main aspects related to the development of the Estate.

The fourth chapter answers what the planning implications of such a development will be and speculates on Monterrey's case study.

Chapter V summarizes the analysis examined in former chapters and gives some conclusions which might be helpful for further studies on the problem.

Appendix and bibliography close the thesis.

Limitations

The author recognizes the gaps in this study. His limited knowledge in the field of National Planning, as well as the difficulties met in developing so broad a topic, basically account for these gaps. However it is the hope of the author that this thesis may constitute a precedent which will stimulate more detailed and advanced studies facilitated by more extensive information about Mexico and without the time limitations imposed by this thesis.

FOOTNOTES CHAPTER I

1. Economic Research Bureau, Vision Incorporated. Mexico as a Market. August, 1957.

2.	a.	<u>Death rate/ 1000 inhab.</u>	b.	<u>Birth rate/ 1000 inhab.</u>	<u>Net Natural Increase/1000</u>
	1900	33.6		36.4	2.8
	1922	25.3		31.4	6.1
	1950	16.2		45.5	29.3

Sources

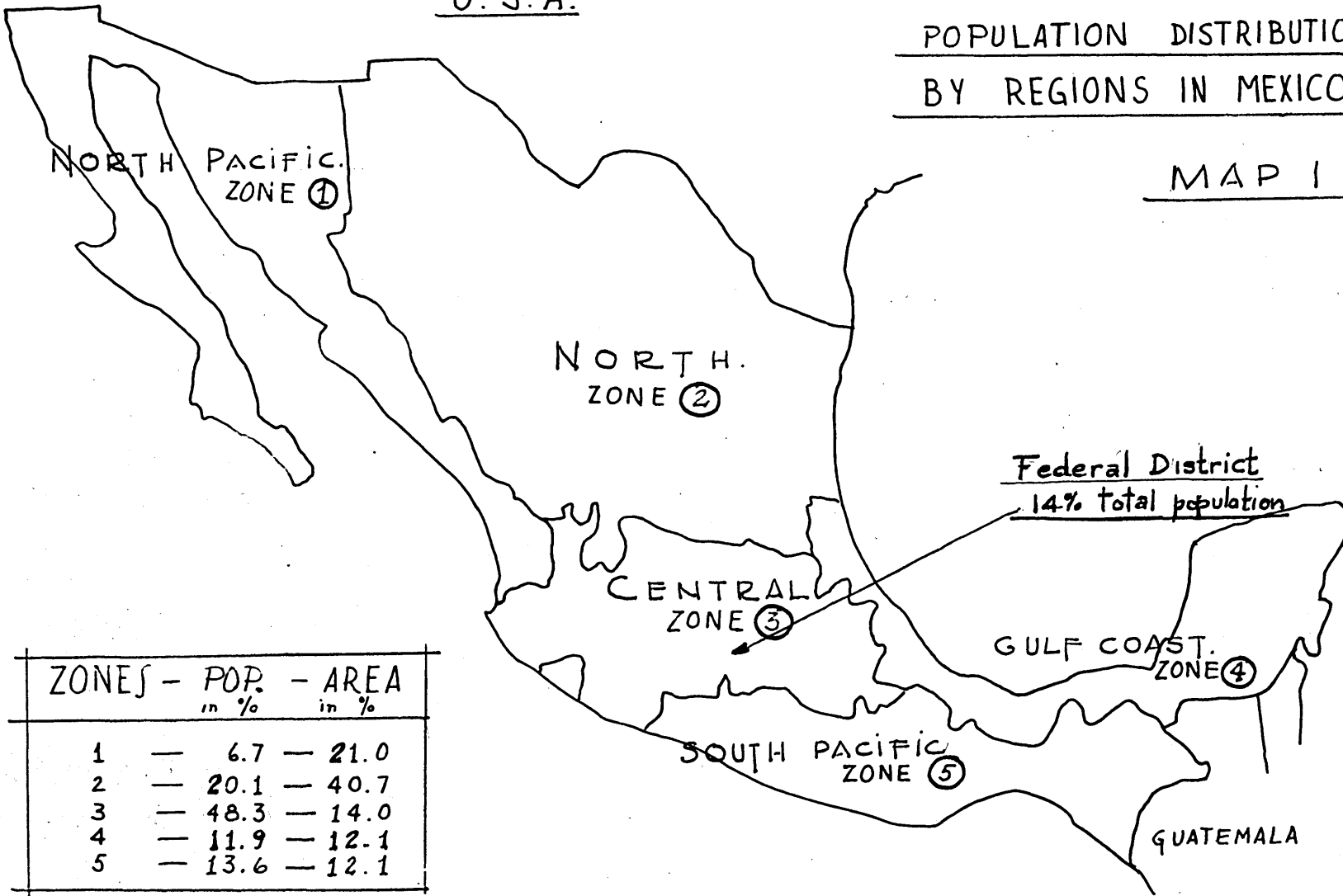
- a. Table 43. Death rate and general motality in Mexico (1895-1950) p.94.
- b. Table 29. Births and natality in Mexico (1895-1950) p.56. Julio Duran Ochoa, Problacion (Mexico-Buenos Aires, Fondo de Cultura economica, 1955)
3. Cervantes Delgado A. La Politica Fiscal. Cuestiones Nacionales No. 4 Noviembre de 1957. Mexico, p.26.
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6. Attolini Jose. Geografia del Mexicano. Investigacion Economica, Cuarto Trimestre de 1955, Escuela Nacional de Economia, Mexico.
7. See Map No. 1 indicating the five zones in which Mexico has been divided for statistical studies at the end of the chapter.
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13. Pasma, op.cit. p.ii.

U. S. A.

POPULATION DISTRIBUTION
BY REGIONS IN MEXICO.

MAP I



ZONES	POP.	AREA
	in %	in %
1	6.7	21.0
2	20.1	40.7
3	48.3	14.0
4	11.9	12.1
5	13.6	12.1

0 100 200 miles.

San Diego
Tijuana
Mexicali
Ensenada.

U.S.A.

INDUSTRIAL PATTERN IN MEXICO.

MAP 2

North
Pacific



Torreón.
Gómez P.
Lerdo.



Brownsville
Matamoros
Reynosa.

Monterrey
Saltillo



SOME POSSIBLE
IMPULSE AREAS.

Guadalajara

Central

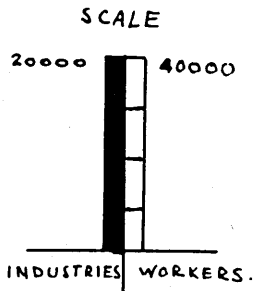
Veracruz
Orizaba

Gulf Coast

South Pacific

GUATEMALA

Leon
Irapuato
Salamanca.



FEDERAL DISTRICT } 32% INDUSTRIES

T A B L E No. 1

REGIONS	% Growth 1940-1950		Movement %		Watts per Capita	Per Capita Income in Pesos	Natural Growth Births 1000	Population			Growth Density Pop/km2	Total Capacity Watts 1950	
	Rural	Urban	Rural (-)	Urban (-)				1921 1930	1930 1940	1940 1950			1950 1957
Central	1.4	5.7	3.6	3.9	62	2383	24.2	2.2	1.8	8.0	2.7	43	56.43
North	1.9	5.9	1.2	1.4	67	2534	30.5	2.3	2.5	3.3	2.9	6	24.82
North Pacific	2.2	9.4	0.2	0.8	61	3306	31.1	3.5	2.3	6.2	5.5	4	7.40
South Pacific	1.5	7.3	1.4	0.7	9	60	22.2	1.2	1.9	3.0	2.7	14	22.19
Gulf Coast	1.7	4.5	0.9	0.4	46	2063	23.4	1.0	2.7	3.1	2.9	10	10.10

REGIONS	Distribution of Ind. workers 1950		Labor Force Distribution by occupation				Wearing Shoes in %	Eat White Bread in %	Profession- ists and Technicians in Hundreds	Illiter- ates %	Deposits in Private Banks in 1000 of Pesos
	%Firms	%Wkrs.	Agr.	Manuf.	Const.	Services					
Central	163.46	66.59	61	12	3	9	49	46	1184	46	2542*
North	15.36	14.13	59	10	3	9	74	53	317	53	658
North Pacific	5.89	4.44	57	8	3	12	73	73	161	29	332
South Pacific	5.37	1.65	73	7	2	7	33	45	196	54	30
Gulf Coast	10.73	13.19	64	9	2	9	53	68	194	40	128

Sources. Duran Ochoa, Julio. Problacion. Fondo de Cultura Economica. Mexico 1955.
Mexico, Secretaria de Economia. Direccion General de Estadistica. Septimo Censo de Publacion General.
U.S. Department of Commerce. Investment in Mexico. Washington D.C. June 1955.

* The Federal District alone holds 2181 of this amount.

CHAPTER II

Why could Trading Estates work better than other less organized approaches to industrial planning?

Introduction

This chapter will point out the pros and cons of Trading Estates in fulfilling Mexican industrialization goals and as an industrial tool in itself. The discussion will attempt to evidence that the Trading Estate is a better alternative than those industrial developments used in Mexico until now. British and American experiences with Trading Estates and with Organized Industrial Districts, as well as Mexican specific conditions, will back up the issues.

The main points of the chapter are:

- A. Trading Estates and the Industrialization of Mexico
- B. Trading Estates and the Community
- C. Trading Estates and the Industrialist
- D. Trading Estates and the Employee.

A. TRADING ESTATES AND THE INDUSTRIALIZATION OF MEXICO

Before going into the analysis of Trading Estates as an industrial tool in itself on the community level, the author wants to introduce the reader with the goals set forth by the experts for the Mexican industrialization and point out the possibilities Trading Estates have in fulfilling such aims, compared to other alternatives.

a. Goals

"Industrialization in Mexico has taken place without the knowledge of the needs and potentialities of the Nation as well as the lack of programming and misuse of natural resources. Instead, experts in the field, in general, agree that the industrialization of Mexico and the other Latin American countries must not be of any kind but of very specific characteristics." ¹

Briefly speaking, the goals of mexican industrialization are: it must not take place as a mere accumulation of factories, which means that Mexico has been industrializing concerned mainly in the number of factories established, disregarding its geographical distribution, its type, size, possible coordination of industrial processes, etc. Then these elements must be planned in advance and synchronized with the development of national, regional and local markets.

The Industrialization should be diversified, integrated and coordinated with the other sectors of the Economy. Diversification needs no special comment, it is particularly important for developing countries which usually depend strongly on one or few industrial products making the whole Economy

extremely vulnerable and tied up to exterior forces. As to integration and coordination, the goal is more complex and refers to the main concern of Mexican industrial development, the rise of productivity, of value added, of output, in order to keep pace with the tremendous population growth of the country.

The industrialization must conform to optimum technical level, avoiding over-capacity of production, waste of scarce financial resources in the most modern machinery and techniques which in general are incompatible with the limited demand of the market, and the abundance and inexpensiveness of the labor force. Finally, past experiences are strong evidence that undesirable foreign industry should be controlled and regulated.² This should be done in such a way as to avoid necessary foreign investment to react negatively.

To achieve these major intermediate goals, there is general consensus among experts that the following be required:³ a planned industrialization and full government assistance. Then, assuming that the Government will fully assist future Mexican industry and urban development, formulating the plans, taking the responsibility of stimulating and promoting the private sector to cooperate and coordinate with the program of Impulse Areas, financially back up the scheme, etc., the question that this chapter wants to answer is: are Trading Estates better equipped to fulfill such demands than other existing tools? Is Trading Estate a better tool for the development of Impulse Areas and to assist in the decentralization of the Federal

District, than those already employed in Mexico, namely:

1. Industrial New Town
2. The Company Town
3. Industrial subdivision
4. Development in Zoned areas
5. Scattered plants?

Possible role of Trading Estates

The fact that the government can appoint the Board of Directors or its voting majority, can assure, from the administrative point of view, the implementation of the Estate's Plan, and lends to have the following features:

- a. To have a carefully selected Board of Directors with proper representation of the various government levels, and from every sector related to industry and the Estate, to look after the interests of the Estate, the industrial tenants, and the community. This feature alone puts the Estate in advantageous position compared to the other alternatives with the exception of the New Town and the Company Town which do have an administration to look for its proper development. However, both cases present problems, which will be explained later on in the chapter.
- b. As a consequence of (a), and assuming the Estate demands as a prerequisite a Workable Program, then the Board can follow a selective policy as to number, size, type of firms and which could facilitate diversification and coordination of production, if industrial location factors lend to it.

"There is an opportunity too for a different kind of cooperation, a system of subcontracting, using the varied products of the small factories on the Estates to contribute to the manufacture of something bigger. The combined potentiality of a multiplicity of products, mostly in the light industries, is enormous."⁴

c. A Trading Estate's workable program, based on comprehensive regional and local studies (see Chapter III), which assumes that every factor related to the development of the Estate has been considered, shows the possibility of having an industrialization related to all sectors of the Economy.

d. The limited demand, but at the same time constantly growing and diversifying, could be synchronized with the Estate development, improving the necessary amount of land for lease or purchase and building floor space for rent on a step by step way. This lends to have a flexible pattern, developed in accordance to local, regional and national needs.

e. The Estate could regulate on fair basis undesirable foreign industry. At the same time the one considered sound could be attracted by offering the same services and facilities than to mexican industry. This was a complete success in some of British Trading Estates which advertised abroad of Great Britain.

f. The technical staff of the Estate assisted by expert institutions, could guide its development along optimum technical levels. Especially in relation to the size and location of the plants, and in advising the purchase of the right type of machinery in accordance with the needs of the firm.

The factors just discussed indicate the economic⁵ planning tendency of mexican experts on industrialization. The physical environment has been given very little consideration when it is well known that industrialization and urbanization should go hand in hand. The comprehensive analysis of both processes could result in a better understanding of the present problem and in a more adequate preparation in finding the possible solution in the distribution of population and economic activity.

"The justification of planning policy on economic grounds is a complex and difficult matter. Environment is not of course simply a resolution of economic forces, social and cultural values as well."⁶

Urbanization

To the goals formerly presented another set, concerning the way the urbanization of Mexico should take place, should be added. For this purpose, the few National Physical Plans that have been formulated could be a great assistance, such as that of Israel, Great Britain (even when there is no official National Plan.) In addition it is relevant to point out that Mexico, in spite of its short planning experience, had in the 30's a National Planning Law whose ideas should be revised and benefited from.

