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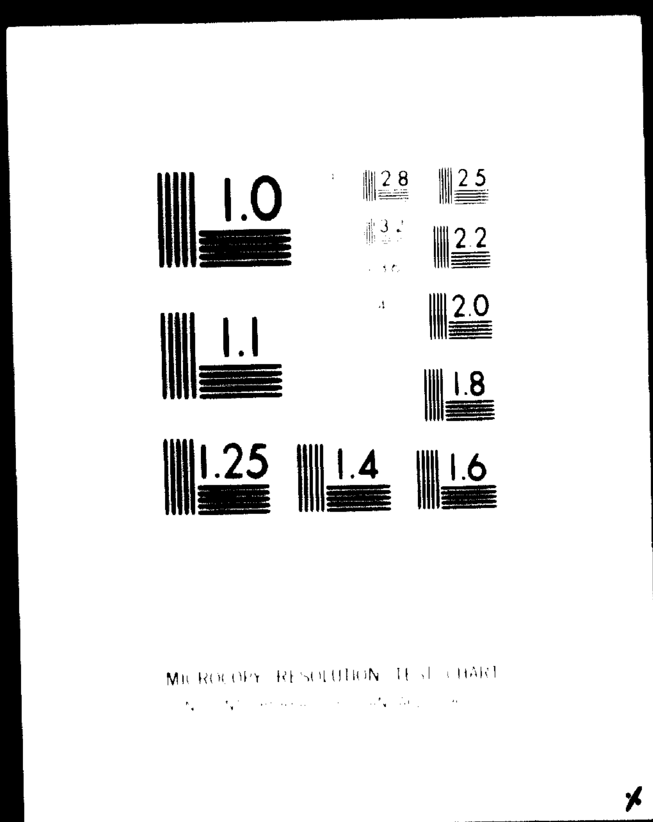

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UNITED NATIONS
UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

INDUSTRIAL INVESTIGATIONS IN GUATEMALA

(In two volumes)

Volume I

General Report
Descongestion of the Metropolitan Area
Industrial Descentralization

Contrac: 73/10 (12) Project: DP/GUA/72/015

TECNIBERIA
MADRID - SPAIN
August 1973

THE WORK TEAM

This report is based on the findings and studies of the following experts:

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- Mr. Alberto Peña, Industrial Engineer, who was responsible for the field studies on the utilization of installed excess industrial capacity.
- Mr. Paul Pisano and Mr. Juan Losantos, who acted as special advisers for the preparation of the respective reports.

ACKNOWLEDGEMENT

Special mention should be made of the valuable and very efficient contribution to these studies by the counterpart personnel appointed by the Government of Guatemala, whose support and enthusiastic co-operation was of decisive importance for the completion of this assignment in the relatively short time during which the experts could stay in the project area.

Our gratitude is herewith acknowledged to:

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PREFACE

The "Industrial Investigations", subject of the present report, aimed at two well-defined objectives: the decentralization of the Guatemalan industry, which is heavily concentrated in and around the Republic's capital, and the better utilization of the installed excess capacity of that industry.

Although some of the basic data required for the execution of these studies were of relevance for both of the above mentioned aspects, the respective methodologies and field work programmes had to be forcefully quite different, and had to be undertaken independently.

This circumstance led to the decision of submitting the findings of these investigations in two separate documents, which constitute the two volumes of the present report, in order to make it more handy and suitable for easier use by those concerned with one or the other of the subjects under study.

Volume I is dedicated to the search for possible solutions to the excessive concentration of industry in a single zone of the country. Already at the early stages of these studies it became apparent that two different problems had to be considered: on the one hand there was the need to encourage the "Decongestion of the metropolitan area of Guatemala City", and on the other hand the "Industrial Decentralization" proper, aiming at the identification of appropriate zones in the country for the initiation and promotion of new industrial development programmes on a regional basis. Accordingly, Volume I is divided into two main parts dealing respectively with these problems.

The second volume contains the studies on the possible measures to be taken in order to achieve a better utilization of the installed excess capacity of industrial production. The starting point of these investigations was the fact that there is actually a certain degree of idle capacity, over and above the levels which could be considered as normal, although not yet sufficient statistical data were available for its objective determination on quantitative terms.

It was also found that the insufficient utilization of this excess capacity concerned a large number of industrial branches, and was probably due to a great variety of causes of a very different nature. In the course of the preliminary data collection and the preparation of the respective surveys, soon the conclusion was reached that this complex problem could not be treated on an over-all basis, and that a previous definition of the industrial sectors had to be established on the basis of their priorities, in order to undertake the analysis of the specific problems of each branch.

The first part of this study was, accordingly, dedicated to the evaluation of the weight of the diverse industrial activities or branches existing in the country. For this purpose, a basic methodology was worked out for the appraisal of the different factors which could influence the definition of such priorities. Once this methodological scheme had been established, it was applied to a great number of activities, making use of the available data. Although the validity of the conclusions thus reached could be subject to criticism, as depending on the consistency of the figures used, the methodological instrument has been, nevertheless, solidly established and will be surely of good use for its application, once the confirmed statistical data are available in a near future.

On the other hand, the accuracy of such preliminary conclusions was checked by indirect procedures and it can be affirmed that the successive approaches will not show a considerable deviation from the results reached through the present study.

After working out this first order of priorities for the industrial activities, the main causes of sub-utilization of the existing idle capacity were analyzed. It was deemed preferable to deal with these factors in a broad or extensive way, instead of going into an in-depth study of same, as this would have limited the scope of work to a reduced number of causes, in view of the limits imposed upon this study. Moreover, it appeared to be of special interest to stress the fact that the eventual solutions could not be adequately implemented through the correction of isolated structural and organizational problems (those of a technical character seeming to be of less importance in this case), but only by means of a thorough planning and regulation by industrial sectors, harmonizing the various aspects which are pointed out as being of fundamental influence.

Notwithstanding the independence the two studies referred to in this report, both are coincident in showing the convenience of working out a general Industrial Development Plan for Guatemala, establishing the over-all and the sectoral objectives at short, medium and long-terms, and creating the adequate instruments for their implementation, through an efficient co-ordination of the excellent and very functional organizations and bodies already existing in the country for the promotion of its industrial, financial and commercial activities.

It is our desire and our hope that the present studies may represent a valuable contribution to the achievement of these goals.

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INTRODUCTION

The industrial situation in the Republic of Guatemala has been the occasion of the performance of this work which, under the title "INDUSTRIAL DECENTRALIZATION", attempts to determine centers for the decongestion of the Metropolitan Area of the Capital and the Metropolitan Area of the Capital and the zone for the establishment of an Industrial Promotion and Development Area.

The industrial survey effected during 1971 has shown the overwhelming industrial concentration that is affecting the Department of Guatemala, which has been the cause of the limited industrial development of other regions of the country and has provoked the problem which has been made evident in the majority of the capitals of countries: Industrial Congestion.

The modern and dynamic structure of the majority of the nations seeks a balance of industry in two or more areas of their territory. Guatemala finds itself at a time when all of its industrial force is polarized in a single region (Central). This project attempts to take the first step toward the achievement of equilibrium and the prevention of the problems of concentration.

CHAPTER I

OBJECTIVES OF THE STUDY

The basic objective sought with the realization of this project, "INDUSTRIAL DECENTRALIZATION", is that of pre-selecting the centers best equipped for the decongestion of the Metropolitan Area of the Capital of Guatemala, and determining the zone which best combines the most desirable conditions for the establishment of an Industrial Promotion and Development Area.

Achievement of the first objective requires:

- Study of the general problems of the Metropolitan Area of the Capital.

- Analysis of the problems involved in congestion.

- Examination of all the municipalities surrounding the city in order to pre-select those which combine the best conditions to receive industries.

- Realization of the pre-selection of the most desirable centers for decongestion.

For the attainment of the second objective, the following work is required:

- A macro-economic study of the economy of Guatemala.

- An analysis of Regional economy of the pre-selected Departments.

- A study of the industrial and supplementary activities most desirable in the area selected.

- A diagnosis of the requirements of the infrastructure and public services of the area.

- An analysis of measures and incentives to provide assistance to the selected area.

For the one objective as well as the other, the conclusions which are derived from the present situation are advanced, and the most advisable recommendations for the achievement of the purposes sought are established.

CHAPTER 2

GENERAL CONCLUSIONS

With this Chapter on General Conclusions, the attempt is made to present a synthesis of all of the results obtained in carrying out the study, "INDUSTRIAL DECENTRALIZATION" in Guatemala.

These conclusions are broken down in accordance with the sections into which the study is divided.

DECONGESTION OF THE METROPOLITAN AREA OF GUATEMALA

1. The city of Guatemala now constitutes a large metropolis in which all the state functions of the Government and the main industrial and commercial activities of the Republic are centered.

2. The growth rate, both urban and industrial, has been spectacular in the last TEN YEARS and has exceeded all provisions made in this sense. This brings about the need to plan the future economic, urban and social development of the metropolis in a rational and scientific way, particularly that of industry.

3. The functional distribution of the land presents symptoms of anachronism inasmuch as no regulatory actions have been taken, and industries are inter-mixed (particularly in Zone 1) next to urban areas, causing disruption of the normal development of the city.

4. The zones with the greatest industrial concentration are to be found on the access routes to the Capital, which are:

Carretara al Atlántico, Carretera Roosevelt, the exit to Antigua Guatemala, Carretera al Pacífico, the exit to Amatitlán, and Avenida Petapa, which, together with Zones 1, 3, 7 and 12 make up the principal center of industrial activity.

5. The enormous growth of all activities in the Capital (above all, those of an industrial nature), has caused problems concerning the infrastructure, the provision of public utilities and services, environmental pollution, traffic congestion both for people and goods, circulation of vehicles, lack of housing, etc. This situation can be clearly identified as a typical though incipient case of "industrial congestion".

6. The industrialization of the Capital began with the ultimate consumer goods industries as a result of the large consumer market. Actually, traditional industry was established in the urban area, later yielding place to the intermediate industries, and in the end stages, to those of the metal-mechanical field.

This industrialization process, together with the demographic growth, has contributed to the increase of transportation difficulties, traffic congestion, environmental pollution, inadequacy of urban services and of the road system.

From this arises the necessity of determining the measures which are necessary to utilize industrial decongestion centers and to avoid the anachronistic growth which the Capital has suffered until now.

7. The municipalities pre-selected as possible industrial decongestion centers in accordance with the criteria of selection by which each of them has been evaluated and rated are:

Amatitlán, Villa Canales, Villa Nueva, Mixco, San Miguel Petapa, San Juan Sacatepéquez, Santa Catarina, Pinula and Chinautla.

Of these pre-selected centers, only the first six have a sufficient basic foundation (utilities, services, infrastrucure, road system, etc.) to be ready to receive on a short-range basis (without obstacles to some improvements) the industry which will contribute to the decongestion of the Capital of the country.

Of the six municipalities, also, theree (Amatitlán, Villa Canales, Villa Nueva) are the best qualified to absorb on a first priority basis the industrial descongestion of Guatemala, leaving the other three (Mixco, San Migual Petapa and San Juan Sacatepequez) for a secondary phase.

8. The industrial development within the Metropolitan Area should be controlled by a specific organization in order to avoid the problems created by industrial growth without rigorous controls.

INDUSTRIAL DECENTRALIZATION

1. Guatemala is a country which, industrially, is still in a primary stage, as the only type of industry to be found in a

developed state is that of traditional ultimate consumer goods for internal and Central American consumption.

2. Of all the existing industry, nearly 70% is concentrated in the Department of Guatemala, which represents excessive centralization and a lack of balance with respect to the remaining Departments of the Republic.

3. The industrial concentration of the Central region generates a magnetic pole of attraction for the remainder of the country which leads to:

- Uncontrolled emigration of village inhabitants of other regions which have more limited resources.

- Excessive demographic increase with utility and infrastructure requirements which exceed the normal development of the area.

- Environmental pollution and the problems which such conditions involve.

4. The selected zone (Quezaltenango-Retalhuleu-Mazatenango) is the one which, from an economic-industrial point of view, offers the best possibilities for conversion into an Industrial Promotion and Development Area of interest to the entire Republic.

5. In terms of infrastructure as well as in the provision of services, the selected area presents the most favourable conditions of the entire country for the establishment, with

the least investment, of an Industrial Development Area.

6. The region has its own resources (agricultural and livestock) with possibilities for industrialization. Thus, its production of sugar, coffee, cotton, India rubber, fruits, vegetables and livestock allows the assumption of a utilization of the industrial field in the center of production itself.

7. The industrial production structure of the zone is an indication of an incipient industrial development. It reveals the predominance of manufacturers of the traditional ty. :, which in the case of Guatemala signifies 80% of the total industrial product, and intermediate manufactured goods and metal-mechanical products represent 20%.

8. On the basis of the resources which it has and the typology of the entire region, the activities which offer the most promising prospects for industrialization are:

- Canned animal foods, leather tanning, footwear, plastic processing, jewelry, canned vegetable foods, sugar milling and refining, cocoa and chocolate, coffee and derivatives, alcoholic beverages, non-alcoholic beverages, textile manufacturing, other articles of leather and toys.

9. Taking into account the existence of a capital market in the selected area, the Government should motivate potential local investors in order to take advantage of this favourable scene for purposes of achieving greater industrial expansion.

10. The Capital City and its area of influence is such a strong center of attraction that it is going to be difficult indeed to achieve the establishment or re-establishment of industries in other areas of the country. Therefore, to achieve the transfer of businesses and industries to the selected zone is going to be an arduous and extremely difficult job for which the government will have to adopt sufficiently attractive measures to ultimately attain the establishment of an Industrial Development Area.

Essentially, these measures must be directed toward the following:

- Provide grounds and subsidies to the industries which are established.
- Provide exemption in the greater part from the taxes levied against industrial type businesses.
- Participate as a company in those activities which are considered preferential.
- Complete the substructure and utilities of the selected zone.

CHAPTER - 3

DECONGESTION OF THE METROPOLITAN AREA OF GUATEMALA

3.1 General Considerations

3.2 General Problem

- 3.2.1 Functional distribution of land and the configuration of the industrial zones

3.3 Problems of Congestion

- 3.3.1 Transportation and communications infrastructure
- 3.3.2 Utilities
  - Water
  - Sewerage
  - Power
  - Telecommunications

3.4 Pre-selection of Decongestion Centers

- 3.4.1 Methodology of Selection and Pre-Selection of Centers

3.5 Recommendations

3.1 GENERAL CONSIDERATIONS

The industrial development of the City of Guatemala was initiated with the basic objective of supplying the main consumer market of the Republic. It began with the installation of industrial plants in the most commercial zone of the city (Zone 1). In keeping with the expansion of the Capital and with the achievement of the integration of the Central American Market, more important plants were established, oriented toward scale economies such as those made possible by this integrated market, plants requiring large capital investments, extensive areas for installation, etc. These economic factors determined the practices and orientation of these plants, following a linear pattern of location along the main access routes of the Capital City. Thus, one has the industrial locations on the Carretera al Atlántico, the Carretera Roosevelt, the exit for Antigua Guatemala, the Carretera al Pacífico, the exit for Amatitlán and Avenida Petapa.