Mexican National Physical Plans must point out with detail, among other things: Why is the present urban pattern undesirable for the economic development of the country? If it is, how could it be changed? Where should urban growth go?

What cities should be extended, those prospering or depressed? Where should the program start, step by step as an experiment or at a large scale? What cities should be industrialized? How? Can they support it? etc.

Most of these questions are answered in a general way and are supporting assumptions of this thesis, that is to say, the development of Impulse areas, whose definition and possible location has been presented in chapter I. However the analysis of such a complicated problem as the redistribution of industry and population is out of the scope of this thesis and deserves one for itself. However Chapter IV, by means of Monterrey's case study will discuss the planning implications of its industrialization using Trading Estates as a specific tool and will attempt to illustrate, which could be the planning implications of the industrialization with Trading Estates, other Impulse areas.

Other alternative industrial developments

Assuming government assistance and the formulation of a national plan are assured, could other industrial developments attain the same goals?

I. Industrial New Town.

In Great Britain Industrial New Towns have been considered in the same group with Local Trading Estates, because both are administrated by local authorities. In fact it has been said that:

"If New Towns prove successful, they will have combined Trading Estates principles with full Community life, based on the experience of private enterprise, local authorities and central government."⁷

Essentially they must meet the same requirements the Trading Estates have met. Mexico has so far one example, Ciudad Sahagun.

As a tool in itself, the New Town has pros and cons compared to the Trading Estate concept:

Pros

a. Administratively they can, provided that the land is within their boundary and preferably also within their ownership, control the provision of housing and social services and thus stimulate rapid development.

b. And the most important one is that being a planned tool and built from scratch, its layout can be designed according to National goals, not only the industrial area itself, but what is more important, its relationship with other land uses. Then under the assumption of a planned urban and industrial development, there is no reason to disregard the possibilities that such a tool has in attaining National goals.

Cons

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A recent British article pointed out in comparing development in New Towns and expanding existing ones, that the latter type of development was being preferred by British planning authorities because import labor to New Towns was

expensive, all services had to be installed from scratch resulting in huge overhead investments and finally that organization had also to be provided from scratch. By the same token expanded towns, count with some institutions, labor market, social roots as well as an administration to look after the development of the community.

In Mexico the construction of Ciudad Sahagun has been considered an extremely expensive enterprise, especially when the financial resources of the country are limited. In addition, the development of New Towns, in Great Britain as in most other countries where the concept has been adopted, has met multiple difficulties in its development. It has even argued that the British New Town Program for Greater London has failed in its intention to decentralize it, stemming basically from the incompatible decentralization of population and industry. Finally the slow development of community facilities, particularly of amenities, has diffculted sound development.

In sum, the New Town's planning features puts it in as much advantage as the Trading Estates in achieving national industrial and urban goals; however, its high cost compared to industrial development in expanded towns with Trading Estates, lends to say that the latter tool seems for feasible and of more potentialities on national basis than New Towns.

2. The Company Town

This industrial complex has proved extremely

successful in Mexico. Its paternalistic features have favorably fitted the social and psychological needs of the Mexican worker. However, the two or three Mexican examples indicate that only large industrial concerns, with high social conscious managements and large financial resources, can undertake such projects. Then, as these characteristics could be met only by very few firms and because of their restricted and small scale they could not fulfill national production demands. Then the scheme should be disregarded as a potential national tool. Nevertheless it is relevant to point out that the success of its paternalism⁹ could be one of the strongest supporting premises for the possible application of Trading Estates in Mexico.

3. Industrial subdivision.

This type of industrial development, called in Great Britain "Speculative Factory Estate," is defined as:

"Generally unintegrated collection of factories on a site, their management resembles a speculative factory developer rather than an enlightened landlord with a long term plan."¹⁰

This kind of set up is the strongest factor against the extensive use of such a pattern, which would make the control and regulation of the National Plan a very difficult matter. In addition industrial subdivisions usually are commercial land enterprises which does not care too much about the kind of firms that enter the subdivision, or the way they develop. Some include few zoning measures; but in general, their main concern is the land market. Then any government controlling

measure would limit such market, probably raising the complaints of the developer.

4. Development in Areas Zoned for Industry.

In the U.S. where Zoning has had relatively long time experimentation, it has been said that:

"Because the approach to industrial zoning has been restrictive rather than permissive, zoning ordinances have failed to achieve the positive control needed to secure the more desirable types of plants." 11

This has led Organized Industrial Districts to declare that:

As existing zoning ordinances seldom offer full protection to the developers and occupants of industrial districts, particularly after the initial stage of development, private restrictive development has been often called into force as a supplementary ~~measure~~ of control.¹²

In Mexico the short planning experience, the lack of adequate machinery to enforce the existing outmoded zoning regulations, and basically the weaknesses of the tool itself makes it very difficult to reach goals of national scope, as the Impulse Areas one. Nevertheless this does not imply that an improved zoning regulation in Mexico could not serve an important role in the industrialization of the country, because even when the Trading Estate is a more recommendable tool to use, it cannot and should not be developed everywhere. Then one of the best alternatives to supplement it is a new zoning code, formulated in accordance to community master plans and complying with national goals.

5. Scattered Plants.

It is common that scattered plants are of large size, and with the power, the resources, and technical staff to want to do things alone. This already implies some difficulties to make them comply with specific objectives; but the main disadvantage of having industrial development at random is the disordered community pattern which results from it and all the problems that are brought about. However it cannot be denied that very large size plants of the heavy type of industry would not go into Trading Estates as a general rule, then there are cases in which industries located in isolation and scattered are justified. But without doubt this kind of pattern cannot be recommended as a national tool.

Summary

From the national industrial point of view Trading Estates present a considerable number of possibilities, not only as a tool in itself, but because of its feasibility compared with other alternatives already experimented in Mexico. This does not imply that those other industrial developments should be disregarded, but that Trading Estates is a tool worthwhile of careful examination and study for its possible application in the urban and industrial development of Mexico.

B. TRADING ESTATES AND THE COMMUNITY

Communities that have set aside industry zoned tracts of land for the establishment of planned districts, and which have taken the initiative and assumed the responsibility of improving the area and constructing and financing industrial buildings, are sure to be in a favored position when competing with other communities for industrial prospects.¹³

The benefits that a Planned Industrial District brings to a community are of multiple nature: economic, social, psychological, administrative, etc. The following discussion is concerned with illustrating the features which are indicative of the advantage of Trading Estates over other industrial developments. By the same token implications such as widening the economic base of the community, its municipal revenues, payrolls, etc., are not exclusive of Trading Estates but for Industry in general. It may well be that Trading Estates brings directly or indirectly more or better economic gains than the others, but such details are out of the scope of this thesis.

1. Economy in land requirements.

The demand for industrial land can be averaged out between expanding declining, and static industries, and between large, medium and small factories. Thus the land needed for reserve is less.

This is most important in the case of the smaller expanding factories as it is possible to arrange for them to start in a small unit factory and transfer to a larger buildings in the same Estate as they grow, thus keeping the same address, the same workers and the same enlightened landlord.¹⁴

This flexibility is more easily attained in light industry districts (the majority) by the fact that most factories have few specialized needs so they can occupy standardized factories and have little equipment to move when transferring to larger plants within the Estate. In Mexico land still is an abundant element; however, as the country urbanizes, suitable land becomes scarce and expensive for industry. There is a general real estate boom which fosters land speculation. Then Trading Estates' advantage in making economies of excellent industrial land will in years to come be a great benefit for community interests. However it is also relevant to point out that the physical flexibility of Trading Estates will be more difficult to attain in Mexico, especially in the first years of the experiment due to the still restricted industrial location factors and the need to include in the Estate heavy industry. And this will have to fill more specific requirements, making the Estate layout more rigid. Only in those cases of large and very large Estates, like Trafford Park, Treforest, etc., can such estates have the latitude to attain flexibility.

2. Secures required development.

The strict control that the Estate's administration is supposed to exert on the physical development of the Estate lends to the achievement of several advantageous premises for

the benefit of the community. This control will be executed by means of zoning, restrictive covenants, leasehold system, and by the regulation of the different government inducements granted to industry located in Impulse Area's Trading Estates. In U.S. the covenant used by Midland Industrial Properties, Inc., expresses the purposes of the application of such measure:

- a. To insure proper use and appropriate development and improvement of each building site.
- b. Preserve land values by avoiding improper use of building sites, guarding against the erection of structures built improperly or unsuitably, insuring adequate and reasonable property development, encouraging the erection of attractive improvements, with appropriate location on building sites securing proper set backs from streets, and adequate free spaces between structures, etc.

Assuming that Mexican legal machinery can draw appropriate regulations as the ones just mentioned, it could also minimize land speculation and stabilize and enhance the industrial land market within the Estate property. It can contribute to achieve a more harmonious development, avoiding incompatibility between industrial and residential areas, as well as the usual complaints of residents against industrial non-conforming uses, so common in large Mexican cities. Encroachment of housing can be avoided, permitting a more efficient functioning of industry. By controlling the District's

development, better and more stable firms can be attracted to the community, with beneficial results on its economic base.

The Vice President of the Clearing Industrial District said:

... Value preservation is as valuable to us as a sales argument as it is in the protection of our own investment.¹⁶

But what is most important for a fast developing country like Mexico is the possibility of securing industrial and urban development in accordance to the community master plan and of fulfilling national objectives, which in the long run might prevent urban evils that stem from economic booms, and population growth, which later on take generations to improve.

3. Esthetically.

In U.S.:

The location of the Fairfax Industrial district within the Kansas City Metropolitan area and the spacing of industrial plants in the tract have made the district the landmark for the entire area. 17

In Great Britain:

The imaginative handling of a site will make all the difference between an estate with an individuality of its own, which industrialists and workers will be proud of, or just another collection of factories." 17 A

In addition the answer to one of Mr. Lipman's questions asked of several industrial tenants of Boston's Metropolitan area Industrial Districts, concerning the

intangible benefits that such developments bring about as an inducement factor in location decision, was virtually unani-
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mously affirmative.

In Mexico very little progress can be observed in the consideration of intangibles in industrial development. Nevertheless industrializing communities in the State of Mexico, Monterrey, Guadalajara, etc., have started a new era for industrial design, giving more attention to esthetics. Thus the Trading Estate can greatly contribute to enhance the pleasantness of the environment, not only as a place to work but also as a distinct site of the community.

4. Traffic and Transportation problems can be minimized.

Even though traffic and transportation have not been a problem until now, with the exception of the Federal District, the problem should not be underestimated.

With this idea in mind, provincial cities are on time to prevent future problems and the adequate location of industrial areas will be a factor of paramount influence.

Thus a Trading Estate, or two or more similar ones well located in relation to communication, housing, and facilities, can facilitate circulation of goods and workers, especially when it has been customary to travel by bus or by bicycle.

The Estate administration could arrange special schedules and possibly can provide transportation services to make the journey to work less tiresome and more efficient. However, from the transportation point of view large concentrations of workers above two or three thousand should be avoided,¹⁹ especially when living quarters are too far from the Estate to walk or to cycle.

5. Economies in the provision of Utilities and other facilities.

A trading Estate assumed to be well located in accordance to the community plan, can minimize the cost of extending utilities and other community services to scattered fringe industrial areas. In addition the over or under capacity of utility lines can also be minimized because the workable estate program gives an idea of the requirements that industry located within the area will have.

The community can make considerable savings in the provision of electricity and gas to an Estate than to scattered areas, because of the reduction in the cost of distribution.²⁰ Large Estates, such as Slough, have undertaken their own generation of electricity with resulting economies to the community as well as the savings in time and effort that it takes to install electricity.

In Mexico any economy in the provision of community facilities would be a significant achievement, especially since financial resources are limited. The technical aspects,

depending on the size of the estate and on topography, could also be minimized. One of the most difficult problems encountered in the development of the Industrial New Town "Ciudad Sahagun" was the installation of utilities.

6. Socially.

The social influences that a Trading Estate could bring to a Mexican community are more significant and more needed than to an American or British one. The great success of the Mexican Company Town's paternalism indicated that the Trading Estate making extensive use of this feature could be the bridge of adjustment for the worker to our industrial society. In general its welfare and cultural facilities could help to raise standards of living of the working population bringing together significant benefits to the community.

7. Administratively.

In the U.S. the close cooperation between Municipal government, the planning board, and the Industrial Districts developers largely account for the success of the enterprise. The abbreviated chronology of the progress of planning and development of Stockton Industrial Sites, Inc., in California, a community industrial district for profit, illustrates clearly the achievements of strong community cooperation.

In Mexico the municipality has very little power and voice in community affairs. Referring to Impulse Areas the situation changes considerably, especially in the case of large cities like Monterrey. However in spite of the better municipal administration, the Estate and the planning board would be two valuable assistants in the development of the community, sharing its responsibilities and functioning as technical advisors with the aid of the Central Planning Agency. Mexican Municipality could be strengthened and would acquire with time the autonomy which the constitution has given to it.

Other patterns

In section A of this chapter basic features of the other industrial developments were mentioned. Some of them can also bring about benefits to the community, but American and British industrial experience shows that none of them have reached the achievements that Trading estates have.

The British New Town program has been claimed to be in danger of becoming, simply, additional communities in a growing London Region. Commuting to London from New Towns has increased with their growth, which is an indication of this danger.

The Industrial Subdivision speculating with land makes it scarce for the small and medium-size firm which can't afford to pay inflated land values, and Zoning with its hostile attitude against industry, by not protecting it from other uses, encroachments, etc. Unquestionably these patterns can be improved, but in spite of it the fact that a trading estate can

exert control easier and without so many hardships, to a well selected family of factories in accordance to the community master plan and national goals, and can as a whole provide more real and practical advantages to the community than the other patterns, permits to say that such industrial tool can be considered in Mexico as in U.S. and in Great Britain the most advanced form of industrial land use.

C. TRADING ESTATES AND THE INDUSTRIALIST

It is to the industrialist that trading estates offer more advantages. In Great Britain it was said:

It is however fairly certain on the basis of sample inquiries which have been made, that most tenants of factories on trading estates do enjoy some advantage, in addition to that which appears as profit to the trading estate company.²³

1. Buildings to lease.

Tax reliefs, direct subsidies, protective tariffs, etc., are all inducements that can be offered to any kind of industrial development, but standardized factories to lease, sometimes built on advance of demand, require government financial assistance and thus the control of its development, which can be exerted more efficiently in trading estates, as discussed before. British government trading estates used such a measure as the steering pump of the development areas trading estates program as expressed in the following statements:

And the government has come to consider ~~that~~ the provision of factory space as an acceptable function as education and low cost housing, and ~~that~~ rental factory space is becoming as necessary for large number of entrepreneurs as rental space for families. ²⁴

A government rented factory is by far the most effective inducement that can be offered to attract industry to a particular area. ²⁵

Among the advantages that this feature of trading estates offers to the industrialist, the basic ones are:

- a. The success of many enterprises depends on the speed with which it is possible to start production. Long delays in the early stages of the firm's development, after the necessary capital has been raised, can be avoided by having a factory ready to be used. This can also prevent radical changes in the outside economic circumstances, especially in an inflationary economy like the Mexican one, and due also to the monopolistic activities of some industrial sectors related to the building industry.
- b. The industrialist can get a factory without having to find capital for it thus leaving the firm's available resources the finance, the expansion of its business, and the purchase of machinery. It spreads the risk of those firms which are afraid or unacquainted with the market or the area.

In Great Britain the Special Areas Commissioners had in mind when using trading estates to avoid as much as possible direct subsidies to industry. If this could be achieved in Mexico, it would be of great benefit to the community, because then the wasteful local tax exemption to industry could be avoided and the federal one minimized.

In U.S. the provision of industrial buildings is becoming a general practice, however, not exclusive of Organized Industrial Districts, but in general of well organized industrial development of that along route 128 in Boston Metropolitan Area. The so-called "Package deal" refers to the availability of a promoter who will provide a plant as a package, including land, preparation of the site, erection of buildings to owners specifications, and aid on financing of the project. It could be argued that this service is not exclusive of Trading Estates, but at the same time in rating major factors considered in site selection by industries interviewed in each locational area on route 128, it was found that it had been of negligible influence in most areas except for the New England Industrial Center (an organized industrial District, in which it rated second, very close to "land for expansion,"²⁶ and which evidences that the package deal can almost be considered a Trading estate characteristic.

2. Special services and facilities

Among the various services which an estate tenant can get, and which usually are not available in other types of industrial developments are assistance in the following:

- a. the selection of the site
- b. contacting local taxing and zoning authorities which can save the industrialist from the many bothers which arrive from indignant abutting residential owners.

- c. making full investigation of the industrial location factors of the prospective firm.
- d. arranging with municipal authorities rates and schedules on transportation of workers, of goods, on provision of utilities.
- e. In addition the industrialist knows that his requirements in the way of special features of internal construction in the factory can usually be met by a proportionate increase of rental, and no capital outlay will be required.
- f. Finally the economies of scale which arrive from the congregation of a certain number of factories in one site, permits the Estate to obtain municipal services and facilities on a wholesale basis, which later on can be distributed within the Estate on economic terms. Such is the case of water, electricity, gas, etc., as well as social and commercial and recreative services.
- g. Police and fire services give more confidence to the industrialist and reduce insurance rates.
- h. The industrialist knows that the factory that he will take, if he is admitted to the Estate, will be well situated for transport, adequate labor will be probably available, etc.

In Mexico, as in the other two countries under study, these advantageous features are of special importance to the small and the medium size industry which generally cannot afford them.

The small businessman is necessary to the proper functioning of a democratic society, and the Trading Estate by offering him commercial and communal facilities as well as rental space, is one instrument which enables him to exist side by side with the industrial giants and which encourage growth of new businesses.

3. Effects on productivity and output.

The influence that a Trading Estate's optimum working conditions could exert in Mexico would be of great benefit in its industrial development. In U.S. and in Great Britain, the two most industrialized countries of the world, productivity as an average is high and it is not an exclusive feature of Trading Estates. In Mexico where productivity and output are still considerably low but at the same time proved to be significantly higher on better working and living conditions like those offered by D.M. Nacional Company Town,²⁸ and those large firms in Monterrey, it can be implied that the Trading Estate applying such paternalistic features can raise workers efficiency for the benefit of the industrialist and of the industry in general.

Other patterns

The company Town can provide as many advantages to the industrialist as the Trading Estate, and in the case of D.M. Nacional even more because housing for key workers is made available²⁹. However if the firm wants to have the benefits that paternalism obtains, it has to spend considerable amounts of money to provide them. The New Town can also offer as many services and facilities to firms than Trading Estates. In fact

its community facilities are supposed to be more complete, because they are for use not only on working hours and for the employees, but for the whole population. But because the agency responsible for the Town development is very busy in constructing the Town and its facilities, then it is difficult to pay too much attention to the industrialist.

The industrial subdivision's lack of administration to look after the needs of the industrialist makes it unfeasible and a gamble to provide commercial and communal services and facilities when its use cannot be assured, because there is no control on the firms nor idea of their requirements, or location within the subdivision, etc. The estate's fee system on communal basis and the regulations of the lease itself can assure the use of certain types of facilities which make the provision of such services feasible and profitable for the estates or any subcontractor.

What has been said for the industrial subdivision is more obvious for industry located in zoned areas, because even when zoning is supposed to promote compatibility between industry and other land uses, until now it has adopted a hostile and restrictive attitude towards industry, motivating that industry, especially in the U.S., look for communities with the right kind of zoning, or if not, to avoid it as much as possible by locating in fringe areas, but which does not solve the problem. This is usually the case of the large plants that can afford the provision of basic services and facilities by themselves. Besides it is ^a fact that several Industrial districts

restrict the entrance to large firms. Then it can be said that such industries can be better off in areas properly zoned. That is to say, heavy industry and large plants are not in such advantageous position as small and medium sizes by locating in a Trading Estate. Maybe a New Town, can offer higher benefits to it.

D. TRADING ESTATE AND THE EMPLOYEE

The employee can also profit from Trading Estate's features in various ways.

1. Economically. As in the case of D.M. Nacional, the Mexican Company Town, the employee is not the best paid in the country; but the multiple facilities and services to which he is entitled, saves him many extra expenses, that he and his family would have to do or would ^{not} be able to afford. This would be the case in a Trading Estate.

2. Socially and Psychologically. It is in this respect that the employee can make faster and more significant progress by means of Estate's welfare facilities, either installed within the Estate or just administered by the Company. The worker will be able to and will have the chance to learn to work more efficiently, educate himself, and in general raise his standards of living. The pleasant physical environment of the Estate, of the inside of the plants, and in general the order observed in the development, might stimulate the workers' initiative and attitude towards a more healthy, physical, and mental life.

This responsibility could be shared between the Estate and other national welfare institutions such as Mexican Institute of Social Security, Civil Pensions, and Local organizations. Finally, the present, not precisely cordial relations between the employee, the manufacturer, and the Unions, could be improved by being together in the Board of Directors and by closely following the development of the Estate with the only interest of its benefit and of that of the community.

The Other Patterns

It is on behalf of the Company's Town achievements that a Trading Estate has many chances for success. Unfortunately, this type of development can just do it on a limited scale.

The New Town could do as well as a Trading Estate or even could provide more facilities for the employee because the Town is designed to service the population who will live and work there. However in Great Britain as in the Mexican example amenities in particular have been slowly provided resulting in mass weekend scapes to the nearby large city. But still the New Town has a big advantage over the Trading Estate and that is the availability of housing, and its proper location avoiding long and tiresome journeys to work. This factor is a very important item influencing the full development of the Estate.

As to the subdivision and zoning, they have in general disregarded benefits to the employee and those offered are implicitly embodied in the location of the patterns such as good and rapid accessibility for the employee, close to housing facilities, and commercial services which usually develop in the surroundings so encroach into the industrial area.

Summary

This introductory chapter to Trading Estates has in its various sections attempted to show why a Trading Estate could work better in Mexico, than ~~in~~ a less organized approach to industrial planning. For that purpose section A presented the basic goals of mexican industrialization as well as the way Trading Estates could fulfill them, compared to other industrial developments that have been already experienced in Mexico: Industrial New Town, the Company Town, the industrial subdivision, development by zoning, and scattered plants. This brief analysis indicates that Trading Estates possibilities to be used as a tool for the implementation of the national policy of distribution of population and industry in Mexico are stronger than those of the other patterns basically because:

- a. The New Town is too expensive.
- b. The Company Town is expensive and limited in scale.
- c. The industrial subdivision, development by zoning and on scattered plants lack administration, leadership, a conscious

Industrial

landlord who could look after the interests of the Estate but also enforce and control the development of industries in accordance to national goals.

In order to reinforce the advantages of Trading Estates over the other patterns, sections B, C, and D illustrate the possible assistance of such a complex to the Community, the industrialist, and the employee. Each dissertation with concluding paragraph at the end of each section about the other patterns, allows to say that Trading Estates in general offset the advantages of the other developments; and if applied in Mexico, it could also be considered the most advanced type of industrial land use known, as it has been in U.S. and in Great Britain.

It was also illustrated that not all of Trading Estates assets would have the same weight in Mexico as they had in U.S. or in Great Britain. For example industrial advertising value, or of esthetics in the working environment, and in general of intangibles, would not have the same weight that the potential social and cultural role that Trading Estates could play in the industrialization of Mexico. Nevertheless, the constantly expanding development of the country will eventually require of all those assets which the planned nature of trading estates embodies.

Once again it is important to mention that even when Trading Estates can offer significant advantages, it does not imply that the industrialization of Mexico will take place only

in Trading Estates, but rather that, assuming full government assistance and a planned industrialization in Impulse Areas equal to any industrial pattern, ~~that~~ Trading Estates flexible, compact, and controllable nature lends to make it a tool worthwhile of detailed investigation and experimentation in a national plan.

The abundant information and successful experience in the U.S. and in Great Britain are important elements from which Mexico could benefit in its attempt to achieve a faster and better industrial and urban development.

FOOTNOTES CHAPTER II

1. Romero Kolbeck G. Examen de la Situacion Actual de la Industria Mexicana Tercer Trimestre de 1954, Escuela Nacional de Economia, Mexico.
2. See Meier Gerald M. and Baldwin Robert E. Economic Development, International Forces, John Wiley and Sons, Inc. London 1957, pp.324-333
3. Experts general concensus about government intervention in the industrialization refers specifically to those professional groups concerned with the economic development of the country, either publishing dissertations or formulating policies for the government. On the other hand certain groups of industrialists have made public their dissatisfaction about government interference in their affairs. This was the general feeling in the IV congress of industrialists held in 1957. CNIT, not only as a National Institution but also representing the interests of private industry tried to clarify ideas. The lack of knowledge about government action and necessity account for this negative reaction. The feeling of CNIT was that on the contrary the government has been too soft until now and that stronger government measures had to be taken to achieve a faster industrialization.

Jornadas Industriales. II Convencion Nacional de Presidentes de Secciones y Delegaciones de la CNIT. Segundo Trimestre de 1957, Mexico D.F.

4. Davidson Kaunitz R. op.cit. chapter on Local Trading Estates, p.19.
5. The industrial and economic factors analyzed in section A were taken from Radyanyi Lazslo Como debe Industrializares Mexico. Problemas Industriales de Mexico - Colleccion de Temas Economicos y Politicos Contemporaneos de Mexico. Mexico 1951, and also from Romero Kolbeck, op.cit.
6. Town Planning Institute. Report on Planning in the London Region.
7. Davidson Kaunitz H. op.cit. chapter on Local Trading Estates, p.35.
8. Griffith J.L. Moving Land from London. Town Planning Review, Vol. XXVI. No. 1 April 1955-56, p.51.

9. D.M. Nacional, the best known Mexican Company Town, by means of its paternalistic features has resulted in the improvement of the moral values of workers and have minimized absentism, regularly considerably high, to become the lowest of the country. In addition production and efficiency have improved significantly with a minimum personal rotation, which brings about a better specialization of the worker.

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11. Muncy Dorothy. Land-for industry - A neglected problem. Harvard Business Review, March. Cambridge, March-April 1954. p.55.
12. Pasma. op.cit. p.33
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16. Pasma. op.cit. p.33
17. Urban Land Institute Technical Bulletin No.19. Planned Industrial Districts, their organization and Development. Oct. 1952. p.33.
- 17A. Logie Gordon. op.cit. p.43.
18. Lipman W. Development of planned industrial districts in Boston Metropolitan Area. MCP dissertation Department of City and Regional Planning, 1954.
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20. Ibid. p.35.
21. Pasma. op.cit. p.83.
22. Town Planning Institute. Report on Planning in the London Region. London 1956, p.25-32.
23. PEP Political and Economic Planning, op.cit. p.93.
24. Davidson, Kaunitz Rita. op.cit. p.285.

25. Meynel, A. op.cit. p.53.
26. Transportation Engineering Division Department of Civil and Sanitary Engineering, Massachusetts Institute of Technology. Economic impact Study of Massachusetts Route 128. (Interim report, unreleased publication) June 15, 1958. Figure II-5.
27. Davidson Kaunitz Rita. op.cit. p.282.
28. See Appendix IV on D.M. Nacional.

CHAPTER III

How to develop Trading Estates in Impulse Areas.

Introduction

This chapter concerns itself with the pointing out of basic issues relative to the development of the Trading Estates concept in Mexico. It will be discussed at the community level, indicating major points of its "Workable Plan," and at the National level. The relationship between both government levels will be stressed. The chapter is divided into the following sections:

- A. Technical Studies
- B. Workable Program
- C. National Level

A. TECHNICAL STUDIES

Assumptions

1. Based on the antecedents of the 1930 National Planning Law (1) and on diverse dissertations made by individuals and institutions on the desirability of having a Central Planning Agency such as that of Manuel Bravo (2) CNIT (3) and on the recent trend towards planning methods, it can be assumed that such an agency will be established in the immediate future.
2. Considering the present institutional framework of Mexico and the existing planning personnel which could be recruited to the Central Planning Agency, it can also be assumed that there would be sufficient elements to assist in the formulation of the National Plan for the distribution of population and industry into Impulse Areas.
3. The technical studies required to formulate such a plan are complex and time consuming; they will most probably demand some foreign consulting services.