According to the Industrial Directory for 1962, plus the industries classified in confirmance with the Law of Industrial Promotion of 1967, it is possible to establish the fact that the industrial locations by zones were the following:

Table 3-1

INDUSTRIAL LOCATIONS IN THE METROPOLITAN AREA

(Companies of 5 or more employees)

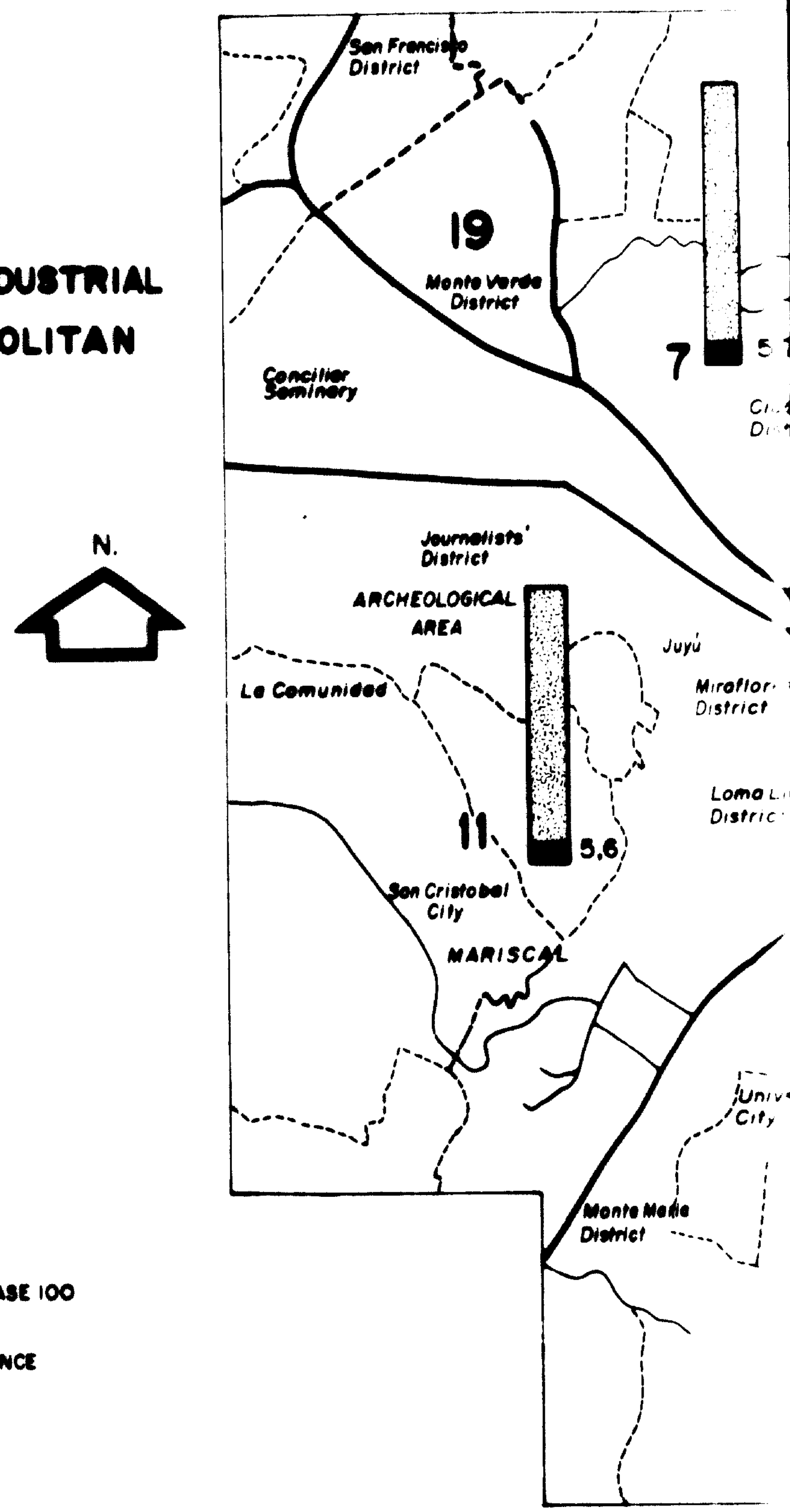
ZONES	INDUSTRIAL COMPANIES
1	639
2	51
3	104
4	102
5	68
6	64
7	89
8	65
9	72
10	61
11	87
12	127
13	14
14	7
15	6
16	12
17	-
18	1
TOTAL	1,569

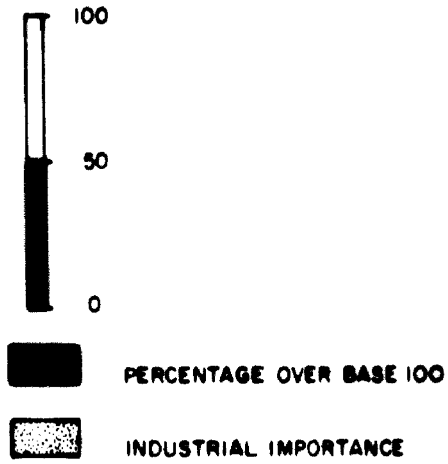
SOURCE: Joint Planning Mission for Central America and General Secretariat of the National Council for Economic Planning

The following chart shows the relative importance of industrial locations in the Metropolitan Area.

MAP OF THE CITY OF GUA

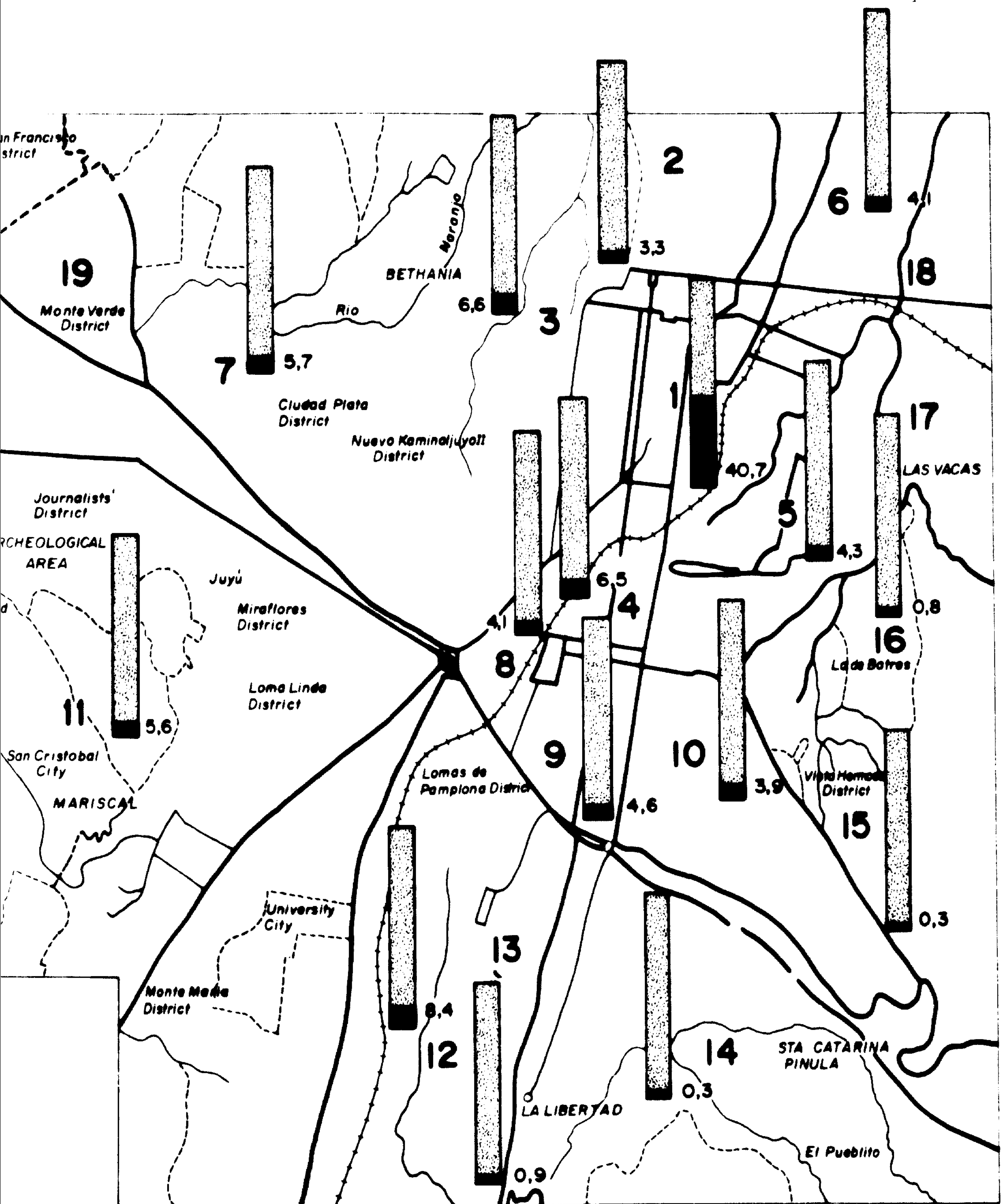
RELATIVE IMPORTANCE OF INDUSTRIAL SETTLEMENT IN THE METROPOLITAN AREA





SECTION 1

F THE CITY OF GUATEMALA



SECTION 2

The structure of the businesses located in each of the zones is the result first of factors involved in the internal consumer market and, later, in the overall Central America market.

For this reason, Zone One of the Capital presents the highest concentration of businesses installed, absorbing 41% of the total of existing industry in all the zones of the Capital.

The Table given below shows the structure of Industrial Locations in the Metropolitan Area.

Table 3 II

	Total Capital	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	CAPITAL CITY ZONES																			
Total Industries	1 569	639	51	104	102	68	64	89	65	72	61	87	127	14	7	6	12		1	..
Traditional Industries	1 010	451	32	68	46	36	31	56	48	42	38	58	74	9	7	6	8		..	..
Food		115	10	18	17	18	16	24	9	18	8	29	20	3	..	1		.	..	..
Drink		1	5	-	3	..	..	-	..	2	1	2	..	..	..	..		..	..	..
Tobacco		5	..	1	..	..	..	..	..	..	..		..	..	..	..		-	..	..
Fibres & Textiles		39	4	10	4	2	2	5	8	5	10	9	30	2	3	3	4	-	-	..
Wearing Apparel & Footwear		138	4	13	8	8	5	6	8	9	10	6	7	1	2	1	2	-	-	-
Timber & Cork		8	3	4	3	1	3	9	7	2	2	3	9	2	1	-	-	-	-	-
Manuf. of Furniture		39	3	13	3	2	4	7	10	3	2	3	3	-	-	1	1	-	-	-
Printing & Publish.		72	1	4	3	3	1	3	3	1	-	1	1	1	-	-	-	-	-	-
Leather Tanning & Finishing Workshops		8	1	-	1	-	-	2	1	-	-	-	-	-	1	-	-	-	-	-
Miscellaneous Manuf.		26	1	5	4	2	-	-	2	2	5	5	4	-	-	-	1	-	-	-
Intermediate Industries	278	86	9	15	16	15	28	25	7	13	11	17	30	2	-	-	3	-	1	-
Paper & Paper Prod. Fabrication		8	-	-	-	1	1	-	-	2	1	2	2	-	-	-	-	-	-	-
Rubber & Rubber Prod.		18	-	3	5	1	1	1	2	4	1	1	11	1	-	-	2	-	1	-
& Chem. Prod.		29	4	3	9	6	3	19	2	2	4	2	7	1	-	-	-	-	-	-
Petroleum Products		-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-
Non-metallic Minerals		31	5	9	2	7	23	5	3	4	5	11	10	-	-	-	-	-	-	-
Metal- Mechanical Industry	281	102	10	21	40	17	5	8	10	17	12	12	23	3	-		-	-	-	-
Basic Metals		5	-	-	1	2	-	-	-	-	1	2	3	-	-	-		-	..	-
Metals Products		44	6	7	16	9	3	5	3	5	5	5	16	1	-	-	1	-	-	-
Non-electrical Machinery		6	1	-	-	1	-	-	2	-	-	2	-	-	-	-	-	-	-	-
Electrical Machinery		19	1	2	3	-	-	-	2	1	1	1	2	-	-	-		-	-	-
Transportation Equipment		28	2	12	20	5	2	3	3	11	5	2	2	3	-	-	-	-	-	-

SOURCE: Joint Planning Mission for Central America and General Secretariat of the National Council for Economic Planning

Structure of Industrial Locations

We have observed that the industry located in the Metropolitan Area corresponds in a high percentage of cases to Traditional Industries , the production of ultimate consumer goods following the same structure of ultimate distribution of products for the entire Republic.

Up to this point we have considered the development and structure of the industry located in the Metropolitan Area. But is this situation in harmony with the development of the City? It must be admitted that it is not, that mere growth is not synonymous with development; it is realized almost instinctively that the City of Guatemala has grown, it has expanded, and developed proportionately, but the level of the development has been unable to match the accelerated growth rate.

This situation has been the cause of a series of problems which interfere with the normal exercise of all civic activities. In brief, the problem of "INDUSTRIAL CONGESTION" has developed, bearing with it a series of consequences which should be emphasized:

- The water supply must be considered inadequate (litre/ inhabitant) for the volume of the population currently residing in the area. Despite continuous supply increases it has not yet been possible to completely cover all the requirements created by the City.

- Electric power is subject to restrictions during certain periods of the year.

- The sewerage system is not sufficient for present needs, In actual fact, in the construction regulations for the southern sector of the city, every dwelling is required to make private provision for the disposal of its own wastes. There is also the burning question of what treatment should be given to waste water, as the danger of pollution is in the minds of authorities and citizens alike.

- The inadequacy of the road infrastructure for the requirements of the normal development of industry and commerce is beginning to create concern.

- Urban transportation systems do not offer the flexibility which is to be hoped for on the part of all users of this means of transportation.

- Congestion in ciruclation is a palpable fact (above all in the rush hours going to and coming from work), and is to be noted in almost all the zones of the city.

- Environmental pollution is in the minds of all those responsible for the normal development of the City and at the present time it is beginning to represent a serious problem to be solved.

- Housing (particularly for workers) is another of the requirements that may be foreseen because of the rapid growth which the Metropolitan Area is undergoing. The enormous rural migration to the Capital aggravates the solution of this problem.

- There are difficulties involved in new industrial installations within the Metropolitan Area, due to the saturation which is apparent in all of the zones of the city.

The Municipal Government of the Capital is aware of the situation which has been created by the industrial development. Actually, it has issued Regulations for Locations and Industrial Installation, by which it establishes a series of limitations to the uncontrolled installation of factories and declares various zones in which industry is tolerated.

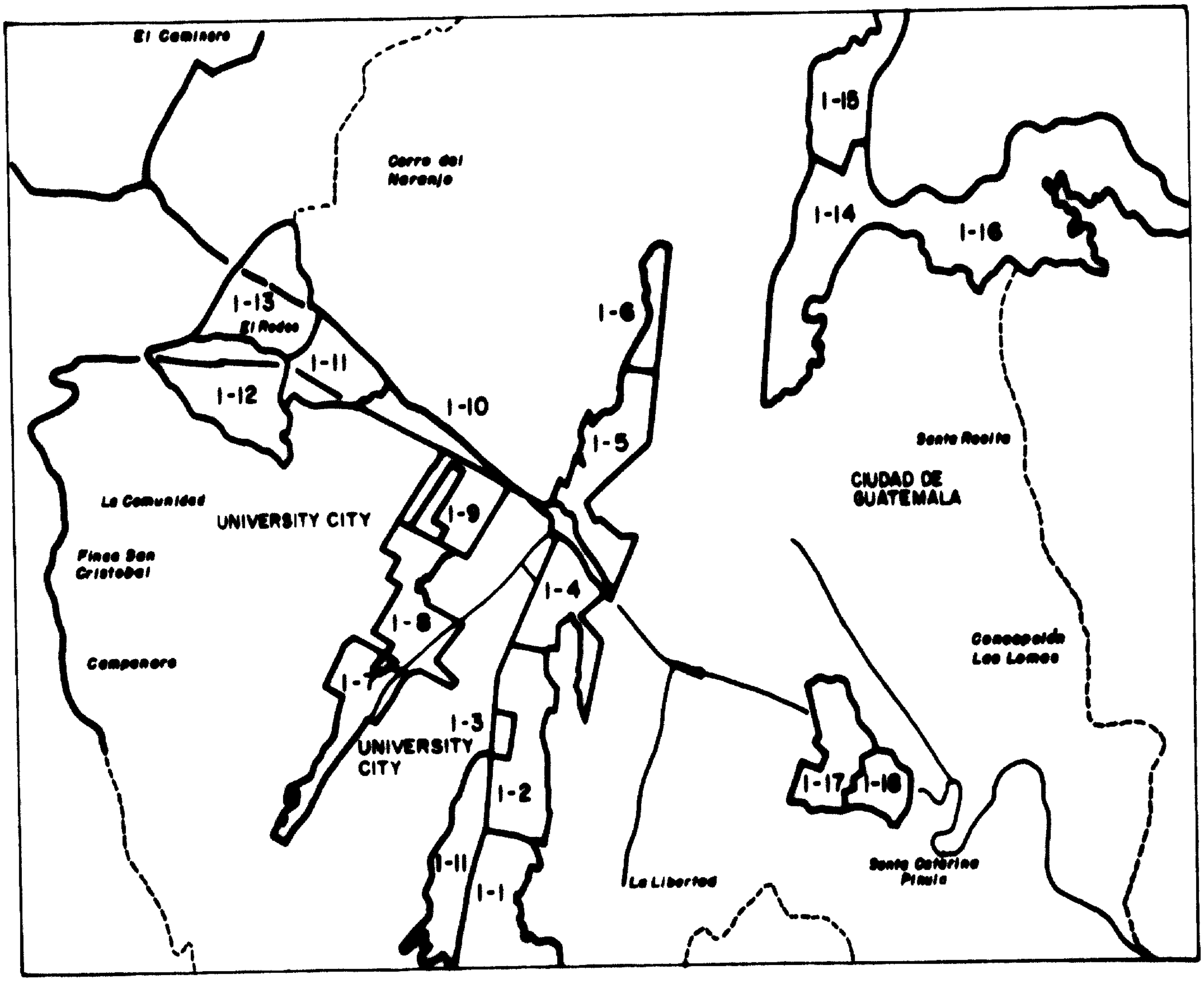
The industrial categories listed are those shown in Table 3-II.