Based on these assumptions, the basic technical studies needed for the formulation of the national plan are:

Of national scope

1. A study about the amount, type, and diversification of resources on which to base industry
2. Industrial location factors to explain, though-roughly, the concentration of economic activities and population in the Federal District, to find out:

What locations would different types of industries

seek to fulfill their basic requirements?

What alternative locations are in demand for industry because of their availability of resources, labor, etc.?

3. A study correlating 1 and 2 could offer a clue to the most suitable industrial location for industries to constitute a Trading Estate

4. To supplement such analysis, a study of the industrial processes possible to integrate and coordinate, could round out the policy of industrial dispersion and decentralization into Trading Estates.

This last study would be of great importance because the Trading Estate in Mexico could not be as strongly oriented towards light industry as it is in the U.S. and in Great Britain, where the market for consumer goods is much more developed. Then in Mexico, a Trading Estate would include a certain area for heavy industry. For example, Monterrey's iron, coal, skilled labor, etc., lends to establish various types of heavy industry which could be diversified and coordinated with different by-products, within the same Estate, such as in some of British Commercial Trading Estates.

Of regional scope

The studies mentioned will probably need the assistance of regional analysis of the following type:

1. Input/output table to indicate the possible effects of the expansion of certain industries in the rest of the regional industrial structure
2. Economic base studies would be extremely helpful to understand the nature of inter-regional trade and movement of industrial products
3. Balance of payments' analysis could supplement the former ones in finding out the industries that support the region. Also in accordance to the region's resources, the industries that could be attracted, to level off the balance of payments, etc.

The latter technical studies are complex and probably demand foreign consulting services, as was required by the national output/input table. These studies, will have to be stressed in prospective Impulse Areas, and will require previous surveys, questionnaires, public meetings, extensive publicity about the national program, trying to minimize political and economic frictions; and mainly, it will be required more detailed and reliable census than the ones obtained up to the present. Especially the industrial one must be completely revised, it is confusing, too restricted, etc. 1960 offers a great opportunity to improve that major source of information, indispensable for planning matters.

Community level

Once former regional analysis have offered the most feasible alternative sites for the location of Trading Estates,

local planning studies would be required to decide whether or not the community was suitable for the construction of the estate, making an appraisal of local, economic and urban conditions. American standards suggest the undertaking of the following survey:⁵

1. Will the present and probable future level of economic activity in the community support a community of industries?
2. Does the trend in industrial growth in the area indicate that industrial activity will probably continue, at least at the present rate?
3. Are there reasonable indications that specific types of industries can be attracted to the area in competition with nearby communities?
4. Inventory of the availability of land
5. Future need for industrial land evaluation and forecast with consideration given to modern production methods and industry's needs for expansion land and adequate off street parking facilities for the employees.

This survey could be entirely applied in Mexico with some modification such as that concerning community competition which is expected to be minimized by means of the national plan; and the significant difference in the parking needs, which at the same time should not be neglected in the long run. This former survey stresses the economic and industrial aspects of the establishment of the Trading Estate. Chapter IV will present with Monterrey's case study, the planning survey needed to determine the possibilities of prospective Impulse

Area Community to support the influx of population that the National Plan would bring about.

B. WORKABLE PROGRAM

Once the answers to the preliminary survey allow the decision to establish a Trading Estate in an Impulse Area, it is necessary to formulate a workable plan for the development of the Estate.

The plan ^{also} must be of long range and comprehensive, but it must be workable An attempt should be made to develop the district in an orderly, step by step, fashion.⁶

The seven points suggested by the U.S. Department of Commerce are:

1. An estimate of what the development will cost
2. Details on the possible sources of financing the development
3. Reports on several potential sites including if possible a tentative plat of each, indicating probable location of proposed streets, access roads, rail and utility easements
4. Organizational plans include an organization chart for easy reference
5. Proposed methods of controlling the District
6. Plans for special services and facilities to be offered to tenants
7. Proposed promotional plans.

In accordance to Mexican conditions, this workable plan could be considered as a guidance not only for local use, but with some additions and modifications for national investigation.

Examining at the local level each point individually:

1-2. Cost of the estate and source of financing the development

Detailed studies are needed to determine the cost of the Estate, and they are out of the scope of this thesis. As to the source of financing of the development, there is no doubt that the government, at least in the first stage of development, would have to take full financial responsibility. The weak private financing contribution to industrial development lends to believe that one of the basic factors influencing the success of Trading Estates in U.S. and Great Britain, "the need to make long range investment and operate without profit for several years", would not be fulfilled. The government would be the only one to take such a risk. And in the remote case that private enterprise attracted by the program would be willing to make such investment, probably this might occur in a second stage of the program, then the government should make clear cut sure that the national would be enforced properly and that development would take in accordance to the community master plan and following a preconceived workable plan. Government control over private Estates would be a must, to avoid wasteful speculative competence with government Estates.

Concerning Impulse Areas, the same way they would receive significant benefits from the national program, they would have to cooperate in different ways, mainly to minimize the political and economic frictions that most probably would result. The financial contribution could be done directly with funds, or indirectly with the construction of local public works, or any other assistance to the development of the pro-

Just as an illustration, feeder roads in Mexico are financed 1/3 by the Federal government, 1/3 by the State, and 1/3 by the municipality. Similar arrangements could be made for the financing aspects of the Policy. Such funds would be handled by trustee organizations selected by each governmental level, whose representative could also sit in on the Board of Directors, to expedite any controversial issue.

This system, if carried on properly, could prevent the strong centralization of control which the Board of Trade had over the British Estates' System.

"Once the Board of Trade took over the administration of the Government industrial program, Estate Companies were restricted in their function to exclusive technical functions concerning the development of the Estate, they have a daily dependence on the Board of Trade and Treasury for minor matters, causing delay, etc."⁹

The term "properly," implies having reliable and experienced representatives in the Board of Directors. Unquestionably, a careful procedure will have to be secured to avoid excessive Central Control, and also the mishandling of funds.

Another alternative in the provision of funds would be the creation of a national fund, similar to the "Fund of Guarantee for the small and medium industry" exclusively for the Development of Trading Estates, and administrated by the Central Planning Agency.

The special Fund could include different assignments such as: Factory financing, grants for State and Municipal public works, grants for the establishment of local planning agencies, for the formulation of master plans and Estate's workable programs, etc. The regulation of the Fund could be

one of the ways to enforce or control the Impulse Area Program. The Mexican government could in principle use a similar device to the American Urban renewal one, that is to say, any Impulse area community asking for federal funds for the establishment of the estate, would be required to present a workable program, for whose formulation there would be also some financial assistance.

Factors influencing cost

Among the several factors influencing the cost of a Trading Estate, the basic ones are:

- a. Land values, which will depend on the size and shape of the tract, access to rail and other transportation facilities, proximity to residential areas, or whether or not the property is under one ownership or held by several owners
- b. Development costs - Development costs will vary in accordance with the topography of the proposed tract, depth of lots which influence the installation of utilities, streets, of rail-lead lines, and other costs which include all the fees, promotional costs, etc.

It was formerly mentioned that the municipality will have to cooperate financially with the enterprise. It could do it by constructing and maintaining the streets, installing and connecting sewers, etc. It would be important that some local

organizations to take the responsibility of raising the local Fund, promoting, organizing the community, educating the public, and interesting the entrepreneur, etc.

3. Potential sites

The following point of the workable program is a report on several potential sites with a tentative plat of each of them, with its approximate costs, etc.

Before giving this step, it is necessary to know the type of Estate that an Impulse Area can afford and develop in accordance to its resources, location, etc.

a. Type of Trading Estate in Mexico

Present Mexican industrial location factors indicate that the standard size of Trading Estate developed in U.S. and in Great Britain would be unfeasible to build in Mexico. Very few urban areas could establish and profitably support Estates of the size considered by the British as medium, 50-150 acres. It would be more feasible to develop 50 acres Estates, considered by the British as the minimum size to yield commercial profits. However, the different economic conditions of Impulse Areas make it desirable to have various alternative sizes, which could range from a minimum of three factories segregated in one site to Estates of 100-200 acres. The decision would be based on the nature of industries accommodated, number of firms, labor supply (female or male), availability of workers'

housing, proximity to raw materials and market, etc. However, of the optimum and minimum Estate's sizes given by P.E.P., British experience tells that:

"In the early days, the tendency was to build large central Trading Estates and arrange transport services to bring the workers to them. While this was successful enough where there were large centers of population, it did not provide for the small scattered areas, and ^{now} many more small estates are being built sometimes with a handful of factories, or even a single factory. These smaller Estates are often managed in groups from a central estate office in a large estate ... However, these ones cannot be considered in the strict sense Trading Estates because usually they do not provide communal services."¹¹

Thus, Mexican estate program could follow a similar flexible policy. On one hand, Monterrey's 2350 acres of industrial land reserved for industry illustrated a unique example in Mexico, where a medium and even a large size estate (150 - 500 acres) might be established. On the other hand, less developed Impulse Areas, such as Irapuato or medium-size cities located in booming agricultural regions of the North Pacific in demand of industrial diversification, could be suitable for either one small Estate or various small groupings of factories.

The problem, in such a case, would be how to provide services and facilities which characterize a Trading Estate to all types of Trading Estates? If so, how efficiently would they be compared to an estate with all premises within its area, including permanent technical staff and administration? The possible answers will be given in point 6 of this chapter.

Once the type and size of estate has been decided upon, then it is possible to look for alternative sites within the community limits or in its outskirts, to draw tentative plans for each of them, estimate costs, etc.

4. Organizational plans

It is out of the scope of this thesis to indicate precisely the organizational plans for the Community to develop a Trading Estate. However, it has been mentioned that each regional board of directors, for estates such as Monterrey's, Guadalajara's, Leon's, etc., with representatives of different levels of Government and institutions, Estate employees, etc., would be the main organizational agency for the local Estates under its jurisdiction.

The committee system used by American O.I.D. could be a useful device in Mexico. But clear goals and organization would be a requirement to avoid the usual Mexican improvisation. The Board of Directors would form the committee's leaders for planning, financing, publicity, services and facilities, construction, legal, zoning, survey, etc. The basic plans for these committees would come from the Central Planning Agency which would supply the regional Estate Boards with temporary staff speakers, lecturers, and information, as suggested by CNIT¹² industrial relocation policy.

5. Proposed methods of controlling the District

This aspect of the program is very important. Perfect plans without the proper means to implement them weaken

any policy, and most probably the public and government administration will lose interest. In short, the project will be doomed to fail.

The main guarantee of the control of the District is government control of the Estate Board of Directors, and of the discretion used by the Board in itself as the guiding and enforcing agency, the watchdog of the correct development of the Estate in accordance with the Community master plan as well as with the National plans. American Districts have used three methods to exercise control:

1. through proper zoning based on modern industrial techniques and performance standards
2. by private restrictive covenants
3. by pertinent clauses in purchase agreements and bases.

The Canadian Estate in British Columbia uses the leasehold system.

"We feel that it is only under such a system that it is possible to ensure that the standards of an industrial Estate are maintained once it has been developed."¹³

This system has been more extensively used in Government Trading Estates in Britain than by American Organized Industrial Districts; but the trend towards leasehold is growing.

In Mexico considering the inadequate legal system and outmoded zoning regulations, strict covenants would have to be used either under lease or purchase of land or buildings.

However, it could be assumed that the pre-required master plan would be accompanied by up-to-date Zoning regulations. In addition rented factories, the steering force of the program, could facilitate proper development according to Estate's layout. In view of the short experience of Mexican planners in national, regional and even in community planning, and the multiple difficulties inherent to such a plan, there will be loopholes which the whole machinery will have to iron out. Smaller details on the control of the district could be decided by the regional agency, but any major issue should go to the Central Agency. Mexican unhappy experience of the 40's with the "Federal Commission for Industrial Development," which among its multiple and broad functions was supposed to:

"Such industries were to be planned, financed and organized by the commission and they were to be operated by it until private entrepreneurs were willing to take over."¹⁴

Private enterprise against it was so strong that the government had to deny any such intentions. This should be a lecture to be considered in any future programs where land use controls are involved.

At the outset while the program gets going and people start realizing it in all its magnitude, it is most probable that strict enforcement will be difficulted, among other things because of: Probable weaknesses of the program and the administration, and in order to minimize negative reactions from private enterprise, etc. The industrialist will have to be persuaded and convinced of the benefits that certain planning controls bring about to him, the community, and the country.

In addition to the land controls mentioned before, there are other measures which properly applied, could bring constructive results, that is, the regulations of grants, subsidies, protective tariffs, allocation of Government contracts, loans, all of which could be administered by the regional Board of Directors, under the supervision of the Central Agency.

In sum, the experimental stage of the program will face a game between the Government and private initiative. Both have to give in something to get as close as possible to the desired national goals.

The Government will have to offer not just assistance but education and higher civicism. Then, private initiative will probably respond more positively than at present.

6. Plans for special services and facilities

This particular aspect of the Trading Estate should be paid particular attention because of its attractiveness and benefits. As was said in point 3, the problem is to provide the same services and facilities to all types of Estate.

British experience tells us that very small estates located in extremely depressed areas did not have social services. On the other hand, the very large commercial Estates had a multiple variety which ranged from Banks, restaurants, playing fields to clinics, etc.

It is difficult to determine without careful study what kind of facilities and special services will be provided by different types of Estates; at what stage of their development will it be economically feasible; will they be part of the estate deal, or will they require a certain fee; or will they be subsidized by the Government, by the State, or by the Municipality, etc.

Therefore, just speculating about it, and trying to answer the first question, it can be observed that the Government in recent periods has been providing basic facilities to urban communities. Then, a very important part of the Estate program should be the examination and, if necessary, the supply of future needs for probable incoming population.

Such were the British Special Areas case which in spite of the premises that were being wasted due to population migration, they still were handicapped by more prosperous areas. Then the commissioners spent about 2/3 of the "Special Areas Fund" in necessary public works to make the Special Areas more desirable places in which to live and work.

In Mexico, the situation might be a little more difficult because population is growing tremendously everywhere, especially in Impulse Areas, then there is no surplus of premises, on the contrary. That is why Impulse Areas require for its selection the existence of certain basic facilities and services which would be prohibitive to install from scratch, for present and future demand.

a. Architectural and construction services

British and American experience have shown that only the large firms which sometimes have their own technical and architectural staff, are not interested in such services. But the small and medium size firms, predominant in an Estate, and which can afford them, look eagerly to avoid the troubles of the design and construction of the plant. Regional Trading Estates such as one located in Monterrey, could well afford to have either a permanent staff with a minimum number for daily demands, or else subcontract needed technical services from firms that do the whole job. This last method has been successfully used in the U.S.

"Districts which have a volume of construction too small to support architectural and construction staffs of their own can contract firms specialized in industrial plant design and construction whose services are part of a package deal available to prospective occupants."¹⁵

This last procedure could be used by local Estates which could not have a permanent staff. One third alternative would be to have a mobile staff supervised by the regional Estate, and assisted by the Central Planning agency working as need arises, in combination with local professionals.

These alternatives have application for other intangible services offered to the tenant such as: technical studies on site location, plant layout, essential information, development aspects, etc.

Finally, specialized studies like production layout and others which could not be, for some reasons, carried out on a permanent basis by the staff could be undertaken by research institutions such as the Technological Institute of Monterrey, the Bank of Mexico, etc.

b. Physical facilities

These include utilities, communcal facilities considered special to Trading Estates such as: landscaping, recreative areas for social, cultural activities and those institutional buildings as Banks, post office, etc. Although problems of supplying services to local Estates might not be very difficult, they increase significantly concerning community facilities.

Unquestionably, all Estates will have utilities, streets, sidewalks, rail spurs, etc. Some small groupings might not need rail facilities. Nevertheless, it should be located in such a way as to install it when necessary.

One of the possible alternatives to furnish special facilities to all types of Estates in Mexico is:

To construct playing fields and other facilities mentioned, in accordance with the Master Plan and for the needs of the existing and future population, in such a way that could be enjoyed by the Estate during working hours. In other words, those areas would belong to the Community. Its construction and maintenance would be met by Federal and State Government

moneys and local assistance. A special Federal and State Fund could be formed to provide social services to Impulse Areas. Estate tenants could contribute with its relative share to the use of the facilities.

7. Proposed promotional plans.

This aspect of the Estate development tries to answer to: what factors should be considered in planning and organizing the campaign to get industries? What is the most practical way of developing a prospect list which will get results?

In Mexico, this point is important in a different way than that of the U.S., but very similar to Great Britain as illustrated by the following statement:

"Propaganda has not been an important tool to attract industry since the war. Competitive advertising between the various development Areas has been discouraged as being inconsistent with a planned distribution of industry."¹⁶

In the nearby U.S., Industrial Districts compete with each other, whereas in Mexico, this should be minimized. On the other hand, in Mexico, promotional plans should be used in an educative way, indicating the public and industrialist about alternative Impulse Areas which suit their requirements and also just advertising the potentialities of different regions of the country. Information, promotion could be a strong weapon in the formation of a higher social consciousness to steer development to Impulse Areas and foster decentralization of the Federal District.

Information should not be limited to few Impulse Areas. The industrialist must be convinced of the advantages of Impulse Areas, then he will not feel pushed or forced. In Great Britain advertisement of the assets of the Areas has psychologically been of great assistance in acquainting the City of London with the whereabouts of depressed places like: Cyfarthe, Bishop, etc., and their needs; practically it has already shown that there are sound schemes awaiting finance, that these can be guided to Special Areas, and most amazing of all is that they can make profits there. In the local and regional levels promotion would be of paramount importance because, as was said, the first stage of the program will most probably see local and regional investment rather than Federal District's decentralization even though the latter should not be underestimated. Perhaps, Government assistance for relocation, as suggested by CNIT, might stimulate such a process.

C. NATIONAL LEVEL

It was assumed from the outset that Trading Estates would develop in Impulse Areas. Nevertheless, it is significant to point out basic aspects of the national plan "as to how to develop it".

Some aspects have been given in former sections as to the control of the Estates. But it is necessary to stress

the importance of the so-called twin weapon: inducements in Impulse Areas and Control in built-up areas. The tools used by the British to handle them, were the "Industrial Development Certificate," administered by the Board of Trade, and the "building permit" granted by the Town and Country Planning Ministry. In Mexico, something similar would be required to enforce the location of industry once the industrialist had been offered alternative locations in Impulse Areas. At the same time some measures had to be taken to prevent the slow and cumbersome administrative process of the British Policy, so highly criticized. The solution might lie in having both permits handled by one agency, the Central Planning Agency. The industrial certificate would assure the establishment of an industry from the selection of alternative Impulse Areas; and the building permit would fix the location to one specific site, according to the community master plan. The Central Planning Agency would be assisted by regional planning authorities established in certain Impulse Areas, such as Monterrey, Guadalajara, and few others.

Finally the measure of paramount importance to the implementation of the program and which facilitated the control of industrial location in Great Britain, is expressed in the following statement given by the 1944 White Paper:

"... the Government would require industrialists to notify them of plans for expansion at least 60 days before entering into contract to build and would take power to prohibit the establishment of new factories in a district where serious disadvantages would arise from further industrial development. In addition, the Government would give priority to the development areas in the granting of license for the building of new' factories."18

Mexico has in its short planning experience a "National Planning Law" which called for a measure similar to the British one just mentioned. If this measure could be enforced, it would be a great achievement for the development of the Policy. Considering present conditions of the administration, insufficiently paid, lending to unethical practices and to inefficiencies, it can be expected that the implementation of the National Program would meet real obstacles. In addition to the weaknesses of the administration itself, the program is likely to present administrative problems like the following ones:

1. The selection of Impulse Areas.
2. Competitive advantages and anomalies in granting subsidies.
3. Responsibility of the government for failures of firms where location was encouraged.
4. Politics and vested interests in overruling policies which requires foresight and disinterest.

It can only be hoped that extensive publicity about the Impulse Areas Policy, Trading Estates, planning education campaigns, higher salaries, continuity of administrative objectives and plans, application of a certain code of ethics, etc., might improve the situation; however, the strongest forces would lie in government assistance in the promotion of planning activities and by developing Impulse Areas with Trading Estates. Positive and constructive measures should be given priority,

and negative tools like the recent presidential decree should be suspended because of the possible undesirable reactions on private enterprise. However some kind of negative control on built areas development is indispensable if fast development in Impulse areas is desirable as well as decentralization of the Federal District.

Summary

Chapter III has presented how trading estates can be developed in Mexico, assuming a central planning agency could be established and a national plan formulated.

In its first section the chapter illustrated the basic technical studies that would be necessary to do at national and regional levels, as well as the required surveys to decide on the specific location of a Trading Estate from several alternative Impulse Areas. It was said that the difficulty of these analysis would presumably demand foreign consulting services, which have been used by Mexican institutions in other occasions. The studies mentioned stress economic and industrial aspects of the plan. The planning implications will be discussed in Chapter IV.

The bulk of chapter III is developed under the heading of the "Workable Plan," which is based on the one used by Organized Industrial Districts in U.S. The aspects that were emphasized because of its relative importance in Mexico are cost, which includes a brief analysis of the type

of Estate that could be developed in Mexico; and the different methods used in the U.S. that could be used to control the proper development of the Estate. The discussion was reinforced with British and American experiences with Trading Estates and Organized Industrial Districts, stressing the community level.

The national aspects of the program were also given consideration, with the benefit of the British experience in the decentralization of industry and population into "Development Areas." Special attention was given to the use of the so-called "twin weapon" and its possible application to the implementation of the Policy

- a. The industrial development certificate and,
- b. The building permit.

Much of the chapter indicates the possibilities relative to applying trading estates in Mexico, which might be considered one-sided; however, some of the basic weaknesses that the program might encounter in the way are presented at the end of the chapter.

FOOTNOTES CHAPTER III

1. See Appendix for background comments on the National Planning Law.
2. Bravo Manuel Planeacion Industrial en Mexico, Investigaciones industriales Banco de Mexico, S.A. Noviembre 1950, Mexico. p. 41-50.
3. CNIT Camara Nacional de la Industriade la Transformacion (national Chamber of manufacturing industry) For more details see the Appendix. II.
4. Trafford Park the first Commercial Trading Estate and the largest to be developed in Great Britain has more heavy industry than light ones. Slough and Treforest have some heavy industry but light industries predominate. These large Estates have promoted and achieved intertrading of by-products. For more details see Davidson Kaunitz R. op.cit. chapter III.
5. Pasma, op.cit. p.12.
6. Ibid, p.13.
7. Ibid, p.16.
8. Wringley, Robert, Jr. Journal of Land and Public Utility Economics, May 1947. p. 122-123.
9. Davidson, Kaunitz R. op.cit.
10. PEP Political and economic Planning. Report on Industrial Location in Great Britain. The size of estate suggested by this report as the minimum to supply full communal services to industrial tenants was of 75 plants of an average size of 5000 sq.ft.
11. Logie, G. op.cit. p.43.
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CHAPTER IV

PLANNING IMPLICATIONS

Introduction

Assuming Trading Estates are possible to apply in Mexico as a tool for development of Impulse Areas and decentralization of the Federal District, this chapter will discuss the planning implications at the community level of such a policy. For this purpose Monterrey's case study will be presented, indicating differences between the planning implications caused by industrial development in a Trading Estate and in other types of development.

Two types of planning implications will be examined.

- a. Implications related to the Estate as a specific kind of industrial development and which will analyze the type of plant and Estate suitable for Monterrey.
- b. Implications related to the community, its labor force, and the economy affected, which will try to answer if the community is prepared to solve the problems that a Trading Estate will bring about.

A summary will conclude the chapter.

MONTERREY - SALTILLO

The establishment of Trading Estates in Impulse Areas will depend greatly on local conditions but in general the similar nature of its planning implications lends to make one case study to illustrate the issue.

The urban complex Monterrey-Salt¹tillo is one of the most important regional centers of the North and of the country. Both State Capitals, located 55 miles apart are expanding significantly in population and in its economic activities. In the period 1941-1950 Monterrey showed one of the highest population increases of the Nation, 7.9 per cent per year; Saltillo only reached 4.1 per cent per year. Industrially Monterrey is ranked as the second most important center after the Federal District, and in this aspect clearly offsets Saltillo's regional importance. However, the economic potentialities of Saltillo and the availability of important institutions are favourable factors for the development of Monterrey and the Region.

A. TRADING ESTATE

It was discussed in chapter II the possible size of Trading Estates that could be developed in Mexico, compared to British standards. Without reaching any specific conclusions, it was estimated that latitude should be allowed because of the variability of local and regional industrial location

factors which affect the size and type of Estate, especially the limitation of the market. It was also said that regional Estates probably located in such Impulse Areas as Monterrey, Guadalajara, Leon, Veracruz, etc., would be larger than local Estates located in smaller cities of less industrial potentiality. The following numerical analysis will supplement that of chapter II, earlier mentioned. Because of the great difference in economic and industrial conditions between Mexico, U.S., and Great Britain, and also due to the significant complexity of the elements involved in the size and type of industrial development like a Trading Estate, the analysis will be based on the one made by Luis Rodriguez L. in his dissertation to obtain his planning degree.² The basic reason for considering Puerto Rico's study as a guidance stems from the similarity of basic industrial location factors with those of Mexico, such as the limitation of the Market, abundance of unskilled labor, etc.

1. Type of Trading Estate for Monterrey

It was mentioned that Trading Estates in Mexico should have a certain percentage of heavy industry, depending on local and regional conditions, on the type of industrial process involved, and on the size of Estate that can be supported by the community. Monterrey is one case in which its industrial location factors favor the development of heavy industry. It has a relatively large experience in heavy industrial activities, availability of skilled labor and technicians, access to coal, gas, fuel, important railroad center, entrepreneurial management, etc. In addition, its

strategic geographical location as the main regional center of the North of the country, its rapid access to the border with the U.S., and to export ports, its busy air transportation activity, its fast growing population and per capita income, and the general increase of standards of living of the North and North Pacific, its institutional importance, etc., offers Monterrey the possibility to become the distribution center of light industrial consumer goods for the Northern territory that still are produced in the Central Areas, and hauled long distances across the country, making distribution less efficient, slow, expensive, resulting in reduced per capita income of the mass of the population.

Trading Estates in Monterrey could be of two different types.

- a. Estate for light industry only, and
- b. Estate with predominant light industry, with some heavy industry.

2. Desirable Plant Size.

A detailed study or survey to determine at least the desirable average minimum or maximum sizes of the different potential light and heavy industrial activities for the district is not within the scope of this paper. Then an attempt is made to determine the desirable size of plant and of Estate based on the study mentioned before and on averages of workers per plant for a variety of industries in the Federal District, the State of Mexico, the country as a whole and the

State of Nuevo Leon, whose production comes 90 per cent from Monterrey's industry.

The averages obtained are as follows:

	Nuevo L.	State Mexico	Federal D.	Mexico
Average workers plant	60	73	78	63
ranges	17-165	19-170	16-180	11-185

These figures were obtained from plants employing less than 200 workers of light industrial type. The distribution was 50% less than 50 employees, 20% between 50-100 employees, and 30% over 100 employees.

Concerning heavy industry it is more difficult to draw averages due to the more complex and variable factors involved. 1950 Industrial census gives for the State of Nuevo Leon a range from 110 workers per Plant in the steel foundry industry, to a 892/plants in the brewing industry. In general Mexico is not a country of giant plants, very few pass the 1000 figure. Foreign experience in Great Britain and in Puerto Rico indicates

Estates	Average size factory site Acres	workers Acre	total workers	sq.ft/worker	worker/site
<u>Light industry combined with heavy industry</u>					
Treforest	1.6	66	10,600	190	105
Trafford Park	5.5	51	55,000	253	275
Team Valley	2.78	--	10,200	253	92
<u>Light industry</u>					
Hillington	1.41	47	8,100	204	64

Puerto Rico

Study averages in San Juan Metropolitan Area and in Mayaguez range from 136 to 185 workers/plant and the estimated optimum size to be located in the light Industrial District ranges from 100 to 250 workers/plant.³ Assuming that the Trading Estate in Monterrey would have 75 per cent of light industry and 25 per cent of heavy industry, and based on the figures presented before, it can be estimated that the Estate's average size of plant will range from 50 workers/plant to 200.