The zones selected for tolerance of industry are shown in the following chart:

Table 3-III

Category	Occupational level Number of workers	Material weights Kg equipment products	Noise & vibrations Decibels	Smoke - Rigelman	Odours	Dust & Dirt gr/m^3	Noxious gases parts/ million	Fire and explosion	Liquid waste	Solid waste	Transportation	Transit vehicle/hour	Architectonic urban integration	Effects
I	1-4	500	0	0	Without odor	0	0	No risk	Innocuous	Innocuous	Highway pickup	5	A	Neutral
II	5-9	1000	15	0	Without odor	0	0	No risk	Innocuous	Innocuous	Highway pickup	5	A	Neutral
III	10-19	2000	20	1	Light, not objectionable	0.23	0	Some risk but improbable	Innocuous	Non-metallic mineral	Light weight truck	10	A	Neutral
IV	20-29	4000	35	1	Not objectionable	0.46	Non-toxic concentration	Controlable risk	Special treatment required	Metallic mineral		15	B	Slightly negative
V	100	4000	60	2	Objectionable	0.69	Non-toxic concentration	Controlable risk	Special treatment required	Radio-active chemicals	Heavy truck H'way R'road	20	C	Negative
VI	100	400	80	2	Highly objectionable	0.69	Toxic concentration 20-150 m. or more	Uncontrolable risk	Special treatment required	Radio active chemicals	Heavy truck H'way R'road	20	C	Negative

AREAS OF INDUSTRIAL TOLERANCE IN THE GUATEMALA MUNICIPALITY



But are all of these limitations sufficient to restrain the problem of Industrial Congestion ? On a short-term basis, the most pressing problems may be solved, but the real solution must be pondered and sought for the harmonious and rational future development of the Capital.

And it is here that INDUSTRIAL DECONGESTION OF THE METROPOLITAN AREA enters the scene as a determining factor, selecting for it the surrounding municipalities which unite the best possible conditions for the reception of industry to be installed in the future.

3.2 GENERAL PROBLEM

3.2.1 Functional Distribution of the land and the configuration of the industrial zones

The city of Guatemala is divided into nineteen zones and occupies an area of approximately 80 square kilometres. The annual growth rate for the 1950-1964 period was 4.9%, which increased to 5.8% between 1964-1970, raising the population to 817,333 inhabitants. The average density (inhabitants/hectare) of the city is 39.27, with extreme concentrations of population in zones 5, 19, 7 and 1.

If zones 16, 17 and 18 are excluded, the urbanized area of the city of Guatemala constitutes 90 % of its space, as these three zones take in 50.1% of the area but only 4.1% of the population. In addition to this, the density would be 76 inhabitants /hectare, about double the figure when they are included.

Table 3-IV

GUATEMALA: CLASSIFICATION OF ZONES BY POPULATION DENSITY

Zone	1970 Population	Surface area in hectares	Density (inhabitant/hectare)
5	121,602	532,27	228,46
19	23,046	104,00	221,60
8	28,462	149.90	189,87
3	70,094	419.58	167,06
1	78,271	647,45	120,89
6	81,032	745,08	108,76
4	9,558	99,87	95,70
7	112,787	1,560,03	72,30
11	70,731	1,120,87	63,10
10	29,312	511,55	57,30
9	12,532	222,95	56,21
2	40,144	715,59	56,10
12	68,182	1,661,62	41,03
14	11,364	535,29	21,23
13	14,868	752,75	19,75
15	11,576	830,64	13,94
18	16,674	3,857,22	4,32
16	6,691	2,390,55	2,80
17	10,408	4,257,73	2,44
TOTAL	817,333	20,814,84	39,27

SOURCE: Data taken from Basic Studies, Planning Management, Municipality of Guatemala, July 1971.

The location of industry in the City of Guatemala reveals a general distribution, apparently without any standard for its orientation. However, from analysis of the industry installed in the 1962-68 period, a marked preference can be identified on the part of industry for locations in those sectors in which the infrastructure (particularly roads) is most important, such as the industrial concentration in zones 6, 7, 11, 12 and 18 (Highways C.A. 1, C.A. 9, AVenida Petapa and railroad lines). The industry installed in these areas is oriented preferably toward export (Central American Common Market). On the other hand, industry aimed toward the local market is to be found located within the urban limits, particularly in zones 1 and 4.

The failure to define strategically located areas to absorb industrial activity is responsible in a great measure for the high degree of congestion offered by passage through the city of Guatemala.

In addition to this, the location of the two solely industrial zones, recognized as such by the Municipality, in the farthest extremes of the City (North and South), has contributed to an increase in the congestion, particularly of certain roads, as it requires a large part of the population to cross half the city.

One must add to the traffic generated by the industrial workers, the inter-sectorial relationships within industry (raw materials, semi-finished products, finished products to wholesalers, distribution to retail outlets) which, due to the absence of controls, is made indiscriminately with regard to vehicles, roads and hours.

The Municipal Government, concerned for the integral well-being of the community which is seriously threatened by the deterio-ation of the urban environment - for which the industry installed within the City is in a large part responsible - has issued Regulations for locations and Industrial Installation in order to control the industrial growth of the city, since the solution to the urban problem cannot be based on restrictions on industrial settlement which would adversely affect the very development it represents.

The Regulations establish a series of industrial groups, according to the Uniform International Classification of the United Nations; they also prescribe a series of Industrial Categories and the data are carried to the matrix of Industrial Locations in which the permissible location will be found according to a previously defined qualification and classification.

Similarly, the Municipality has established zones in which industry is tolerated, in order to locate small and average size traditional industries, since they are the most vulnerable to the regulations and restrictions imposed on their installation within the urban limits of the City, as well as those which cause the most serious problems for the population.

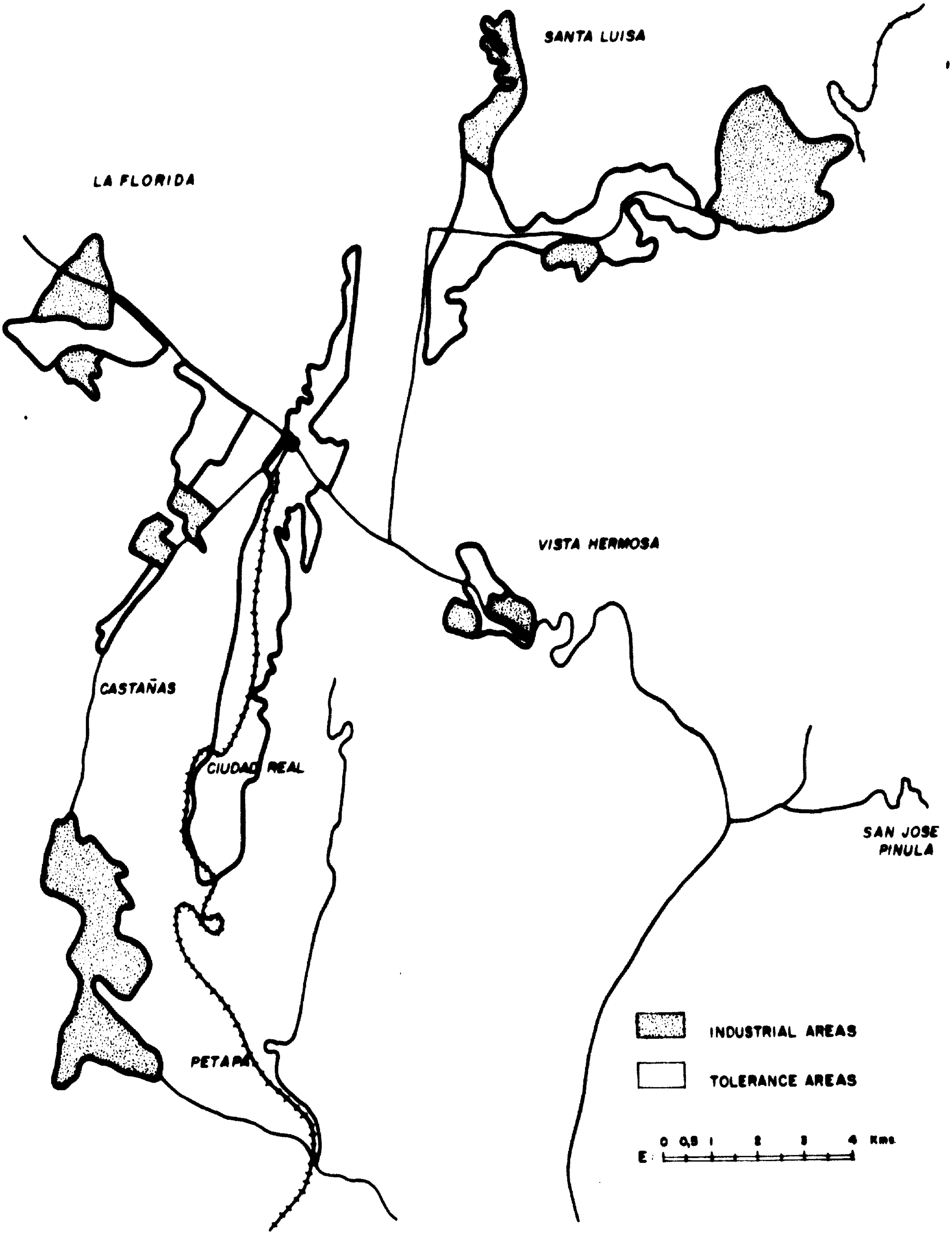
With regard to medium size and large industries in general, which are also found indiscriminately scattered throughout the urban center, the establishment of Regional Industrial Grounds has been proposed, which avoids, insofar as it is possible, the undesirable effects on the normal development of civic life which may result from their activities.

In summary, it may be said that the Municipal Government is trying to avoid, with these Regulations for Locations and Industrial

Installations, the evils which result from uncontrolled industrial development in the city, but, on the other hand, it does not reduce the problems of Congestion which presently threaten the city.

All of these considerations constitute a general complex of problems which will only be resolved by an orderly and logical policy of centers selected as decongestion sites.

INDUSTRIAL AREAS PLAN OF THE GUATEMALA MUNICIPALITY



3.3. PROBLEMS OF CONGESTION

The Capital of the Republic offers a series of attributes (consumer market, infrastructure, provision of services, education and health centers) which make it advantageous to collect in its area the major part of the industrial activity developed throughout the entire country.

The industrialization process of the entire Republic has been centered mainly in the Department of Guatemala , and particularly in the Metropolitan Area of the Capital.

The industrial survey made in 1962 by the Joint Planning Mission for Central America and the General Secretariat of the Economic Planning Council, plus the industries classified by the Law of Industrial Promotion of December 31, 1967, allow one to contemplate the magnitude of this centalized location, the greatest part of which is in the Department of Guatemala and particularly in the Capital of the country.

Table 3-V

LOCATION OF MANUFACTURING INDUSTRIES IN THE TERRITORY OF GUATEMALA

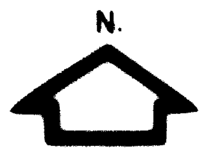
Total Industry	Number of Companies
Departments	
Guatemala	1,610
Quetzaltenango	122
Escuintla	88
Suchitepequez	66
Sacatepequez	63
Zacapa	37
Retalhuleu	38
Chimaltenango	35
Isabel	30
Alta Verapaz	24
Quichá	22
Totonicpán	22
Huehuetenango	22
San Marcos	19
Santa Rosa	18
Jutiapa	14
Chiquimula	12
Jalapa	9
Progreso	6
Baja Verapaz	5
Sololá	4
Petén	3
TOTAL	2,272

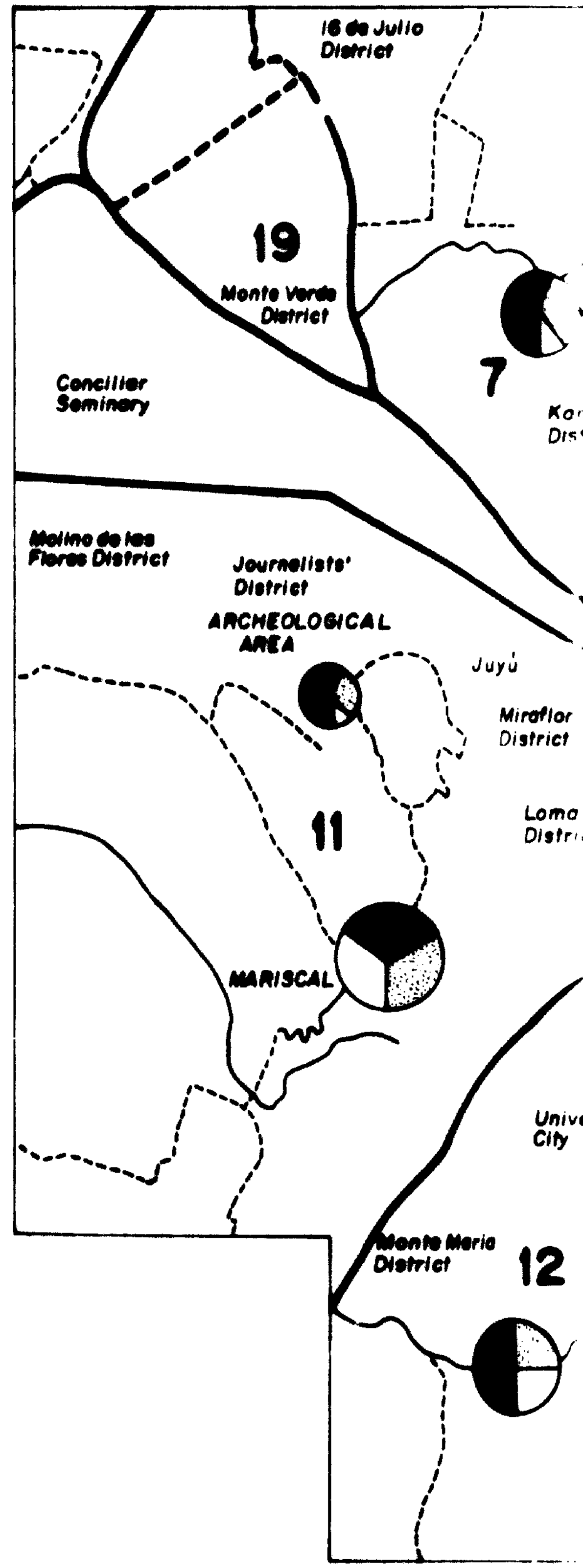
SOURCE: 1962 Industrial Survey and Secretariat General of the National Council of Economic Planning

Of the 2,272 industries at the manufacturing level (5 or more workers) which existed in 1967, 71% or 1,610 were companies located in the Department of Guatemala, and only the remaining 29% were dispersed throughout the rest of the Republic.

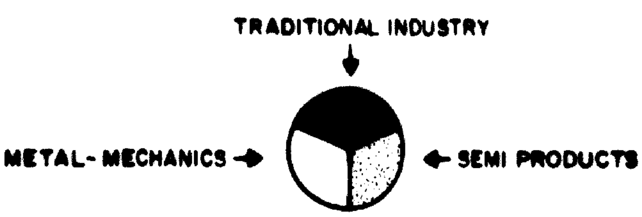
MAP OF THE CITY OF GUA

STRUCTURE OF INDUSTRIAL SETTLEMENT
METROPOLITAN AREA



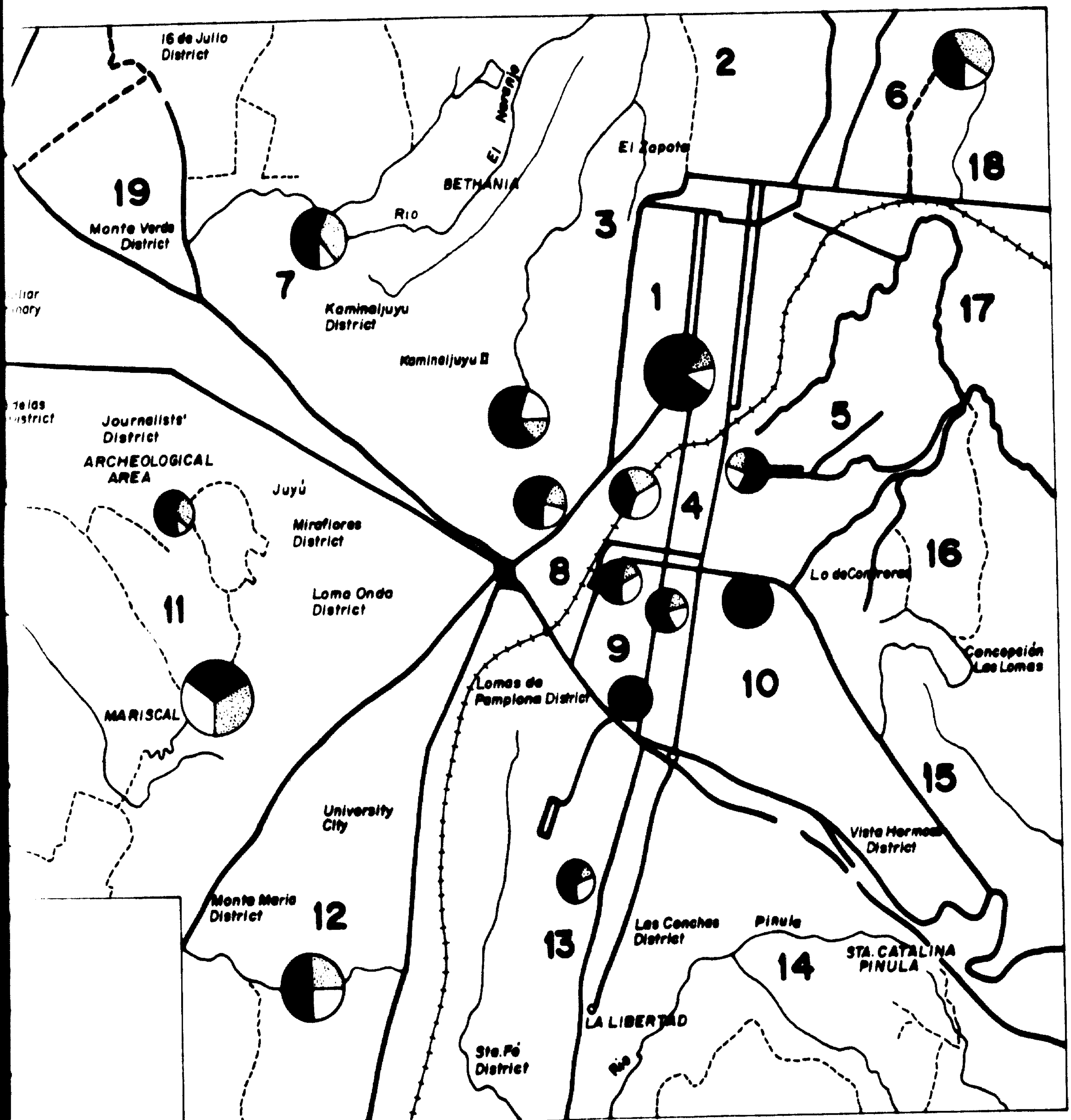


INDUSTRIAL STRUCTURE OF THE AREA



SECTION 1

OF THE CITY OF GUATEMALA



SECTION 2

Of the 1,610 Industries in the Department of the Capital, 1,569 are located in the Metropolitan Area, which gives some idea of the concentration which exists there.