3. Plant area requirement

Floor space per worker varies with the type of industry. In Great Britain standards tell that most light industries range from 100 sq.ft./worker to 300 sq.ft./worker. Heavy industry reaches higher floor area ratios of 450 and sometimes as high as 1000 sq.ft./worker. Surveys in Puerto Rico indicate floor area ratios ranging from 120 sq.ft./worker in the apparel footwear textile group, to 380 sq.ft./worker in the metal goods group. Mayaguez yielded 71 sq.ft./worker and San Juan Metropolitan Area 100-150 sq.ft./worker. The optimum floor area ratio estimated for design by Mr. Rodriguez was 100-250 sq.ft./worker. His considerations were based on the fact that many industries in the Industrial District were going to be highly mechanized, as well as due to market conditions, warm climate, etc.

In Mexico these ratios seem yet high; however, expecting in the next 30 years technological advance, one level plants, horizontal industrial processes, more significant space for parking, and other communal facilities, etc., then it has been estimated for light industry a floor area ratio of 100-200 sq.ft./worker, and for heavy industry approximately between 200-500 sq.ft. British standards indicate that basic industries connected with metal goods which predominate in Monterrey, require between 300-450 sq.ft./worker. Only cases of cotton weaving, or spinning, and others demand larger areas.

4. Coverage

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The Forum Panel on Industrial districts gave coverage for site a minimum of 30 per cent and 60 per cent as a maximum. Puerto Rico's study suggested 45 per cent for the Industrial District. Rita Davidson in her dissertation about Trading Estates in Great Britain ⁶ uses 30 per cent. In Mexico land coverage still is too high, but there can already be observed a tendency to decrease. Then lets assume 45 per cent for Monterrey's Estate.

5. <u>Land Uses</u>	<u>Trafford Park</u>	<u>Slough</u>	<u>Puerto Rico</u>	<u>Monterrey</u>
Factories, warehouses & depots	76%	70%	60%	60%
Railroads & roads	10%	8%	23%(Street system)	
Land on lease for factories	2%	-	-	} 40%
Undeveloped	12%	-	-	
Playing fields	-	2%	-	
Housing	-	19%	0	
Communal Buildings	-	1%	-	

It is important to point out that Puerto Rico's figures indicate that the sites contain only the required manufacturing area, storage areas, loading, landscaped areas, land for future expansion, etc. Recreation, bus terminal, first aid station, police and fire protection, bank, restaurants, etc., will be provided for on communal basis so as to avoid duplication of services and waste of land.⁷ The same considerations apply for Monterrey's Estate.

6. Plant size.

Plant requirements are a function of technology and are subject to constant change. In Mexico and specially in Monterrey technology has advanced significantly as illustrated by the high efficiency of labor. Productivity per worker is 39 per cent higher than the national average.⁸ The Technological Institute of Monterrey, one of the best-known of the country, and its joint research institute have largely contributed for such advancement. Then it can be assumed that plants in the Estate will be of one level, and based on the estimations presented earlier. There will be a minimum and maximum size of plant for light industries, and plants for heavy industry will probably be designed individually in view of the variability of requirements.

a. Minimum size of plant. $\frac{0.25 \text{ Acre}, 200 \text{ workers/net acre,}}{120 \text{ worker/gross acre.}}$
 Assuming: workers per plant 50
 Plants area requirements 100 sq.ft./worker
 coverage 45%

b. Maximum size of plant. 2 Acres, 100 workers/net acre,
60 workers/gross acre.

Assuming: workers per plant	200
Plant area requirement	200 sq.ft./worker
coverage	45%

Both estimations about the number of workers per gross acre of site are closer to the British standards given by Logie,⁹ than to American ones.

7. Size of the Estate

Based on the minimum standards proposed by PEP, 75 factories of an average size of 5000 sq.ft. as to provide full facilities economically as well as the 50 acre Estate minimum size to yield a commercial profit,¹⁰ and basically on the industrial potentialities of Monterrey, lets analyze the planning implications that would arrive from the establishment of a 50 acre Trading Estate, which at the average estimated workers/gross acre would hold 4500 workers.

B. IMPLICATIONS RELATED TO THE LABOR FORCE

1. Labor force increase

Assuming Monterrey will have by 1980 a population of 922,000 indicated in Chart 2 as the medium population forecast, then the labor force increase will be:

The State labor force as of 1950 was formed 27.6% of males and 4.5% of females.¹¹ Assuming that Monterrey had in 1950 40% of its population in the labor force, and from that percentage 25% corresponded to industrial employees as compared to 18% on the State, then Monterrey had in 1950 approximately 33,000 industrial workers. By 1980 estimating that the labor force as well

as the percentage of industrial workers will increase to 12% of the total population, then (1980) 12% 100,000 workers
 (1950) 33,000 workers
 increase(1950-1980) 67,000 workers

This means an average industrial labor force increase of 2,240 workers/year. Assuming that 50 acres Trading Estate would be started to built in 1960 for 4500 workers and considering 25% of labor force increase would go to the Estate, then the supply of manufacturing workers for Trading Estates would be 560 workers/year. This labor force could then fill, if the Estate would develop continuously, in approximately a period of 8-10 years, which is not too fast for an industrializing country as Mexico and taking into consideration all the inducements that the Estate and the Government would offer to the industrialist.

At this point it is important to indicate that before the Estate is built and the inducements offered it is not possible to forecast the reaction of the entrepreneur towards the new tool. Based on British experience in the development areas, it took some time to the industrialist to decide to locate in government trading estates. In Mexico it is most probable that decentralization of the Federal District, or migration of its capital to impulse areas will find reluctance; however, it should not be disregarded the possibility of an extremely warm reception on the part of private enterprise. Here is where the careful selection of tenants for their own interest and of the Estate will play a role of paramount

importance. This means, in sum, that the Estate might be completed before the period estimated and others started.

2. Nest Plants, built in advance of demand

The 75 per cent of light industry would include a certain percentage of nest factories which were of significant attraction in most British government Trading Estates. These plants should be of smaller size than the minimum computed in former analysis. Some British Estates had the following size of nest factories:

Birmingham, 1,000 sq.ft., Slough 1,500 sq.ft., Treforest 3,000 sq.ft., etc. British government Estates went as far as con-

structing all factories in advance of demand before World War

II. And after the War the government planned a large scale

advance factory building. ¹² In Mexico this positive side of the

British policy should be given careful consideration because

it could be the stimulating force in breaking public reluc-

tance to go into industry. In Great Britain in addition to

nest plants, larger plants were also built in standard sizes and

some in advance of demand. Usual sizes ranged from 25,000 sq.

ft., 33,000 sq.ft., 50,000 sq.ft.; but they were designed so

that they could be easily developed to 200,000 sq.ft.

3. Potential number of Estates

The number of potential plants and Estates require a more accurate analysis as to the type of goods to be manufactured, type of labor demanded for each one, topographical conditions, etc., which are out of the limitations of this thesis. However a rough estimate can be made. Assuming an

average plant size of 125 workers/plant and a rate of increase of labor force of 560 workers/year, then the number of potential plants per year that could be added would be six.

Going to the extreme of assuming that all industrial development in Monterrey would take place in Trading Estates and that they would have to be completed in 1980, then the labor force increase could support several Trading Estates of an average size of 50 acres for 4500 employees; however, it would be worthwhile to consider the possibility of establishing a larger Estate of 100 acres or larger. The planning implications that it would cause, especially in relation to transportation and circulation of workers and goods would make a considerable difference; but at the same time its economies of scale could favor the provision of more specialized services and facilities on economic terms. Something similar would happen if it would be decided to establish smaller estates than 50 acres, that is the scale and possibly the nature of the planning, implication would change. The availability of land would play an important part, as well as land values, in the creation of small groupings of factories. Local conditions will dictate how many and what size estates can be developed. It would be desirable to have alternative types of estates in size and location. Smaller estates despite the disadvantage of poor economies of scale which under the national program would be assisted by community cooperation, bring about advantages such as making circulation of vehicles easier, shorter


journeys to work especially if the working population has a high percentage of females. In addition, a more central location might facilitate being closer to the customer, such as happens in printing or in the garment industry, etc. Nevertheless, without underestimating these potential assets, still it seems that larger estates offset the advantages of the small groupings basically because in general, except the Federal District, traffic is not so heavy, journeys to work are not long, but basically it is the provision of services, and facilities on a commercial basis.

Until now the discussion has indicated that Monterrey's labor force increase will be able to support one or various trading estates. However, other factors must be analyzed to know if it is really feasible. In addition to this, the following analysis will attempt to illustrate that Monterrey will benefit from developing industrially by using such a tool as compared to others presented in former chapters.

4. Land requirements

Map N.4* presents the future land use of Monterrey
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for 1980. This Preliminary Plan was designed with the cooperation of the consulting services of Kurt Mumm, Harvard planning student in 1946. The areas estimated for 1980 land uses are:

* See page 110 A



Land uses	Existing area	Acres		Table 2		
		%	Area Added	%	Future Area	%
INDUSTRY	1050	12	2350	18.4	3355	15
R/R/	262	3	62	0.5	224	1.5
COMMERCIAL	353	4.1	500	3.9	852	4.0
RECREATION	57	0.6	699	5.4	756	3.5
RESIDENTIAL	6900	80.3	9150	71.3	16050	75

Source

Any kind of industrial development will require new housing facilities, utilities, institutions, recreation areas, etc. In this respect trading estates does not represent any advantage to Monterrey as compared to the other patterns. It is the possibility to develop relatively large tracts of land, where the community can segregate industrial activity into one or several desirable locations which can be better controlled and zoned, that really makes the difference between Trading Estates and the others.

The industrial labor force increase of 67,300 workers, assuming a density of 60 workers/gross acre, will demand 1125 acres of industrial land. Allowing a 10 per cent addition for labor force working in transportation, services, distribution, etc., then the area required for 1980 would be approximately 1250 acres. Table ² N₆ indicates that Monterrey has 2350 acres for industry for 1980, thus either the City is overzoned, which is most probably or could be that the topographical conditions do not allow for the total use of the land. At any rate it is recommendable to make a conscious

revision of the figures obtained for the preliminary Master Plan. As to the space requirements for establishing Trading Estates in Monterrey, there would be no real problem.

After it has been made sure that there is enough land, let us see if land requirements fit the optimum locations. (point 3 of the workable plan chapter III). Map 4* indicates several prospective sites for Trading Estates, which were chosen in view of the following factors:

- a. Easy access to an assumed fast circulation by-pass which the preliminary plan points out as new streets, without any remark as width or speed. (See Map No. 4)
- b. Easy access to rail lines and main highways entering the city.
- c. Located abutting residential areas zoned for high density.
- d. Located in the outskirts of the city, where land is probably less expensive, as well as assessments. Probably site C is the exception in view of being next to the Institute of Monterrey.
- e. Land assembly will probably be easier and quicker.
- f. Land for future expansion can still be purchased from unzoned land to avoid abutting land speculation and undesirable neighbors. This should receive the assistance of the municipality, either by means of zoning, a green belt, or acquiring the land.
- g. Concerning the location of individual sites.

* See page 110 A

Site B has the advantage of being close to the City's airport, one of the busiest of the country. Site A is next to the Institute of Technology. A light industrial Estate located there, of such a size that would not be incompatible with the school activities, making use of the research services of the Institute as well as of the esthetical environment of the area, could enhance the area's pattern.

Sites B and C are closely accessible to downtown labor force which still lives there. Sites A, D, and E are next to the new railway freight yard, and so on.

C. PLANNING IMPLICATIONS ADVANTAGEOUS FOR THE COMMUNITY

1. Establishment of the Local Planning Authority

Even when this element is not exclusively related to Trading Estates they would go hand in hand and form part of the same national machinery. It was mentioned in chapter III that the creation of a local planning agency was a prerequisite to the construction of a Trading Estate. Specifically, in the case of Monterrey, attempts have been made since 1926 to achieve such a goal, but for one reason or another it has yet not come true.

Counting with the assistance of the Central Planning agency and with at least as much local support as at present, it can be assumed that the construction of one or several Trading Estates will bring stimulus needed to push through the idea. This does not imply that without Trading Estates

the agency could not come into being, just that the Impulse Areas' program with full government assistance in planning activities with funds, personnel, and powers there are more possibilities, than without them. The benefits that the planning agency would bring to Monterrey, as to the region, need special comment.

2. Provision of Utilities for Industry

As was said in Chapter II, the provision of utilities and the distribution of electricity, gas, etc., to well-located families of factories could mean significant savings for the community; however, the tremendous growth of the city in not only money but also in sharing the responsibility during the last decade, as well as the limited supply of water, have made this an acute problem. To relieve such a barrier for expansion, the city has undertaken major public works. Studies are being made as to provide the city with sufficient water for a future population of 700,000 people (forecast of the preliminary master plan). In addition the steel and foundry industry has offered considerable amounts of money to solve the water problem for the basic industry of Monterrey. As to conditions within the city, the central area, located at the north of the channelized river of Sta. Catherine, is in relatively better condition than the rest, with the exception of the industrial areas under use and the low density residential areas.

Based on these considerations it can be expected that the provision of utilities and services to estates located in the fringe areas indicated on the Map will require heavy expenses than if they were, for example, in area F. However, the provision of utilities to scattered industrial development in the same areas would be increased significantly and less efficiently, due to scattered distribution.

3. Public Transportation for Workers

The establishment of one or several Trading Estates concentrating 4500 or more workers in one site is likely to result in transportation and circulation problems, especially during rush hours. In spite of the tremendous increase (122%) in the number of motor vehicles registered in the period 1950-54, in general the worker will, by 1980, still travel by bus and bicycle. This assumption and the fact that the city is opening new streets and widening others will be of some help in relieving the problem. But it is recommended that the earlier mentioned by-pass be constructed to allow for fast circulation to and from work. Besides prospective estates' sites are closely located to high density residential areas which presupposes that some percentage of workers will cycle or walk home. The by-pass could avoid the mass of the working population concentrated in zone F to interfere with the out-bound circulation from the center of the city to outgoing residential areas, which is the most congested. The possibility to set staggered working hours to estate tenants,

special transportation schedules, means of transportation exclusive for Trading Estates, etc., would be of great benefit to the industrialist, the employee and the community. Finally, the location of Estates along the by-pass in a similar way to industries along route 128 in Boston Metropolitan Area would be facilitate circulation and promote compatability with nearby land uses.

Other kinds of development would also bring about transportation problems, likely to be worse due to the typical way zoning is administrated and developed. That is, scattered plants encroached with high density housing, and other uses, which make circulation more difficult. Lack of order and the weak possibility to enforce it basically account for it.

Finally it is relevant to indicate that Monterrey's 12 per cent of its total labor force is female as of 1955.¹⁴ This will mean that the light industrial nature of the Estate's firms using considerable female labor force rises the importance of the Estate's accessibility to residential areas, to avoid long journeys to work and ensure traffic safety. This factor might favour a more central location than those suggested.

4. Communal services to the Estate

Monterrey's socio-economic pattern has permitted the successful application of paternalism to workers and to a larger scale than in D.M. Nacional. Trading Estates communal

facilities would fulfill multiple objectives: service the estate tenants and nearby residential areas which most probably will lack recreative and other basic facilities. Playing fields could be used as pleasant physical barriers and as benefiting psychological elements to the worker. This last device has been used in Ciudad Sahagun, to create worker's healthier mind and body, promoting sport activities and sound competence among workers. The strategical location of playing fields between work and home intends to achieve this goal. Finally because Estate's communal facilities would require large amounts of money. Then if they are turned to the community, it would mean financial assistance for their construction and maintenance in cooperation with Estate. If feasible, another important aim should be attempted to accomplish, that is the joint use of facilities by the Estate and other industrial areas. This could minimize probable frictions between Estate labor force and the others, in view of the special privileges that the former are entitled to, as well as the fact that they are in specific areas.

Based on these considerations and on the fact that only very large concerns such as Cerveceria Cuauhtemoc and its affiliates can afford to provide communal facilities to the employee, the Trading Estate economies of scale offers the opportunity to fulfill such an important aim.

D. CAN MONTERREY SUPPORT THE TRADING ESTATE PROGRAM?

It has been commented that Monterrey has enough land for industrial development in Trading Estates and can also support the labor force demand. But still it will be necessary to determine what kind of labor is required. It is well-known that unskilled labor is abundant and cheap, but skilled labor is very scarce. This is a general problem in Mexico; however, Monterrey seems to be in relatively better condition with regard to the provision of skilled labor, than most other cities. For more than fifty years Monterrey has been the center of skilled labor after the Federal District. More recently the establishment of the Institute of Technology with its research department working in combination with research institute of the south of the U.S. is a guarantee for the future supply of industrial technicians and skilled labor. The aim in setting such a research program was to assist local industry and particularly small entrepreneurs with scarce financial resources as to afford technical advice.

The existence of a local Chamber of commerce, strong support of planning delegation activities in Monterrey, the representative of the National Chamber of Manufacturing Industries; the State University; the Stock Market, the only one in the province; a good number of financial institutions, industrial and commercial activity, indicated by high bank deposits, relatively high municipal revenues (65 pesos/year

national average, Monterrey levied 840 pesos as of 1950)¹⁵ etc., are indicative of Monterrey's economic and institutional favorable condition to cope with the problems that Trading Estates might bring about.

It is in the provision of some utilities in which the Municipality will find difficulties. Water, sewage are the basic ones. Until now the water problem has been intensively attacked but still considerable work and funds must be spent for the adequate supply of future population and industry. As to electricity, coal, fuel, gas, Monterrey would have usual expansion problems. The preliminary master plan estimated that a future population of 700,000 people required about 114 primary schools, 16 neighborhood markets, 27 fire stations, 400 new members for the police force, etc. Then 922,000 people needs would have increased in a 30 per cent. Housing, streets, utilities, and all other community facilities as transportation, would be raised significantly. The lack of information on the rate of construction of public works in the city does not allow to give any precise conclusion as to say if Monterrey will or will not cope with municipal problems, but it is relevant to point out to the American reader that no city in Mexico has its community requirements satisfied and that probably it will take a couple of generations, if not more, to achieve it. Then based on these considerations it is possible to go as far as to say Monterrey is in condition of furnishing the basic needs to key workers, and to a relatively large percentage of the working population but that it still

will lag in providing community facilities to the rank and file to which belong a large percentage of the working population.

Other Impulse Areas

Similar planning implications would result from the establishment of trading estates in other impulse areas like Torreon, Guadalajara, Leon, etc. However it is necessary to say that Monterrey's case study is not the average type of impulse area, but one of the best prepared for the national plan. The survey and workable program indicated in chapter III will decide the location of the Estate and will give the number of estates that can be established, the size, type, location, the community facilities to be extended, etc. It is probable that other impulse areas will be in a less advantageous condition than Monterrey but their needs might be also less. And the studies will say the amount of industrialization and urbanization that the community is able to absorb.

The national plan of trading estates in impulse areas must be intimately related with a national housing transportation and urban policies, which will select the impulse areas ripe for trading estates development.

The experimental stage of the program will unquestionably face multiple problems and hostile reaction from pressure groups. In spite of Federal government assistance and local support, Impulse areas will lag in the supply of

community facilities. Many more schools, markets, housing, institutions, recreation, streets, amenities, etc., than the ones that will be feasible to build, will be needed. At the present time it is neither possible nor advisable to apply American urban standards, or those of any other highly developed country, to Mexico; there is a long way to go as far as this is concerned.

However, the fact that community facilities will lag demand, which has been the usual case and which unfortunately will remain so for some years to come, is not a strong factor against intensive industrialization. In fact industrialization has been pointed out by many scholars as the way to raise standards of living, implying more and better services and facilities. In other words the vicious circle must be broken. Consumption cannot be increased because no sufficient opportunity of work is being created; and consumption is too limited because income is low, and so on, till the circle is closed. This means that if the country will industrialize at any rate, then experience, provided by Trading Estates and Organized Industrial Districts, is a relevant opportunity to Mexican industrial and urban development to improve, prevent past mistakes, and accelerate the economic development of Mexico.

SUMMARY

The regional urban complex Monterrey-Salttillo has been presented as a case study to illustrate the planning implications that Trading Estate brings about in the community.

Based on preliminary considerations given in Chapter III about the type of Trading Estates which is possible to apply in Mexico, on British standards and on Luis Rodriguez' thesis dissertation on Industrial District in Puerto Rico, Chapter IV presented a brief numerical analysis, illustrating the estimations of the desirable plant size, plant area requirements, coverage in the site and in the estate, etc. Approximate estimations of these items were made for Monterrey's Trading Estate taking into consideration average size plants for different Mexican areas: The State of Nuevo Leon (whose production comes in a 90% from Monterrey), the Federal District, the State of Mexico and Mexico as a whole. In general ratios for the estimations were considered higher than the ones prevailing in Mexico as an average. That is assuming one level plants, lower land coverage, higher worker's density, etc. Just as a mere illustration of the capacity of Monterrey's future labor force supply, a second analysis was made assuming that one 50 Acre Trading Estate would be established. The results showed that the increase of industrial labor force supply of 2400 workers/year was sufficient to sustain a steady Estate growth of 10-12%/year. Going to the other extreme and assuming that Monterrey would industrially develop only in Trading Estates, then the total industrial labor force increase could support a combination of different size Estates. Fifty acres was estimated as average.

The conclusion of the second analysis is that Monterrey is over zoned in relation to the total increase in industrial labor force estimated, not only for the medium forecast but also for the maximum population forecast. However, this is also indicative that Monterrey has enough land to construct a certain number of Estates. More detailed topographical studies are needed to know what the real inventory of adequate industrial land is. In order to point out some of the advantages of Trading Estates to Monterrey, several prospective sites were selected and their assets in relation to other land uses were commented.

The lack of more detailed information on Monterrey diffculted a stronger evidence on Trading Estate's advantage over other patterns. Only the basic ones were outlined to avoid repetition with Chapter II's discussion on the matter.

The chapter concludes with a brief picture of other Impulse Areas stressing the fact that all of them will lag behind in community facilities. Financial resources are limited and population growth is very high. In general because standards of living in Mexico are lower than in U.S. or Great Britain, it cannot be applied their urban standards even when those should be considered as future targets. But this weakness does not justify that industrialization must not go on.

On the contrary it must continue to close up the disproportion on living standards. In conclusion if Mexico is and will industrialize, then Industrialization with Trading Estates is one recommendable way to experiment and benefit from it.

FOOTNOTES CHAPTER IV.

1. See Map No.4 at the end of the chapter.
2. Rodriguez, Lebron L. Planned Industrial Districts as a tool for Industrial development in Puerto Rico. MIT Thesis Department of Architecture Course IV B. 1955.
3. Rodriguez, Lebron L. op.cit. pp.29-72.
4. Logie, G. op.cit. pp.107-113.
5. Architectural Forum. Planned Industrial Districts, April 1954. pp.103-126.
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7. Revista Industrial Edicion Monterrey Vol.X No.192, Diciembre,1955. Monterrey en cifras pp.54-62.
8. Logie, G. op.cit. pp.103-113.
9. Political and Economic Planning, op.cit. p.93.
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MONTERREY FUTURE

LAND USES 1980. - MAP 4!

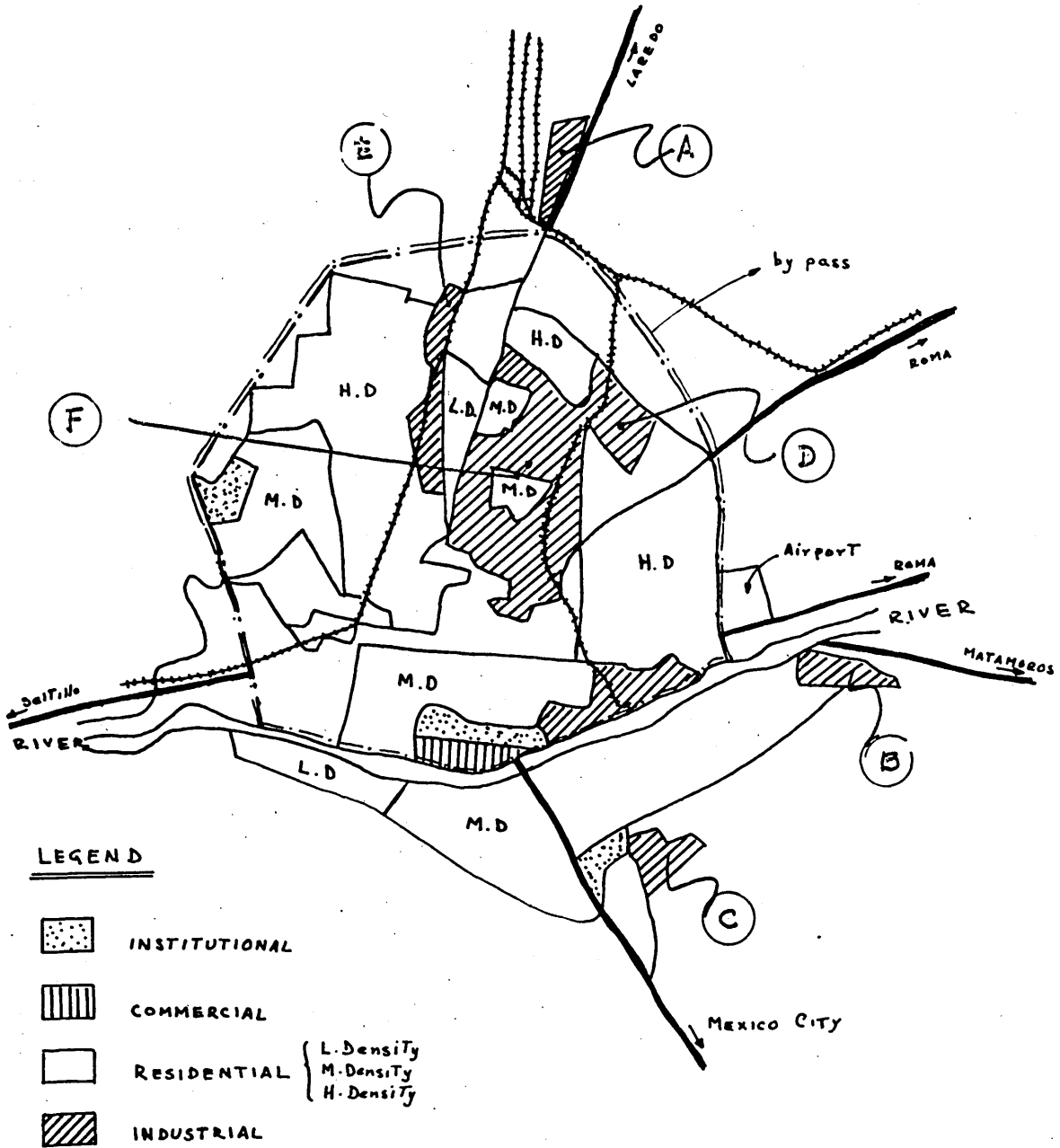
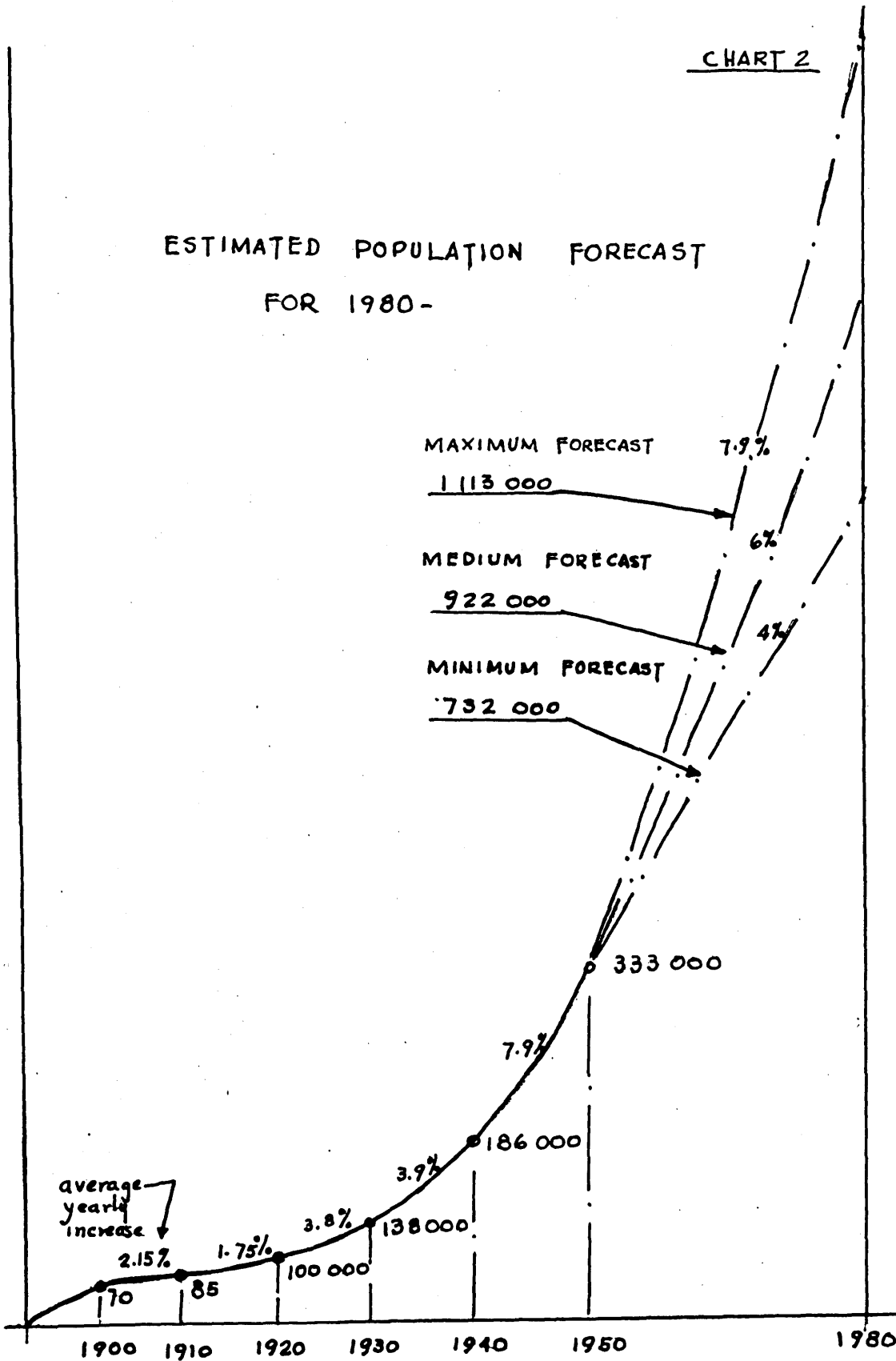