The enormous industrial concentration in the Capital has caused a demographic growth (uncontrolled by immigration) and an urban growth which have exceeded all anticipations and resulted in the inadequacy of the existing infrastructure, of urban utility services and in the area of housing where the entire population compsing the city live.

The result of these conditions has been the anachronistic growth which has been noted in the urban nucleus and which, together with the other factors, has created the "INDUSTRIAL CONGESTION" of the city.

3.3.1. TRANSPORTATION AND COMMUNICATIONS INFRASTRUCTURE

The city of Guatemala is undergoing a period of general growth; for this reason, it presents the typical characteristics of a fully metropolitan city. These characteristics are accurately reflected in the transportation system which should maintain a continuous rate of increase in both its capacity and efficiency, in accordance with the demands of urban development.

ROAD SYSTEM

The structure of the city's system of roads is in line with current needs, as the main routes coincide in their plan with the direction of the greater part of the transportation flow.

The national and regional access routes have relatively efficient solutions if one excepts the Carretera al Atlántico which discharges too abruptly into the Central Area.

The most important lines of regional movement are mirrored directly in the principal system of urban roads, and their point of intersection provides a stratified solution for the roads (El Trebol).

AUTOMOBILE TRANSPORT

The movement of vehicles is effected with relative fluidity, with some problems in specific areas due to bottlenecks or extended delays.

The causes of these inconveniences are the result basically of problems of inefficient road design, and they can be resolved with relative independence of the overall road structure and a fairly low cost in investment.

The Central Area demonstrates specific transport problems, above all in the most heavily travelled sections, caused by, among other things, the excessive concentration of vehicles, the absence of general regulatory policies for the system, and the severe interferences between the movement of persons and that of vehicles.

TERRITORIAL INTEGRATION

The transportation system is the basic element of territorial integration. In the case of the Metropolitan Area of Guatemala, this is achieved through the system of roads. In this aspect, one may be assured that the road system is sufficiently complete, taking into account the topographical characteristics of the land.

The connection with the principal populated centers of the country, and especially with those of the Metropolitan Region, is relatively efficient and can be verified with little difficulty. The municipal areas in the South of the Department of Guatemala (Villa Nueva, Amatitlán, Petapa and Villa Canales) are particularly well equipped in terms of their accessibility and promising prospects for the future, reinforced by the presence of the railroad as well, all of which makes these areas highly appropriate for the absorption of the growth of the city.

In contrast to this situation, the populations of the municipalities in the North have greater problems of accessibility, with some of them almost isolated as a result of the poor condition of the connecting roads.

In conclusion, it may be said that the transportation system fulfils its specific functions in a relatively complete way at the present time, but the rapid metropolitan growth will, within a short time, cause pressures resulting in serious maladjustments of the various parts of the system.

This fact will in turn lead to a decrease in total efficiency and a delay in the rate of expansion of transportation facilities, considerations which must be of deep concern for the future of the City.

3.3.2. UTILITIES

WATER

The water supply and its final disposal through the sewer system has a direct and immediate effect on the general economy of the city utilizing these services. The inadequacy of these utility services (above all, in the supply of water) retards the economic development of a city since it delays agricultural progress, industrial development, construction, etc.

One of the most serious problems of the water supply system of the city is that of securing new sources for the consumption. Due to the constant demographic growth of the Capital and the resultant physical and industrial expansion, greater volumes are required to serve the growing population, a volume which can only be obtained from greater distances, both horizontally and vertically.

Another problem which arises in relation to the water supply system of the city is that of the location of water treatment plants, basically in terms of what pertains to the elevation of the location. This problem becomes more acute in cities like Guatemala which are undergoing a rapid urban growth process, since a treatment plant located at a point near the distribution system runs the risk of being invaded by the urban system and having to install a pumping system.

At the present time, Guatemala has about 850,000 inhabitants, a population which must be provided with a certain volume of water both for consumption and for domestic and industrial uses. At this time, there is an amount of approximately 250 litres per day available for each inhabitant.

It may be said that this is a reasonably good amount of water in comparison with the other cities, even though a lack of water is generally spoken of.

To determine the causes which result in this scarcity, in contrast to the volumes which are estimated as satisfactory would be hazardous, but there is no doubt that the industrial factories are one of the major centers of absorption of this element, and that if one could reach the point of reducing industrial congestion within the city, it would be possible to supply the requirements of the urban center much more readily.

In any event, the water problem is not without solution and industrial decongestion would contribute substantially to not making this problem even more serious for the inhabitants of the Capital.

The distribution of the volume of water among the various sectors of the city has been rather unsatisfactory due to one fundamental factor; the lack of an integral plan for development. As a result, this has allowed physical growth in a disorganized and sometimes disproportionate way, so that the efforts of the Municipality have not been able to provide for all of the newly populated areas which the City incorporates every year. In the majority of cases, it has been the economic factor which has delayed construction of the distribution systems. The Municipal Funds have been insufficient to cover the demand for this service, a demand which has increased considerably in the last decade.

PRESENT SITUATION

The City of Guatemala is now supplied by a series of sources which provide it with a total volume of 157,$3 million litres per day; this volume comes from three different systems.

SYSTEM	Average Volume	
	M.L.D.	%
Municipality	126,70	80.8
Mariscal	19,33	12.3
Private	11,00	7.0
TOTAL	157,03	100.00

SOURCE: Municipality of Guatemala
Water Department

If these are the figures for the volume of the water supply, let us see the prospective demand for the five-year period 1970-1975.

Table 3-VI

WATER DEMAND IN M.L.D. FOR THE VARIOUS ZONES 1970-1975

Zone \ Year	1970	1971	1972	1973	1974	1975
1	14,74	14,47	14,21	13,91	13,60	13,28
2	7.56	7,72	7,88	8,04	8,18	8,30
3	13.20	13,30	13,36	13,42	13,45	13,47
4	1.80	1,81	1,83	1,82	1,81	1,83
5	22.90	24,32	25,74	27,26	28,76	30,36
6	15.26	15,86	16,46	17,06	17,65	18,26
7	21.24	23,45	25,80	28,36	31,11	30,07
8	5.36	5,40	5,42	5,44	5,46	5,46
9	2,36	2,38	2,38	2,39	2,39	2,39
10	5,52	5,78	6,07	6,34	6,61	6,89
11	13,32	14,70	16,14	17,71	19,43	21,27
12	12,84	13,62	14,41	15,26	16,13	16,99
13	2.80	2,96	3,11	3,27	3,44	3,59
14	2.14	2,22	2,31	2,39	2,47	2,55
15	2,18	2,52	2,90	3,35	3,87	4,40
16	1.26	1,30	1,34	1,35	1,38	1,41
17	1.96	2,06	2,15	2,25	4,37	2,45
18	3.14	3,14	3,71	4,03	2,35	4,71
19	4,34	4,67	5,05	5,46	5,89	6,37
TOTAL	153,92	161,91	170,28	179,10	188,35	198,08

SOURCE: Municipality of Guatemala. The figure taken as a basis is 200 litres/inhabitant/daily in 1970 and an increase of 1.5 L/I/D for the following years.

Considering the water supply figures and those for the prospective demand, a slight deficiency in the water requirements of the city is noted.

These requirements are not the same from one zone to another, since certain zones require a greater water supply than others.

Using 1970 data, it is possible to establish four groups of zones according to actual consumption.

GROUPS OF ZONES ACCORDING TO ACTUAL CONSUMPTION 1970

Group	Zones	Actual consumption 1970 LID
I	1,9, 13, 14, 15,	C 200
II	4, 10, 11,	200 C 160
III	2, 3, 6, 7, 8, and 12	60 C 80
IV	5, 16, 17, 18, 19	C 80

As a result, in addition to taking into account the inadequate consumption, certain zones must be distinguished from others in terms of the different requirements they make.

DRAINAGE SYSTEM

The geographical location of the city on the Continental Water Divide results in one part of the city draining to the North toward the Atlantic Ocean basin and the Southern part to the Pacific basin, particularly to the lake of Amatitlán.

The problem of the city's drainage system is in the minds of all who share responsibility for it.

In the Northern basin, which traditionally has been the drainage basin for the city, a series of mish aps has occurred due to the lack of water treatment. But the more serious problem is that of the Southern basin. It is difficult to continue forcing the waste waters of the Southern basin toward the Northern basin, so that it is necessary to think of giving some kind of treatment to the waste waters which drain toward this latter basin.

As a result of this situation, the Municipality has planned a solution, known as the "Drainage Sanitation System" consisting of 4 parts.

1. Drainage systems in areas which do not have them
2. System of collectors and treatment facilities in the Northern basin.
3. System of collectors and treatment facilities in the Southern basin.
4. R.M.R. discharge (This collector lacks an adequate discharge).

With this plan, the Municipality hopes to alleviate the deficiencies of the present system and prepare this city service for the growth predicted for future years.

In conclusion, the explosive growth of the city has caused deficiencies in the drainage system and problems in the treatment of waste water. Industrial decongestion can help by not further aggravating this problem and by being able to adopt solutions which solve the discharge of waste water with greater fluidity.

POWER

This is perhaps one of the factors in which the Capital City is found to be best supplied.

"INDE", in a national electrification plan, has determined the population corresponding to the central system, to which the City of Guatemala belongs, as well as defining the rates of growth and characteristics of the demand.

According to this data, the installed capacity does not correspond to that actually available as there is a self-use of 4.1% and a 12.8 reduction attributed to losses and thefts, with which the actual capacity is 124,570 Kw.

Applying the 4.15% population growth rate in the Central Zone, as well as the demand growth rate of 8.3% , it is noted that, according to the demand recorded in 1962-1967, electric service will be efficient until 1975, since the 1976 demand will exceed the actual supply, as can be seen in the following Table.

POPULATION INCREASE IN THE CENTRAL ZONE AND DEMAND FOR ELECTRICITY

Year	Population (thousands)	Demand (Kw)
1970	1,484	61,973
1971	1,546	69,927
1972	1,611	78,915
1973	1,678	89,022
1974	1,748	100,430
1975	1,821	113,309
1976	1,897	127,840 x

x Actual Capacity: 124,570 Kw.

Population rate: 4.15%

Demand rate : 8.3%

SOURCE: "INDE" (National Institute of Electrification).

TELECOMMUNICATIONS

The present situation with regard to Telecommunication Services reveals an obvious shortage in terms of the existing requirements, both at the level of the Republic and that of the Capital.

There is a total of 43,200 telephone lines distributed as follows:

- 39,000 for the Capital
- 4,200 for the rest of the country

which gives a density of 0.64 telephones per 100 inhabitants, one of the lowest percentages in all of the Americas.

This situation contributes overwhelmingly to handicap any kind of development since one of the most important means of supporting economic expansion in a country is good communications service at a national and international level.

Taking only the Capital City into account, the extreme degree of congestion observed in telephone communications must be emphasized.

According to studies made by the Economic Planning Secretariat and Guatel, the present needs of the Capital are estimated at 100,000 lines, which gives some idea of the situation encountered with respect to this means of communication.

Guatel has a plan for expansion by which the City will have 21,000 new lines by the end of 1974, a figure which is insufficient in any terms, and which will not improve the congestion which the city is now experiencing.

PRE-SELECTION OF DECONGESTION CENTERS

3.4 The preceding Sections have outlined the present situation in the Metropolitan Area and the general problems of Industry located there, together with the problems it has created.

To solve the problem of industrial congestion which has begun to oppress the Capital City, the pre-selection of a series of urban centers has been proposed, in which part of the Industry projected for the Capital can be located.

These centers must combine a minimum of characteristics in order to be considered as centers for industrial decongestion.

In accordance with the criteria of selection followed in our research, the following municipalities have been designated:

- AMATITLAN
- VILLA CANALES
- VILLA NUEVA
- MIXCO
- SAN MIGUEL PETAPA
- SAN JUAN SACATEPEQUEZ
- SAN JOSE PINULA
- SAN PEDRO SACATEPEQUEZ
- SANTA CATARINA PINULA
- CHINAUTLA

3.4.1. METHODOLOGY OF THE PRE-SELECTION AND SELECTION OF CENTERS

The pre-selection of urban centers for industrial de-congestion has been effected according to a process sub-divided into three phases.

FIRST PHASE

Before defining any municipality around Guatemala, a regional study of the entire Department was performed in order to find municipalities which possessed favourable conditions as future industrial sites and which had a certain urban spirit.

The study carried out at a regional level allowed the differentiation of sectors which would favour the dispersal of the development generated in the Capital, distinguishing some of their obvious urban spirit, while others revealed a tendency toward stagnation with an essentially rural matrix.

A definite regional difference was noted which permitted the existence of two definite areas to be established, with the characteristics listed in the paragraph above.

The first of these may be called the Northern Region and includes the Municipalities of:

- SAN PEDRO SACATEPEQUEZ
- SAN JUAN SACATEPEQUEZ
- SAN RAIMUNDO
- CHINAUTLA
- CHUARRANCHO

All of this region has a clearly rural spirit and a tendency toward stagnation, a situation noted in the economic activity of a primary nature which dominates all of the area, and which in these cases acquires a character of subsistence.

Both the provision of public services and the infrastructure of these Municipalities is inadequate and the standard of living reached is very low. Without failing to take into account these general characteristics found in all of these centers, two sub-groups may be defined according to the system of roads. Thus we find that San Pedro Sacatepequez, San Juan Sacatepequez and San Raimundo, with good access roads, show a greater degree of activity and higher incidence of influence from the development stimulated by the Capital. The existence of a few small industries indicates a different quality in the activity of the area, which makes possible the development of an agricultural activity stimulated by the services of the Metropolitan City.

The zone formed by the municipalities of Chinautla and Chuarrancho reveals a high degree of stagnation caused in part by the inadequate infrastructure of the road system, which aids the kind of services which is observed in them. The repercussion of the dynamic effects originated in the Capital receive very feeble expression in this area.

The second region formed by the entire Southern Zone of the Capital comprises the following Municipalities:

- MIXCO
- AMATITLAN
- VILLA NUEVA
- VILLA CANALES
- SAN MIGUEL PETAPA
- SANTA CATARINA PINULA
- SAN JOSE PINULA

This area is clearly distinguished with regard to its present state of development.

The area formed by the municipalities of San José Pinula and Santa Catarina Pinula shows a tendency toward stagnation due to deficiencies in an adequate system of roads and to natural conditions of the topography.

The other area comprising the municipalities of Mixco, Villa Nueva, Amatitlán, Villa Canales and San Miguel Petapa, is the most dynamic sector of the entire regional area, with a greater urban spirit and natural growth area.

The best infrastructure is found in this sector, which has seen its urban population grow with extreme rapidity and, above all, has already installed in its territories a series of factories which have taken advantage of the exemption from taxes which they are granted by the Municipalities where they are located, in relation to the tax rate they would pay in the event of installing themselves within the jurisdiction of Guatemala City.

It must be emphasized however, that the urban centers of these Municipalities have not developed as would have been hoped, given the tendency toward urbanization which they show.

Up to this point, we have considered the First Phase of selection, in which all of the municipalities which potentially could be pre-selected as industrial decongestion centers are noted.

SECOND PHASE

In the second phase, a survey is made at the level of the municipalities in order to detect on the basis of these data the degree of basic equipment they have, which, together with geographical factors, would allow a number of them to be set aside on the basis of not having the minimum conditions required to be able to receive industrial factories in their territory.

The result of these two phases was the pre-selection of TEN municipalities as possible industrial decongestion centers for the Metropolitan Area of Guatemala, which are:

- SAN MIGUEL PETAPA
- VILLA CANALES
- AMATITLAN
- MIXCO
- SAN JUAN SACATEPEQUEZ
- SAN JOSE PINULA
- SANTA CATARINA PINULA
- CHINAUTLA
- SAN PEDRO SACATEPEQUEZ

THIRD PHASE

With the first selection made, all of the data of each Municipality were analysed according to specific criteria of selection in order to weight each of the factors and make the pre-selection and final hierarchical arrangement.

The criteria of selection by which each municipality was evaluated were:

- GEOGRAPHICAL FACTORS
  - Distance to the main center
  - Population level
- URBANIZATION FACTORS
  - Legal tax problems
  - Availability of land
  - Price of land
  - Existence of industries

- **COMMUNICATIONS**
  - Roads
  - Railroads
  - Collective transportation
  - Telephone and telegraph
  - Transportation of goods

- **PROVISION OF SERVICES**
  - Water
  - Electric Power
  - Sanitation
  - Education
  - Health

- **ENVIRONMENTAL FACTORS**
  - Labour situation
  - Attitude of receptivity
  - Urban equipment in nearby centers

With the criteria of selection known, a weight value was assigned to each of the factors in order to obtain an evaluation of each municipality, which would allow clear definition of those which on the basis of overall characteristics would be best equipped to receive industrial locations.

The maximum weighting values assigned are:

	Value
GEOGRAPHICAL FACTORS	20 points
URBANIZATION FACTORS	35 "
COMMUNICATIONS	45 "
PROVISION OF SERVICES	40 "
ENVIRONMENTAL FACTORS	15 "
TOTAL	155 points

The values obtained for all of the pre-selected municipalities are the following:

MUNICIPALITY	Value obtained	% s/total points Maximum 155
- Amatitlán	105	68
- Villa Canales	100	65
- Villa Nueva	90	58
- Mixco	87	55
- San Miguel Petapa	76	49
- San Juan Sacatepequez	73	47
- San Jose Pinula	68	44
- San Pedro Sacatepequez	59	38
- Santa Catarina Pinula	58	37
- Chinautla	52	33

The following table gives in detail the points for each of the factors of the pre-selected municipalities.

Table 3-VI

PRE-SELECTION OF INDUSTRIAL DECONGESTION CENTERS OF THE METROPOLITAN AREA OF GUATEMALA

Criteria of Selection	Weight factors	Municipalities									
		San Miguel Petapa	Villa Canales	Amatitlán	Villa Nueva	Mixco	Sn Juan Sacatep	Sn José Pinula	Sta. Catarina Pinula	Chinautla	SnPedro Sactep.
1. GEOGRAPHICAL FACTORS											
1.1. Distance to main center	0–10	7	8	8	9	8	6	8	7	7	6
1.2. Population level	0–10	4	6	7	7	7	7	6	6	7	6
SUB-TOTAL	0–20	11	14	15	16	15	13	14	13	14	12
2. URBANIZATION FACTORS											
2.1. Legal tax problems	0–5	5	5	5	5	5	5	5	5	5	5
2.2. Availability of land	0–10	7	7	6	6	2	4	6	3	2	4
2.3. Price of land	0–10	6	5	5	3	5	6	6	6	2	5
2.4. Existence of industries	0–10	6	6	7	6	6	1	3	5	5	3
SUB-TOTAL	0–35	24	23	23	20	18	16	20	19	14	17
3. COMMUNICATIONS											
3.1. Roads	0–10	5	7	7	8	7	5	6	2	2	2
3.2. Railroads	0–10	4	7	5	0	0	0	0	0	0	0
3.3. Public transport	0–10	5	8	8	7	8	8	7	4	4	4
3.4. Telephone and telegraph	0–10	3	5	7	6	6	2	1	1	0	1
3.5. Freight Transport	0–5	3	3	3	2	3	3	1	3	1	2
SUB-TOTAL	0–45	20	30	30	23	24	18	15	10	7	10

Table 3.VI (Continued)

Criteria for Selection	Weight factor	Municipalities: San Miguel Petapa	Villa Canales	Amatitlán	Villa Nueve	Mixco	Sn Juan Sacatep	Sn José Pinula	Sta. Catarine Pinula	Chinautla	Sn Pedro Sacatep
4 PROVISION OF SERVICES											
4.1. Water	0–10	3	6	6	4	4	6	4	4	4	3
4.2. Electric power	0–10	7	8	8	8	8	7	5	4	4	5
4.3. Sanitation	0–10	1	7	7	4	4	6	2	1	2	3
4.4. Education	0–5	3	3	4	4	3	2	2	2	2	2
4.5. Health	0–5	2	3	4	3	3	2	2	2	2	2
SUB-TOTAL	0–40	15	17	19	23	22	23	17	13	14	15
5 ENVIRONMENTAL FACTORS											
5.1. Labour situation	0–5	2	1	3	3	3	1	1	1	1	2
5.2. Attitude of receptivity	0–5	1	3	3	2	2	1	2	1	1	2
5.3. Urban equipment in nearby centers	0–5	3	2	2	3	3	1	1	1	1	1
SUB-TOTAL	0–15	6	6	8	8	8	3	4	3	3	5
TOTAL	155	76	100	105	90	87	73	68	58	52	59

COMMENTS ON THE RESULTS OF THE EVALUATION OF THE MUNICIPALITIES

1. The general trend observed in all of the municipalities is the absence of optimum conditions for the reception of industrial installations.

2. Only Amatitlán and Villa Canales possess the most desirable characteristics for rapid assimilation of the industrial decongestion of the Capital.

3. A general problem is noted in the supply of sufficient water for industrial use and a sanitation system adequate for needs which all industrial complexes require.

4. The Municipalities of San José Pinula, San Pedro Sacatepequez, Santa Catarina Pinula and Chinautla are obviously deficient in the decisive factors for normal industrial development, such as Urbanization factors, Communications and the Provision of Public Services.

5. The Telephone service, indispensable media for the development of industrial activities, does not have the flexibility to be desired in the majority of the municipalities. Thus it is noted that, with the exception of Amatitlán and Villa Nueva, the rest have serious problems with this means of communication.

6. The labour situation, from an industrial point of view, is hardly that indicated for future zones of an industrial nature. There is unskilled labour from the agricultural sector, but according to all indications it would be necessary to train these workers for industry.

7. In the majority of the pre-selected municipalities, the geographical factors (distance to the Capital and population level) are the best contribution and the most satisfactory condition for the decongestion of the industry to be installed in the Capital in the future.

8. The need for rapid action in the areas of infrastructure and the provision of services can be seen, in order to bring the pre-selected centers up to a level of acceptable conditions for industrialization.

3.5. RECOMMENDATIONS

1. In view of the present state of the possible industrial decongestion centers, it would be advisable to establish priorities at the time of selection.

   A first priority would be the selection of the three municipalities (Amatitlán, Villa Canales and Villa Nueva) which combine the best conditions for industrial location, in order to initiate the decongestion of the Capital as soon as possible.

   A second priority would consist in the scheduling of the other three selected centers (Mixco, San Miguel Petapa and San Juan Sacatepequez) for a secondary phase of decongestion. Inasmuch as these three municipalities would require a more substantial investment, measures could be worked out to determine the stages of equipping, and the Government could take the necessary steps so that, at the time when it would be necessary, they would have all required services for the normal development of the industries located in them.

   The remainder of the pre-selected centers (San José Pinula, Santa Catarina Pinula, San Pedro Sacatepequez and Chinautla) should be discarded for the time being as decongestion centers, as their basic equipment and situation do not combine the minimum conditions necessary for the reception of industry.

2. Bearing in mind the inadequate road system and communication infrastructures which characterize the majority of the possible industrial decongestion centers, a short-term improvement of these factors is necessary.

3. If the road system and communications infrastructures are deficient, the problem of the provision of public services which a decongestion center must have is even more serious. A major effort is required in this area to provide these services, without which industrial development is an impossibility. Similarly, the water problem, the acute insufficiency of telephone service, the existing santiation system and the other public services which contribute to normal development must be resolved.

4. The absence of skilled labour on which any industrial center must rely is obvious in all of the municipalities. Steps should be taken to establish a center for professional training where the largest possible number of workers could be prepared and qualified. INTECAP could be the competent organization to resolve this vital problem for the development of the industry to be installed.

5. A study should be carried out of all the resources of the Capital's sphere of influence which could be industrialized, in order to utilize them to advantage in the industries to be installed in the future. In particular, all products derived from agricultural activities should be taken into consideration.

6. The Government should adopt the necessary measures so that these decongestion centers will be attractive to companies. Among these measures graduated exemption from taxes and easy access to land are advisable.

7. The concession of credits must be facilitated for those industries which wish to install or transfer their plants to the selected decongestion centers.

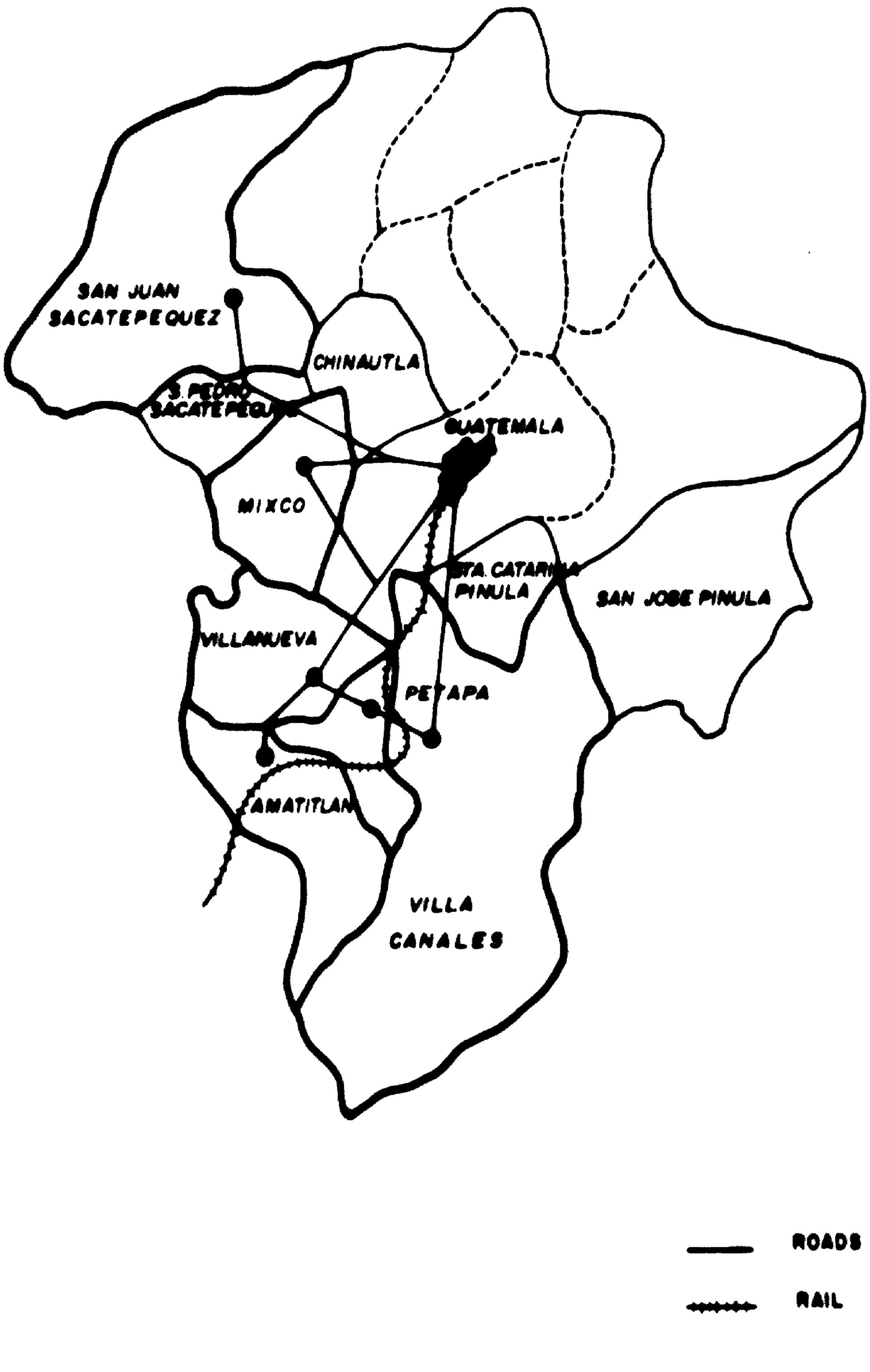
8. The businessmen and industrialists of the Capital must be convinced of the benefits to be gained from locating in the selected municipalities. Promotional efforts are required to make known the advantages offered. The Chamber of Industry may be the proper means of delivering the Government's message to the proper destinations.

9. The Municipality of Guatemala, on the basis of the lines of directions given by the Office of Industrial Policy, must apply the Regulations of Locations and Industrial Installation, and take steps so that all industry which plans to instal itself in the Capital and shows signs of affecting the industrial congestion of the City will be moved to the decongestion centers.

10. Part of the Government Budget must be allotted to collaboration in the readying of those selected centers which require help in order to provide the necessary services for industrial development in their area.

11. In view of the present situation and the problems of Industry in the Metropolitan Area, the appropriate measures should be worked out as quickly as possible to initiate industrial decongestion, inasmuch as these measures would help to reduce the congestion which the Capital is suffering and add to the standard of living and industrial potential of the selected municipalities and, in the end, to increasing the development of Guatemala.

PRE-SELECTED INDUSTRIAL DISCONGESTION CENTRES. GUATEMALA METROPOLITAN AREA



CHAPTER - 4

INDUSTRIAL DECENTRALIZATION

4 1 General considerations

4 2 Analysis of the National Economy of Guatemala

4 2 1 Global view of the chief macro-economic factors of the country

A Growth and trends of the population and employment

B Development of gross geographical product

C Natural resources

D National infrastructural system of transport and communications

E Social infrastructure

F Agricultural and industrial production

G Imports

H Administrative information related to process of development

I Contents of the development plan

J International relations and relations of Guatemala with the rest of Central America

4 3 Choice of the zone for the future industrial promotion and development

4 4 Analysis of the Regional Economy of the zone chosen

4 4 1 Selection of industrial and complementary activities

4 4 2 Guidelines for infrastructure and service needs

4 4 3 Guidelines for measures and incentives to promote the zone

4 5 Recommendations

4.1. GENERAL CONSIDERATIONS

The industrial structure of a modern country undergoing development tries to avoid excessive industrial concentration in a single area of the country, since then, all the activities of the country are established in this place leaving aside the rest of the regions, but this is the situation prevailing in Guatemala. The 1961 Industrial Survey, as well as the industries classified by the Industrial Development Law of December 1967 show the extent of centralization of manufacturing industries in the Department of Guatemala.

Table 4-1

Industrial Siting of the Manufacturing Stratum in the Territory of Guatemala:

Total Industry	Number of firms	% of total 2272
Guatemala	1610	70.8
Queza Itenango	122	5.3
Escuintla	88	3.8
Suchitepequez	66	2.9
Sacatepeques	63	2.7
Zacapa	37	1.6
Retalhuleu	38	1.6
Chimaltenango	35	1.5
Izabel	30	1.3
Alta Verapaz	24	1.0
Quiché	22	x
Totonicapàn	22	x
Huehuetenango	22	x
San Marcos	19	x
Santa Rosa	18	x
Jutiapa	14	x
Chiquimula	12	x
Jalapa	9	x
Progreso	6	x
Baja Verapaz	5	x
Sololà	4	x
El Petèn	3	x
Total	2272	100

x Percentage lower than the unit.

Of the total industries (2272) existing in 1967, 71% correspond to industries established in the Department of the Capital, while only 29% is distributed in the rest of the Republic.

This situation has changed in 1971, since the disappearance of small firms has reduced the number of industrial enterprises.

Table 4-II

Number of industrial establishments:

Department	Nº	% over total : 1865
Guatemala	1249	66.9
El Progreso	7	x
Sacatepequez	43	2.3
Chimaltenango	21	1.1
Escuintla	80	4.2
Santa Rosa	5	x
Sololá	6	x
Totonicapán	26	1.4
Quezaltenango	118	6.3
Suchitepequez	62	3.3
Retalhuleu	38	2.0
San Marcos	14	0.8
Huehuetenango	25	1.3
Quiché	21	1.1
Baja Verapaz	6	x
Alta Verapaz	26	1.4
Petén	4	x
Izabel	24	1.3
Zacapa	50	2.7
Chiquimula	10	0.5
Jalapa	11	0.5
Jutiapa	19	1.0
TOTAL	1865	100

x Percentage lower than 0.5
Source: Industrial Directory for 1971.