CHART 2

ESTIMATED POPULATION FORECAST FOR 1980-



Source Apuntes del Plano Regulador de Monterrey.

CHAPTER V

SUMMARY AND CONCLUSIONS

It is the author's opinion that the present study establishes important reasons in favor of trading estates compared to less organized industrial development as to achieve the twofold purpose set forth at the outset of this paper:

- a. Assist the decentralization of population and industry from the Federal District
- b. Basically accelerate the development of Impulse Areas.

A. AT THE NATIONAL LEVEL

1. Pros

Assuming a Central Planning Agency is established and a National Plan is formulated according to Mexican industrialization demands, the implementation of such a plan presents more and better opportunities for accomplishment using trading estates as a national tool, rather than the other tools analyzed. The following factors contribute to this belief:

- a. Trading estates' companies can be considered government agents in the implementation of the plan
- b. Government control on the estates' administration can promote and facilitate compliance with community general plan and fulfillment of national industrial and urban goals (for more details, see Chapter II, Section A, page 23).

c. Trading estates as an industrial pattern in itself offers the possibility of a planned design, location and development which can promote rational and orderly community growth

d. It presents a great opportunity to apply worker's welfare on a larger scale than it has been successfully accomplished by the Company Town.

e. Its public interest, private enterprise initiative and close relationships with different institutions and government officials justify trading estates to become a new welfare institution, a real hope for the revival of Mexican municipality.

f. Trading estates, communal services and facilities, factories to rent, built ahead of demand, provide the small and medium size manufacturer with the opportunity to incorporate into Mexican industrialization. The fact that firms can go as soon as possible into production puts them in significant advantageous position and allows for fair competition

g. The similarities that exist between British development areas and Mexican Impulse Areas, and the significant contribution made by trading estates to the British policy, are psychologically supporting facts of the potential success of trading estates in Mexico.

On the other hand, the conditions set forth are reinforced by taking into consideration the major weak points of the other industrial patterns tending to achieve the same goals.

- a. The Industrial New Town is too expensive for the limited Mexican financial resources
- b. The Company Town is too limited in the application of its most successful feature - "paternalism"
- c. The others lack an enlightened landlord to look after the interests of the community, industrialist, employee and the long term development of the estate.

2. The possible success of trading estates calls for several basic prerequisites:

- a. The organization of local planning authorities in regional impulse areas where trading estates are to be developed
- b. The formulation of a national trading estates' plan integrated with national policies of housing and transportation
- c. The formulation of a community master plan as well as zoning and subdivision regulations for trading estates' impulse areas.

3. Cons

On the other hand, the implementation of the program is likely to meet challenging difficulties, namely:

- a. Achieve the adequate relation between local, regional and national agencies
- b. Allocate and control the different subsidies to which estate tenants are entitled
- c. Overcome the obstacles resulting from political frictions, etc.

B. AT THE LOCAL LEVEL

At the local level, trading estates also offer valuable possible achievements. The basic ones are to improve the physical environment and prevent mistakes which result from intensive and sudden industrialization. To do so, the following conditions should be satisfied:

a. Control of the estates' administration on its step by step development in accordance to a workable plan supervised and guided by the Central Planning Agency

b. Such control exerted by means of industrial zoning, restrictive covenants, and leasehold regulations intimately related to the institutional prerequisites previously mentioned, tends to minimize land speculation, preserve and enhance land values, promote compatibility with other land uses, etc.

c. Multiple estate inducements will make possible to suppress the waste effects of local tax exemptions, and if possible, of part of federal tax exemption which should be used more selectively

d. On the provision of utilities to trading estates rather than to other less organized developments, the community can save funds. The estates' calculated demand for utilities and the compactness and planned location of buildings reduce the cost of distribution

4. The economies of scale of the estate permit, in certain stages of its development, to obtain cheaper communal services and facilities for estates' tenants than scattered plants. Nevertheless, the community will have less problems

and will waste less time; she will feel that her responsibilities are shared

f. The estates' provision for recreation and other services and facilities can be shared by the Community at a lower cost than if it would be supplied by the Community itself.

On the negative side, trading estates present:

a. The problems that transportation of large concentrations of workers will bring about

b. The investment needed to provide throughfares for fast circulation of vehicles to these estates, and which most cities lack at present

c. The difficulties encountered in properly locating the estate so it can provide convenient housing and community facilities for the workers

d. The technicalities involved in the achievement of a flexible estate pattern to satisfy different industrial location requirements, and so on.

C. GENERAL CONCLUSION

The author believes that trading estates can be applied in Mexican Impulse Areas and that they offer more potential benefits to its urban and industrial patterns than the other developments analyzed.

However, it is also recognized that the program cannot be adequately undertaken under the present conditions.

The actual administrative set up is not prepared for such a plan; it lacks the legal tools and agencies to enforce it, its planning prerequisites still need intensive educational campaigns and trained personnel.

It has been assumed along the thesis that the government would back up the estate program and since the employee will keep moving towards the place of work, then it is the industrialist, especially that of the Federal District, who will need an influential promotion campaign in favor of this idea.

Based on these considerations and on recent planning events discussed in the previous chapters, it is possible to estimate that in the near future, Mexico will be prepared to carry out such a program.

Trading Estate is not a panacea for the solution of present Mexican industrial and urban problems, but if applied rationally, it will be of great assistance to Mexican future industrial and urban development.

APPENDIX

Since the War the Government has taken a very active role in the economic development of the nation. Among the many attempts made to foster the industrialization of the country, two short-lived measures stand up conspicuously, not precisely for their results but for what they were intended to achieve.

"The first, enacted in 1941, provided for setting up a fund to promote industrial advance in Mexico. Three main objectives were prescribed for the fund (1) to assist new industries whose economic viability was assured; (2) to help existing firms in expanding their plans; (3) to make a survey of the industrial resources and possibilities of Mexico."

Mosk also stated that everything was planned, the way the "fund" had to be collected, who would control it, what kind of industries would receive financial help, etc.

In 1944, the second measure took form, the establishment of the Federal Commission for Industrial Development (Comisión Federal de Fomento Industrial), which succeeded others of temporary nature. Instead, this agency was intended to be a long-term job. Thus Mosk further stated that the agency

"was given rather broad powers because it was intended to be a functioning as well as a planning organization. Its principal task was to promote industries which private investors had not been willing to undertake, but which were deemed essential to a rounded and rational industrial development of Mexico. Such industries were to be planned, financed, and organized by the Commission, and they were to be operated by it until private entrepreneurs were willing to take them over. Public ownership and operation were to be temporary only. Nevertheless, the need for public investment as an initiating force was recognized. Then, too, authorith to select and establish new industries of vital importance to the economy made the commission a powerful planning agency. Drawing up a basic program of industrialization, with attention to priorities and chronology, was fundamental to its work."

The meaningless results attained by this farsighted and bold measure probably occurred because it was too ahead of time for Mexico, which was just triggering its industrialization and too revolutionary for a country just breaking up the vestiges of feudal economy. In other words, the private sector, specially foreign investment, got so alarmed at the possibility of nationalization of basic industries and in general about Government interference, with private interests that the Avila Camacho administration had to deny any such intentions.

II.

Camara Nacional de la Industria de la transformacion
(National Chamber of Manufacturing Industries)

It was established in 1942 and since then it has played a very active role in the development of an industrial consciousness in Mexico, as a mediator between Government and the industrialist's point of view. Every industrial firm by

law is required to be a member of the Camara relating to its particular type of business. Post-war firms, especially those of smaller size and financed by Mexican capital, so called New Group industrialists, are the ones mostly represented. Larger firms seem to need less from this institution's services and not agree fully with its nationalism, whose concern is to coordinate the benefit of and protect the interests of Mexican industry for Mexico. The latest study of its industrial planning department examines the problems which stem from the concentration of inadequately located industries in the central areas.

Among the suggestions given to achieve the relocation of industries, the most relevant are:

1. that the different regions of the country should study and advertize its geographical, economic and social conditions.
2. that there are industries willing to relocate. This cost must be absorbed by the nation and the state where it will go. Then to reach such a goal, it is necessary to have:
 - a. Government long-term credit;
 - b. appropriate legislation, stimulating correct industrial location;
 - c. the states can contribute with a better illustration of its potentialities, with coordinated promotional policies and providing land to the relocated firm;

- d. demands high social consciousness from the industrialists.
3. To undertake rationally such a task, it is recommended to:
 - a. establish a national as well as a states commission for industrial location, formed with representatives of the Federal Government, the states and the private sector.

In addition CNIT plan indicates the role which its state and local delegates could play in industrial planning.

1. Every delegation of the CNIT should constitute a council formed by several CNIT local industrialists and, if possible, assisted by a technical assistant, economist, accouter or statistician.
2. These councils, with the assistance of the head quarters, would make industrial location surveys within their jurisdiction.
3. The collected information would be screened and refined. The more reliable information would go to the Central Agency for revision and analysis.
4. Local and state councils should interchange ideas and information to undertake the formulation of regional plans, the foundation of national plans.
5. The Industrial Planning Commission of CNIT (Central Office) would provide literature about economic planning, temporary investigation, speakers, central information bureau, central consulting and advising service.

III.

National Planning Law - 1930.

This Law, formulated by the Ministry of Communications and Public works staff, gives a brief description of the objective of the National Plan, the agency which is to formulate and implement it, how it will function, etc. Among the multiple interesting articles, having special significance, for the establishment of a National Planning agency, its basic function in implementing the plan, and in forming a planning consciousness in Mexico,

- a. The idea of having an especialized and Central Agency to coordinate the isolated tasks of the various government ministries.
- b. The suggestion to form a National Civic Encyclopedia, gathering all kinds of data in a central location, plans, studies, properly catalogued.
- c. A third one demands from all State governments to report to the National Program Commission, of any public work related to the national plan, before it is executed.

The Law, unfortunately, did never come off the paper, and what is more sad is that it has been forgotten.

IV.

D.M. Nacional, the Company Town.

This industrial development, engaged in metal products manufacture is a unique case in Mexico, due to its paternalistic or welfare program designed by its founder Mr. Ruiz Galindo for his working population. Some of the most

prominent industries in Monterrey provide similar facilities to those of D.M. Nacional, but in that case it is a group of industries under the same corporation and not one concern.

According to Mr. Galindo ideas, the industrialist must take the leadership in guiding Mexicans to higher standards of living and by creating appropriate employment conditions.

Aside from the industrial buildings, it provides the following facilities for the employee:

In the industrial area: lockers, showers, complete clinic service with X-rays and operating room, cafeteria, library.

In the social area: it has a market, bakery, primary and kindergarden school, dining halls, gymnasium, swimming pool, sport fields, and an apartment building with twenty-eight units. In addition, it provides transportation to Mexico City, scholarships to the technological institute of Monterrey and has training courses within the plant.

This "Company Town", an unpleasant memory of the American industrial development of the turn of the century, "will yield social and economic advantages that outweigh their shortcomings." Almost ten years after this statement, the company itself declares, "the results of the social services which are provided to the workers have exerted direct effect, not only in the employee's morale, but has contributed to diminish absenteeism (the lowest in the country), to increase production and efficiency, with a minimum personnel turnover, which brings about the formation and specialization of the

workers.

Thus, paternalism according to the Ruiz Galindo's program can be very useful in easing the process of social and technical readjustment to our industrial society.

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