The Department of Guatemala continues to absorb 67% of the total existing industry which entails the continuing concentration of the industrial power of the country.

If Guatemala wishes to achieve an industrial expansion in order to prepare for the future, it is necessary to devise means to avoid the situation which exists at the present time, by strengthening other zones in which the resources, infrastructure and services make the establishment of manufacturing plants advisable. In this way excessive concentration can be avoided and, furthermore, a more equitable distribution of wealth will be achieved.

The Government, together with ONUDI, has carried out a pre-selection of five departments:

Quezaltenango, Suchitepequez, Retalhuleu, San Marcos and Sololà,

as possible centres for industrial promotion and development.

The most important aim of this project consists of the preparation of a study in depth of all the departments for the purpose of determining the zone which possesses the most favourable conditions for the establishment of a growth centre for industrial promotion and development.

4.2. ANALYSIS OF THE NATIONAL ECONOMY

A study of the national economy of a country requires an effort which was not permitted by the limitations imposed by the time and the budget available for the present work. Therefore, this section will be dealt with by taking as a base the existing reports and the opinions issued by the State organs which are concerned with the day-to-day life of the country.

4.2.1. GLOBAL VIEW OF THE CHIEF MACRO-ECONOMIC FACTORS OF THE COUNTRY

A) GROWTH AND TRENDS OF THE POPULATION AND EMPLOYMENT

The rate of growth of the population of Guatemala was high: 3.1% between 1950 and 1964. According to estimates made by CELADE (1) in the decade of the '70s the annual rate of increase will be 2.9% . This high demographic increase is an obvious reflection of a country undergoing development in which a slow decrease in infant mortality is occurring due to improvements in sanitary and health conditions.

At the same time the birth rate is decreasing at an even slower rate, consequently resulting in an increase of population.

For the five-year period 1965-1970, the infant

(1) Latin American Demographic Centre.

mortality and birth rates noted in Guatemala were 93.8 and 43.2 per thousand respectively.

According to population projections which have been prepared by CELADE, the figures for the years immediately before and after the present year will be the following:

TOTAL POPULATION OF THE REPUBLIC OF GUATEMALA

Year	Inhabitants (in thousands)
1968	4,288
1969	4,985
1970	5,034
1971	5,179
1972	5,329
1975	5,976

Source: Social Policy and Integrated Development.
Study Nº 6 SIECA

The geographical distribution of this population throughout the territory is uneven , which results in the natural resources either not being used to advantage or being used to excess. The greater weight of population is found chiefly in the southwest plateau and in the centre of the Republic, in contrast to the north and east, which are characterized by a low population density.

Population pyramid

On distributing the population by five-year groups, it can be seen that Guatemala has a predominance of young people. Of the total population in 1970 (1) 56% were less than 19 years of age. This fact should be especially taken into account by the Government authorities in order to intensify efforts for the education and training of youth.

With respect to the distribution of population by sex, it is seen that within the total population there is a slight predominance of males: in 1964 50.7% were males and 49.3% females. The relative distribution by age within each sex is similar, as can be seen in the population pyramid for 1972 which appears below (taking as a base the total population estimated for 1972 by CELADE and applying to it the same structure by age as that observed in 1964).

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(1) Source: Human Resources Section, National Council of Economic Planning.

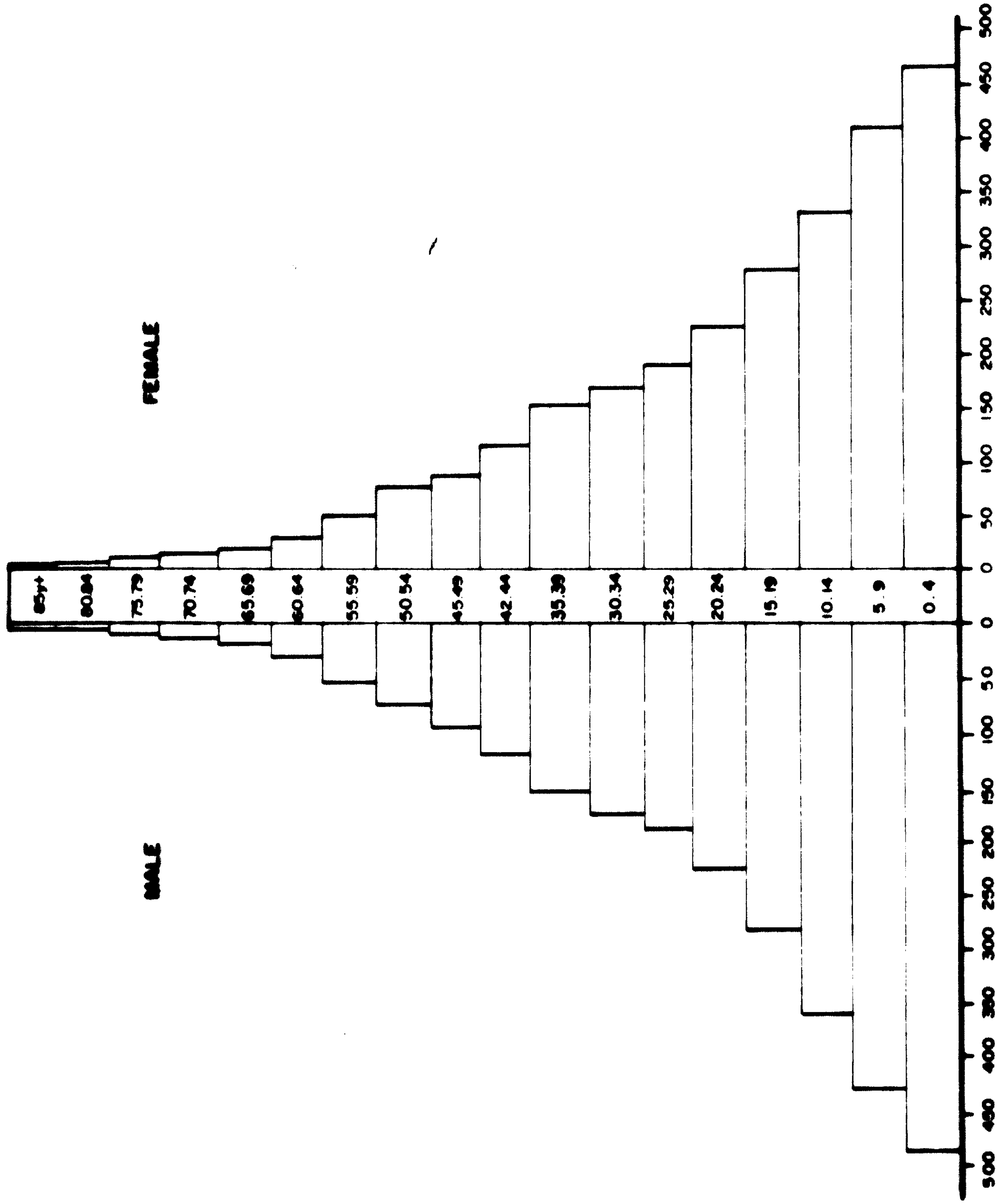
Table 4-III

Population for 1972 (estimated) by five-year groups of age (expressed in thousands)

	Male	Female	Total
Total	2,780	2,703	5,483
0-4	484	470	954
5-9	428	414	842
10-14	359	335	694
15-19	281	281	562
20-24	225	227	452
25-29	189	192	381
30-34	175	170	345
35-39	156	154	310
40-44	122	116	238
45-49	97	87	184
50-54	75	76	151
55-59	56	54	110
60-64	58	54'	112
65-69	31	30	61
70-74	20	19	39
75-79	11	11	22
80-84	7	8	15
85-and over	6	6	11

Calculations made in the Industrial Section of CNPE

POPULATION PYRAMID 1972



Internal Migratory Movements

In the Republic of Guatemala there are three centres of attraction for the population: The City of Guatamala, the Pacific Coast of the Departments of Escuintla, Suchitepéquez and Retalhuleu, and on the northern side, Izabel. The three regions mentioned are characterized by greater economic potential, the capital city with its industrial development and the Pacific and Atlantic coasts by their intensive agricultural and livestock-raising activities. The absence of available work in the rest of the country obliges people to emigrate to the above-mentioned zones, some of them emigrate temporarily, as happens in the case of people from the west plateau and the east, who move to the south for the cotton and coffee harvests and then return to their homes. But there are others, generally not natives, who leave places where productive resources are scarce to establish themselves permanently in one or other of the three regions with greater economic potential. It has been observed also that there is a predominance of non-native males in the migratory groups.

Table 4-IV

INTERNAL MIGRATORY MOVEMENTS 1964

Department	Migrations	Index of Mig. Mov.	Rate of Immig.	Rate of Emig.
Guatemala	+ 137,228	+ 54.3	24.6	9.0
El Progreso	- 16,567	- 51.2	12.1	28.7
Sacatepéquez	- 11,034	- 41.7	9.6	20.2
Chimaltenango	- 18,411	- 46.6	6.5	15.8
Escuintla	+ 77,112	+ 49.3	44.1	23.6
Sta. Rosa	- 25,321	- 43.3	10.6	22.5
Sololá	- 6,371	- 47.2	3.3	8.7
Totonicapán	- 11,107	- 70.3	1.7	8.7
Quezaltenango	- 10,185	- 14.7	11.0	14.3
Suchitepéquez	+ 7,832	+ 11.6	20.3	17.0
Teralhuleu	+ 18,782	+ 37.5	29.5	16.5
San Marcos	- 14,089	- 35.7	3.8	7.6
Huehuetenango	- 18,521	- 64.8	1.7	7.6
Quiché	- 28,504	- 71.8	2.2	12.0
Baja Verapaz	- 10,653	- 53.9	4.7	13.9
Alta Verapaz	- 13,337	- 54.6	2.1	6.8
Petén	+ 2,863	+ 40.2	19.6	10.0
Izabel	+ 35,361	+ 56.3	45.0	21.0
Zacapa	- 20,274	- 51.0	10.1	25.0
Chiquimula	- 22,379	- 66.5	4.1	16.2
Jalapa	- 18,623	- 63.1	5.5	19.8
Jutiapa	- 33,802	- 68.3	4.2	18.3

Source: Volume II , VII Population Census for 1964

The Department of Guatemala and the departments of the south coast and Izabel continue to be places of intensive immigration at the present time. The Department of the Petén, especially, shows a positive migratory balance due to the large areas of land available for use, caused by the low density of population that is characteristic of this Department, (1 person x Km^2 in 1964). The Government, through the FYDEP (1) grants land to interested persons, making this land available to them by means of small payments at long-term.

Economically Active Population

The productive structure of Guatemala, characterized by a predominance of agricultural production reflects in the economically active population a majority absorption of persons engaged in agriculture (67.9% in 1964), and as a consequence of the accelerated development of services, it is seen that the other sector receiving large numbers of persons is the third sector (21.0% in 1964). Finally, it is seen that the economically active population of the second, or industrial sector, is not capable of absorbing a large number of persons, possibly because of the tendency of industry to adopt modern technologies thus reducing the number of workers required.

(1) Promotion and Development of the Petén.

Table 4-V

EMPLOYED AND ECONOMICALLY ACTIVE POPULATION

	1964	%	1970	%	1971	%	1971	%
Primary	795,465	69.2	868,406	66.5	880,536	67.9	892,000	67.4
Secondary	130.964	11.4	141,092	10.8	142,719	11.0	144.440	11.0
Tertiary	224.247	19.4	296.446	22.7	273.970	21.1	287.572	27.6
Employed population	1,150,676	100.00	1,305,881	100.0	1,297,235	100.0	1,324,812	100.00
Econ. Active population	1,348,939		1,555,180		1,592,538		1,630,767	

Source: Agricultural Section of CNPE

As shown in the foregoing table, the total employed population does not coincide with the population considered to be economically active, which indicates a large number of unemployed persons, 14.7% in 1964, who find it difficult to enter productive occupations due to lack of opportunity. This situation continues to exist and is foreseen for the coming years, since there were no changes in the levels of production which decreased to any appreciable extent this large group of unemployed persons. Therefore, it is urgent to accelerate the creation of new sources of employment, the manufacturing industries being those which attract most workers, since they offer the best opportunities for employing large numbers of workers if they use technological processes having high manpower and low capital requirements.

B) DEVELOPMENT OF GEOGRAPHICAL GROSS PRODUCT

The global economic activity has undergone a more or less satisfactory rate of growth in recent years. In each period elapsed, a slight improvement in the annual rate of growth is seen, as shown below:

GEOGRAPHICAL GROSS PRODUCT

(In millions of Quetzales of 1969)

Year	Value	Annual growth rate
1969	1,736.6	-
1970	1,835.8	5.7
1971	1,941.7	5.8
1972	2.058.3	6.0

Source: The Present Economic Situation and its Short-Term Prospects. CNPE

In the present year it is expected that a rate of 6.1% will be reached with respect to the previous year. The attainment of this goal requires an economic policy which will tend toward the basic support of the production of the directly productive agricultural and industrial sectors, as well as requiring a high level of investment by the Government, for which provision should be made in the national budget.

ORIGIN BY BRANCHES OF ACTIVITY OF THE GEOGRAPHICAL GROSS PRODUCT

The productive activities contributing the greatest weight to the global production of the economy were agriculture and commerce, which averaged 27 and 28% respectively in the past 4 years.

Table 4-VI

GEOGRAPHICAL GROSS PRODUCT BY BRANCHES OF ACTIVITY

(In millions of Quetzales of 1969)

Activities	1069	1970	1971	1972	1973
TOTAL	1.736.7	1.835.8	1.941.7	2.058.3	2.183.1
Agriculture	474.0	501.4	531.6	562.4	597.3
Mining	1.4	1.7	1.8	1.9	2.0
Industry	279.9	289.7	305.5	323.0	351.0
Commerce	492.2	350.5	565,2	597.6	622.3
Transport	94.2	100.5	108.2	114.0	122.3
Electricity	20.6	22.1	23.3	25.7	27.9
Construction	29.2	29.1	29.1	30.7	33.2
Public. Admin.	84.6	90.5	90.5	96.4	102.7
Other services	260.6	286.5	286.5	305.8	324.7

Source: The Present Economic Situation and its Short-Term Prospects. CNPE

Studying the percentage structure by activities of the total product it is seen that this has not changed in recent years: the various sectors continue to show the same relative share.

Table 4-VII

PERCENTUAL STRUCTURE OF THE G.G.P.

Activities	Years 1969	1970	1971	1971	1972
TOTAL	100.0	100:0	100.0	100.0	100.0
Agriculture	27.3	27.3	27.4	27.3	27.4
Mining	0.1	0.1	0.1	0:1	0.1
Industry	16.1	15.8	15.7	15.7	16.1
Commerce	28.3	28.9	29.1	29.0	28.5
Transport	5.4	5.5	5.6	5.5	5.6
Electricity	1.2	1.2	1.2	1.2	1.3
Construction	1.7	1.6	1.5	1.5	1.5
Public Admin.	4.9	4.8	4.7	4.7	4.7
Other Services	15.0	14.9	14.8	14.9	14.9

Source: The Present Economic Situation and its Short-Term Prospects. CNPE

The industrial productive sector represented 16% of the total production in the period 1969-73 without showing significant advances, which means that the industrial process in recent years has shown a certain stagnation due to the fact that the production is based, fundamentally, on traditional goods and up to the present time no inclination has been noted on the part of private enterprise to invest in new non-traditional industrial fields, except in exceptional cases.

The mining sector is under-developed due to lack of exploitation of the mineral resources.

Table 4-VIII

ANNUAL RATES OF GROWTH FOR THE VARIOUS PRODUCTIVE BRANCHES

	YEARS			
Branches	1969-70	1970-71	1971-72	1972-73
Agriculture	5.8	6.0	5.8	6.2
Mining	21.4	5.9	5.6	5.3
Industry	3.5	5.5	6.0	8.4
Commerce	7.8	6.5	5.7	4.1
Transport	6.7	7.7	5.4	7.3
Electricity	7.3	5.4	10.3	8.6
Construction	0.3	-	5.5	8.1
Public Admin.	5.2	1.7	6.5	6.5
Other Services	4.3	5.4	6.7	6.1
TOTAL prod.	5.7	5.8	6.0	6.1

Source: The Present Economic Situation and its Short-Term Prospects. CNPE

The economic activities that have shown a rate of growth somewhat higher than the average general growth rate for 1969-71 were Commerce and Transport. In 1972 it was the Electricity sector that showed the greatest dynamism; this growth was linked to the installation of a new steam plant in the Escuintla Power Station. In addition, the electricity distribution system was extended during that year.

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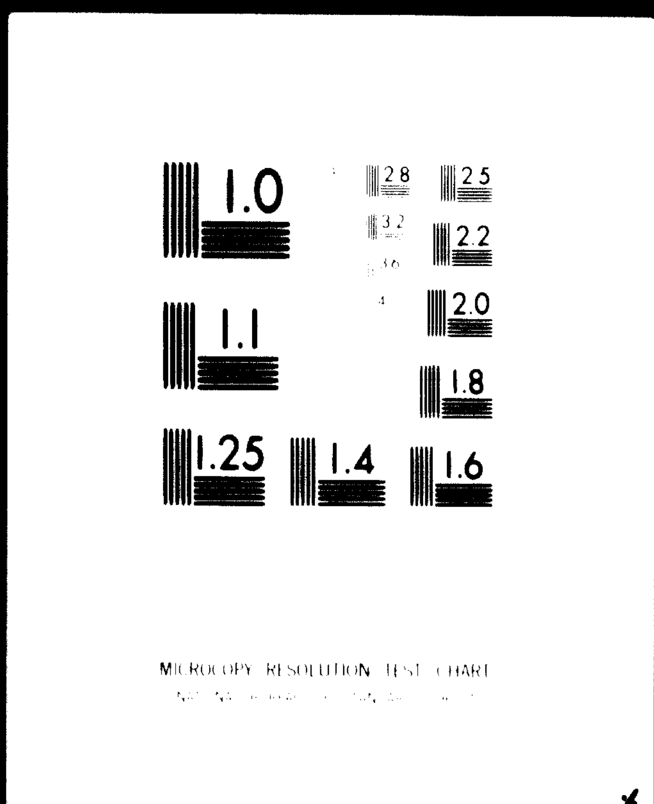

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PER CAPITA INCOME

The development of per capita income during recent years was slow, with an average cumulative annual rate of 3.9% from 1968 to 1972, while the average annual growth of total national income in the same period was 7.3%.

NATIONAL INCOME AND PER CAPITA INCOME
(at current prices)

Year	Total income	Per capita income (Quetzales)
1968	1,406,070	288,83
1969	1,481,411	294,59
1970	1,643,670	316,36
1971	1,713,493	319,14
1972	1,866,933	336,41

Source: National Accounting Section
Department of Economic Studies. Bank of Guatemala:

The continuous accelerated growth of population does not allow the obtention of data on important relative increases in per capita income.

C) NATURAL RESOURCES

Guatemala is a predominantly agricultural and cattle-raising country and its natural resources are counted particularly in the products of these two activities.

Agriculture is carried on in all parts of the country and is still the activity which reaches the highest percentage of participation in the national wealth.

The goods produced basically for national consumption are, the following: maize, beans, coffee, cotton, bananas, and sugar cane.

Livestock-raising is another important resource of Guatemala, since the breeding of cattle, sheep and pigs is carried on throughout the Republic.

The timber wealth must also be taken into account, particularly the fine species which are found in abundance in several regions of the country.

To be more specific, the nine regions into which Guatemala is divided will be analysed while considering the natural resources.

Western Plateau

This region comprises the Departments of Quezaltenango, Sololá, San Marcos, Totonicapán, Huehuetenango, Chimaltenango, Quiché and Sacatepequez. The natural resources comprise agricultural activity based on the temporary cultivation of maize, beans, wheat, potatoes and garden products and on the permanent cultivation of coffee, and sugar cane.

Stock-breeding is represented essentially by sheep and cattle raising. The coniferous forests are another source of wealth in this zone.

Ixcanchicoy

This area partially includes the Departments of Huehuetenango and Quiché. Its extremely cold climate limits agriculture to the cultivation of annual crops, its real wealth is in livestock and in the forests which cover part of the territory.

Western Pacific

The Departments of San Marcos, Quezaltenango, Retalhuleu and Suchitepéquez form the so-called Western Pacific zone.

It is one of the most favoured regions in regard to the availability and management of its resources. The topography is flat and the fertile land extensive. It is here that the most important export products such as coffee and cotton are cultivated. Likewise it is the richest livestock-raising zone in the country, having a high percentage of the cattle raised in the entire country.

Eastern Pacific

The geographical area which comprises the Department of Suchitepéquez, Sololá, Chimaltenango, Escuintla, Sacatepéquez and Jutiapa forms the eastern pacific zone.

It is another of the zones of the country having large natural resources since its land is highly productive and cultivation of coffee, cotton and bananas is very extensive. Livestock-raising also predominates throughout the region, being another of the resources worthy of being taken into account.

Valles y Tierras Altas Centrales

The region known by this name is composed of Guatemala, Baja Verapaz, El Quiché, Zacapa and El Progreso. The poor quality of the land causes agriculture and livestock-raising to be only slightly developed and their products do not represent a real resource for the development of the zone.

Oriental

This includes the Departments of Jutiapa, Jalapa, Chiquimula and Santa Rosa. The distinguishing feature of this zone is the stony and dry land which makes it difficult to extract any kind of wealth from it.

Polochic - Caribe

This zone is situated in Izabel and Alta Ver apaz. Its land is extremely humid and there is a small production of bananas, plantains, maize and beans. The most outstanding characteristic is the timber wealth and the extensive and rich livestock-raising areas.

Cobán

Cobán is in the Department of Alta Verapaz and is distinguished by a traditionally cultivated land and by a continuous erosion of the soil. Except for cultivation of coffee, the agriculture is merely a subsistence agriculture. The wealth of this zone also lies in the forests of fine timber.

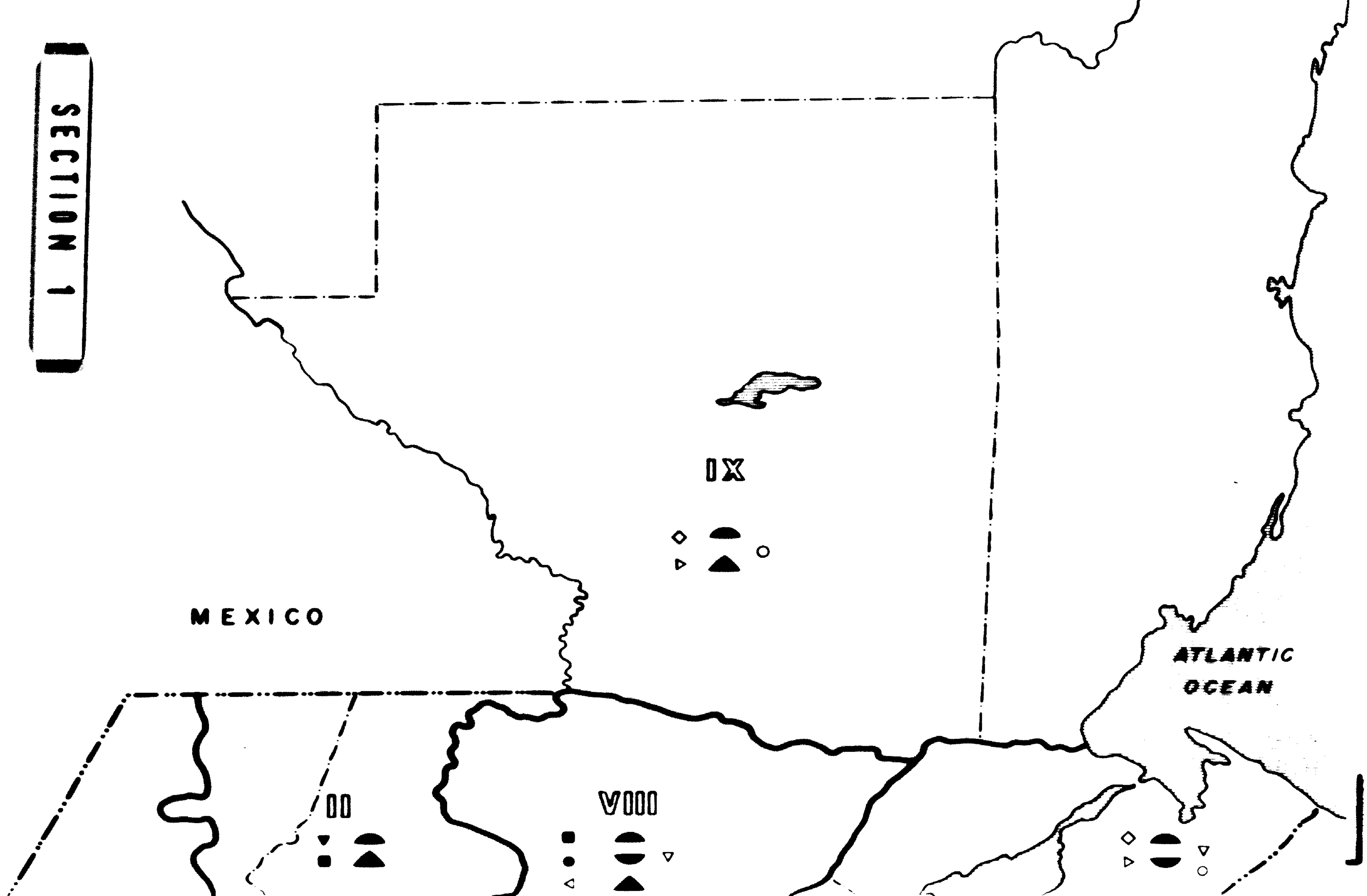
Petén

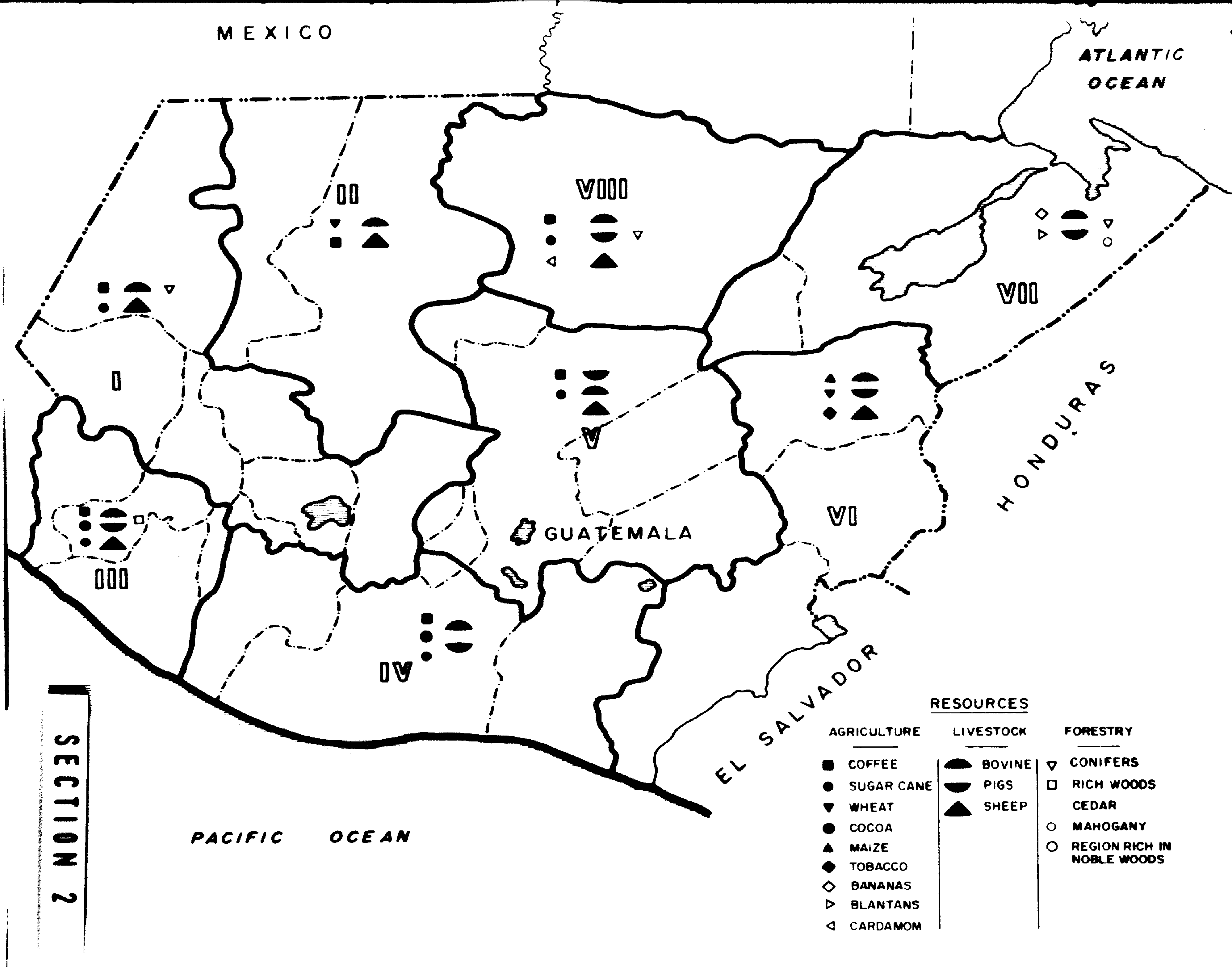
Petén is one of the Departments possessing the largest number of natural resources in Guatemala, but its deficient transport and communications infrastructure limits development.

In spite of its being very extensive, it has no land suitable for agriculture and its principal resource is the exploitation of its forests, especially its fine quality woods.

NATURAL RESOURCES (AGRICULTURAL, LIVESTOCK AND FORESTRY) OF THE MAIN REGIONS IN GUATEMALA

SECTION 1

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WHEAT
COCOA
MAIZE
TOBACCO
BANANAS
BLANTANS
CARDAMOM
LIVESTOCK
BOVINE
PIGS
SHEEP
FORESTRY
CONIFERS
RICH WOODS
CEDAR
MAHOGANY
REGION RICH IN NOBLE WOODS

SECTION 2

D) NATIONAL TRANSPORT AND COMMUNICATIONS INFRASTRUCTURE

As a result of efforts made by the governmental authorities in the past, there is at present a transport system (especially highways) which is suitable for the movement of freight, services and people, both within the country itself and connecting with Central American and other foreign countries.

The existing roadway system links all the important production and consumption centres. Also, by means of highways many regions which are not yet developed have been practically integrated into the national community.

The most important highways of the country are: the Carretera Interoceánica (Inter-Ocean Highway) (CA-9) by which the Pacific and Atlantic oceans are linked. The Carretera Interaméricana (Inter-American Highway) (CA-1) which runs through the entire country from west to east, to the borders of Mexico and El Salvador. The other basic system is the Pacific Coast Higway which crosses the southern zone, the most productive sone in the country. Junctions which connect with El Salvador (CA-8) and Honduras (CA-10) have also been constructed, thus facilitating commerce with the Central American Common Market.

Rail transport in Guatemala is oriented basically towards the exterior. At present it carries large amounts of the imports and exports of the country. The main branch is that which links the Port of San José on the Pacific with the Atlantic Coast at Izabel, passing through the Capital of the Republic.

With respect to port facilities, there are two ports on theAtlantic, Puerto Barrios and Matias de Gálvez and two on the Pacific, San José and Champerico.

There is a national air transport company, (AVIATECA) which is principally engaged in international passenger service.

It can be concluded that the transport system of Guatemala responds adequately to the new impulses toward economic development whether they are in the country itself, on a regional basis, in Central America, or oriented toward foreign trade.

<u>Main Problems</u>

1. It is considered that the different means of transport developed have led to a national sufficiency without specialization, but it has not been possible to provide for each of the means to undertake the most suitable or most

economical types of transportation (example: railways suitable for heavy and long distance transport).

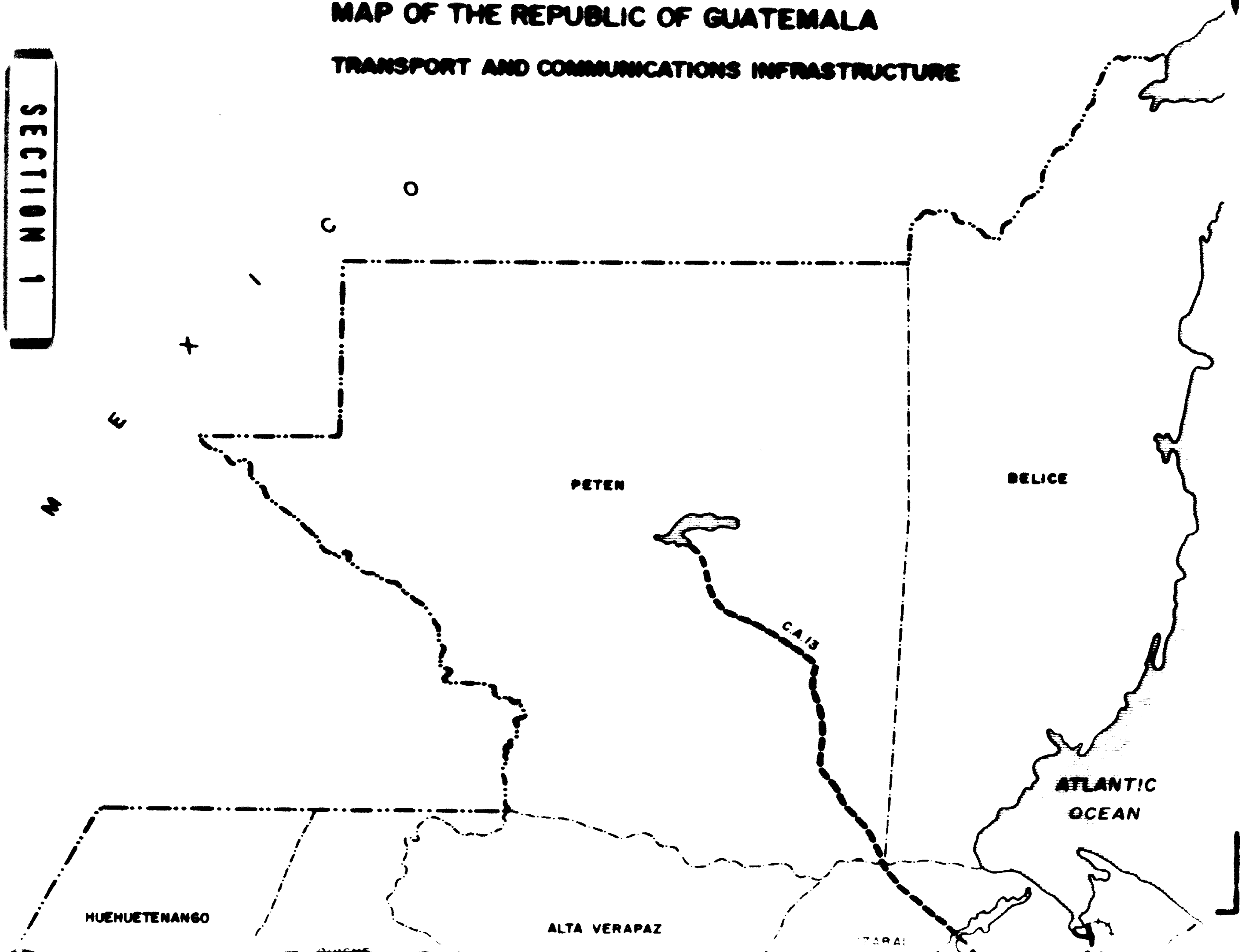
2. Another problem at the present time is poor organization and administration of the State transport enterprises such as FEGUA (Railways); Puerto Barrios; Transportes Atlántida, AVIATECA and FLOMERCA (Central America Mercantile Marine).

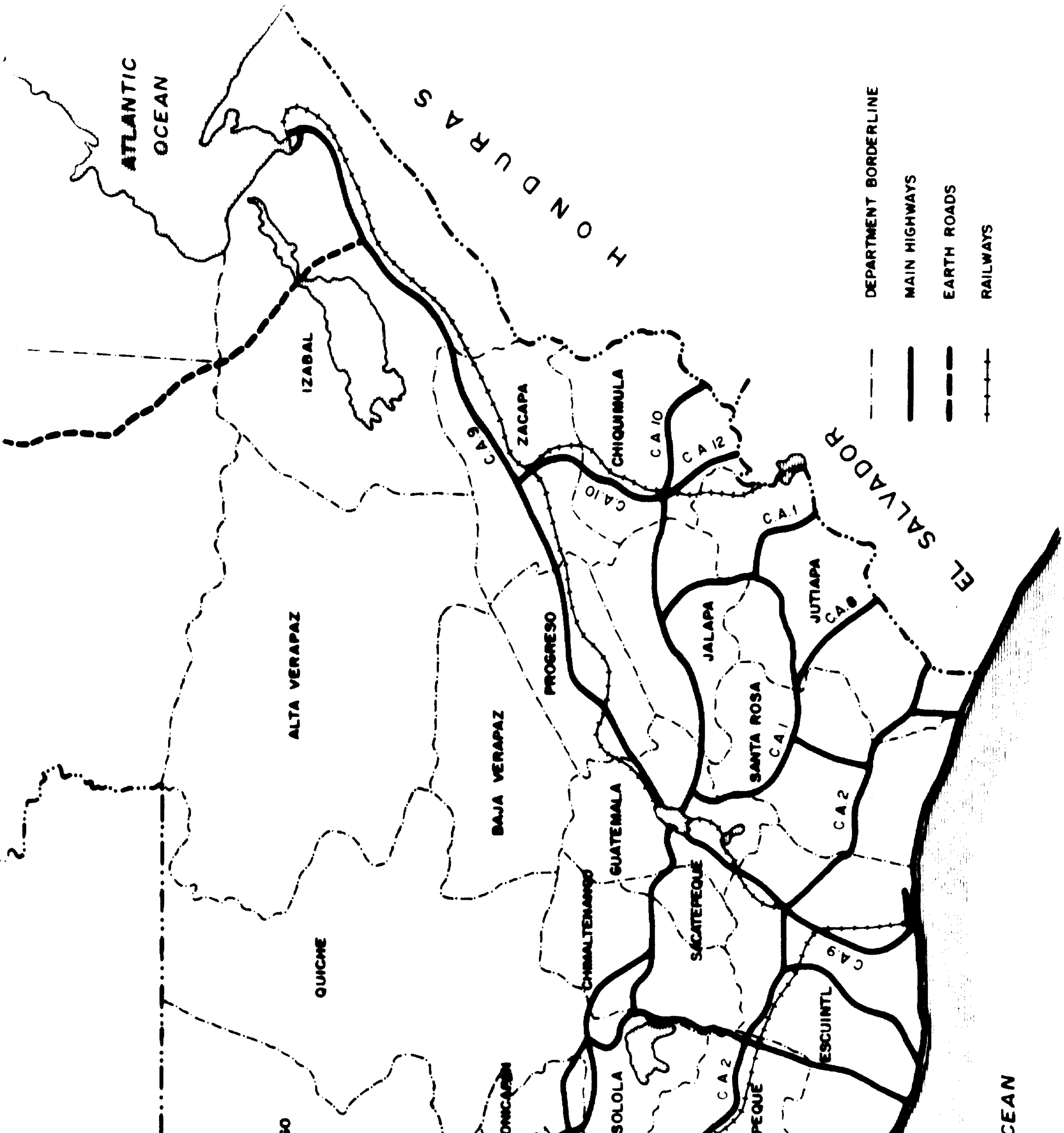
Consequently, the Government should undertake an integrated study and a study by firms, in order to improve the efficiency of each of them, and establish co-ordination between the different means of transport.

MAP OF THE REPUBLIC OF GUATEMALA

TRANSPORT AND COMMUNICATIONS INFRASTRUCTURE

SECTION 1





ATLANTIC OCEAN
HONDURAS
EL SALVADOR
PACIFIC OCEAN
DEPARTMENT BORDERLINE
MAIN HIGHWAYS
EARTH ROADS
RAILWAYS
IZABAL
ZACAPA
CHIQUIMULA
ALTA VERAPAZ
BAJA VERAPAZ
PROGRESO
JALAPA
JUTIAPA
SANTA ROSA
GUATEMALA
SACATEPEQUE
CHIMALTENANGO
QUICHE
HUEHUETENANGO
TOTONICAPAN
SOLOLA
ESCUINTL
SUCHITEPEQUE
RETALHULEU
QUEZALTENANGO
SAN MARCOS
C.A.1
C.A.2
C.A.6
C.A.9
C.A.10
C.A.12

SECTION 2

E) SOCIAL INFRASTUCTURE

Education

The illiteracy rate for theGuatemalan population is one of the highest in Latin America. In 1964, of the population over 15 years of age, 62.1% were illiterate.

The educational system of the country includes the following levels:

1) Pre-primary education
2) Primary education
3) Intermediate education
4) Higher education

Public and private schools in the Republic of Guatemala are as follows:

Year	Pre-primary	Primary schools			Inter-mediate level	Ind. centres Annexes A. Prim.	Uni-versities
		Urban	Rural	Night			
1968	381	5,712	3,970	395	1,467	86	4
1969	385	5,509	4,442	385	1,479	95	4
1970	408	6,040	4,697	392	1,658	82	5 (a)

Source: Statistical Annual of the Department of Statistics, 1970

(a) 1 National University and 4 private universities.

In spite of the fact that efforts are being made to extend the educational system, it has not succeeded in covering the educational needs. At the primary level approximately 43.7% of children between 7 and 14 years of age are left without attention.

A large number of pupils leave school at the primary level which leads to a reduced index of production in the educational programmes. Out of every 100 children registered in the first grade, at the primary level, only 20 graduate from the sixth grade (1).

At the intermediate level there is a high rate of desertion, although less than at the primary level.

The index of production for the basic cycles (pre-vocational) is 60.5% and for diversified, 31.3%. At the higher educational level (university) the index of production is 20.3%. (1).

The desertion rate considerably increases the cost per graduate student.

It is considered that the educational system is not producing either the quality or the kinds of graduates needed by the community. There is a pronounced inclination toward

(1) Source: Human Resources Section, CNPE.

theoretical studies and few educational programmes in the technical fields.

The greater part of the educational programme lacks a specific declaration of aims, goals. scope and strategies.

The National Development Plan, 1971-1975 includes among its educational policies the improvement of the quality of the human resources having already received a certain amount of training.

Health

In Guatemala the mortality rates are rather high, which reflects the deficient sanitary conditions. For 1970 the general mortality rate was 17.0 for every thousand inhabitants.

The diseases that attack the Guatemalan population most frequently are enumerated below:

CAUSES OF DEATH	
1. Infectious or parasitic types of diseases	66.0%
2. Childhood diseases	12.1%
3. Heart diseases	3.2%
4. Tumours	2.0%
5. Others	16.7%

Source: National Development Plan 1971-1975. Volume I, Annexe II.

The principal negative factors which cause the various diseases listed are: lack of pure drinking water in rural areas, ignorance of hygienic habits and hygienic handling of food, low per capita income chiefly in rural areas, scarcity and poor quality of housing.

The medical and para-medical personnel are extremely limited, so that for each 10,000 persons there are 2.5 doctors, 0.4 dentists, 0.07 sanitary engineers and 1.5 nurses.

There are not sufficient hospitals and beds to take care of all the patients who need them.

For the year 1971 there was the following complement of hospitals and hospital beds in the entire country:

1. Nº of Hospitals	
Total	45
General	36
Others	9
2. Nº of beds	
Total	10,632
General	8,248
Mental illnesses	1,171
Tuberculosis	1,036
Others	177
3. Health Centres	234
4. Clinics, dispensaries and others	24

Source: America in Figures 1971

The National Development Plan 1971-1975 seeks to reduce the infant mortality rate by means of protecting 80% of the infant population by vaccination against the childhood diseases.

It also seeks to improve the efficiency of the existing hospital system, the purification of the water supply in rural areas, construction of sewage systems and the extension of electrification in rural areas; that is, to emphasize preventive medicine, installation of physical resources and improvements to existing resources.

F) AGRICULTURAL AND INDUSTRIAL PRODUCTION

Agricultural Production

The agricultural production of Guatemala can be divided into three large groups according to their purpose: a) for personal national consumption, b) for national industrial consumption and c) for export. The relative participation of the three large blocks, in total value of agricultural production is the followng: 40% represents the production for personal consumption in the country, 10% industrial consumption and 50% production for export.

Within the production for consumption in the country, maize and beans occupy a dominant position which represents approximately 11% and 8% respectively of total production.

Of the limited agricultural production destined for industrial consumption, a predominance of sugar cane can be noted, which in recent years has represented 7% of the gross value of agricultural production.

The principal and traditional agricultural products for export in order of importance are coffee, cotton, bananas, cardamom and chicle. The first contributed 30 to 35% of the foreign currency income of the country from exports, the export of cotton and bananas has yielded to the country more or less between 14 and 20% of the income derived from exports.

Chief Foreign Markets for Agricultural Products

The most important buyer countries of coffee were the United States and the European Common Market.

The United States took an average of 38 to 48% (between 1968 and 1972) of the annual coffee exports, the European Common Market bought between 30 and 42% of the total coffee exported during the same period.

With respect to sales of cotton, Japan is the principal country using cotton produced in Guatemala. Between 50 and 70% of the total cotton exported goes to Japan, the European Common Market is in second place with purchases of 20 to 40% of total cotton exports.

Bananas are sold to the United States and to the European Common Market. In 1972 67% was consumed by the U.S.A. and 29% by the countries of the E.E.C.

Cardamom is sent principally to the E.E.C. (33% in 1972), to Saudi Arabia (11.4% in 1972) and to Sweden (14%) in the same year.

GUATEMALA:

AGRICULTURE AND LIVESTOCK SECTOR
GROSS PRODUCTION, INPUT AND VALUE ADDED
1958 Prices

TABLE 4-IX

	1960	1965	1970	1971	1972	% 1965/1960	% 1970/1965	% 1971/1970	% 1972/1971	% 1970/1960
Cotton	8,895.4	40,090.2	29,747.5	33,603.4	45,515.6	35.0	-5.8	13.0	35.4	12.8
Cotton seed	950.3	4,376.4	3,292.8	3,683.2	4,948.1	36.0	-5.5	11.9	34.3	13.2
Sesame	123.8	197.5	443.8	1,008.6	1,401.0	9.8	17.6	17.8	38.9	13.6
Rice, with chaffings	1,473.6	3,054.2	2,319.7	6,351.5	7,464.0	15.7	-5.4	22.0	17.5	4.6
Bananas	22,252.1	5,262.2	16,848.5	17,822.9	19,649.0	-25.0	26.0	5.8	10.2	-2.8
Coffee	87,651.5	105,300.9	105,529.6	110,077.4	118,529.0	3.8	0.2	4.3	7.7	1.9
Sugar cane (natural)	6,601.5	9,576.5	13,190.2	13,879.9	16,705.3	7.7	6.6	5.2	20.4	7.2
Sugar cane (raw sirup)	1,300.0	2,069.0	2,835.7	2,983.8	3,591.2	9.7	6.5	5.2	20.3	8.1
Sugar cane (Panela)	6,546.2	4,785.4	6,579.9	6,928.6	8,338.3	- 6.1	6.6	5.3	20.3	-
Cardamom	1,508.9	1,216.1	3,463.7	2,401.5	2,432.3	- 4.2	23.0	-30.7	1,3	8.7
Cocoa	308.6	188.1	223.0	229.9	236.9	- 9.4	3.5	3.1	3.0	- 3.2
Barley	13.3	17.0	23.8	26.5	28.6	5.0	7.0	11.3	7.9	6.0
Chicle	1,861.3	1,113.2	1,604.0	861.8	1,406.5	- 9.8	7.6	46.3	63.2	- 1.5
Abaca fibre										
Kenaf fibre	80.0	671.2	746.4	649.6	622.4	50.0	2.1	-13.0	-4.2	25.0
Beans ("frijol")	15,326.4	21,214.2	27,162.5	25,987.2	26,099.3	6.7	5.1	- 4.3	0.4	5.9
Beans, broad	860.3	928.2	1,167.7	1,203.5	1,241.0	1.5	4.7	3.1	3.1	3.1
Rubber	248.5	915.4	2,584.2	2,380.5	2,448.4	30.0	23.0	- 7.9	2.9	26.0
Lemon tea leaves	343.4	729.1	930.5	733.0	689.1	16.3	5.0	-21.0	-6.0	10.5
Citronella leaves	156.2	478.4	146.6	143.0	300.0	25.0	-21.0	- 2.5	109.8	- 0.6
Lentils	5.2	6.1	7.0	7.3	7.5	3.3	2.8	4.3	2.7	3.0
Peanuts	95.6	112.0	126.2	130.3	134.4	3.2	2.4	3.2	3.1	2.8
Maize	24,713.6	34,696.6	34,073.4	35,482.1	33,759.1	6.8	- 0.2	4.1	-4.9	3.2
Potatoes	1,214.6	1,948.5	1,479.1	1,627.2	1,790.0	[illegible]	- 5.4	10.0	10.0	2.0
Tobacco	1,019.8	1,637.1	2,121.8	2,446.2	2,305.1	[illegible]	5.3	15.3	-5.8	7.6
Wheat, with chaffings	2,591.4	4,856.2	3,793.5	4,636.5	5,620.0	13.4	- 4.8	22.2	21.2	3.9
Garden produce	14,863.2	16,926.0	19,679.4	20,289.6	20,913.4	2.6	[illegible]	[illegible]	3.1	2.9
Fruit	15,698.0	18,417.6	21,413.6	22,077.4	22,761.3	[illegible]	4.1	3.1	3.1	3.2
Other agricultural products	19,835.1	14,024.2	15,07[illegible]	15,882.6	[illegible]		[illegible]	5.3	9.8	3.4
Total agricultural products.	227,537.8	294,507.5	316,610.8	333,535.0	366,330.4	3	[illegible]	5.3	9.8	3.4

GUATEMALA: AGRICULTURE AND LIVESTOCK SECTOR
GROSS PRODUCTION, INPUT AND VALUE ADDED
1958 Prices

Table 4 IX (Continued)

	1960	1965	1970	1971	1972	r 1965/1960	r 1970/1965	r 1971/1970	r 1972/1971	r 1970/1960
Livestock	81,516,6	106,386.7	158,227,2	196,366.2	204,524.3	5.5	8.4	24.1	4.1	6.9
Forestry	28,660.6	36,038.5	41,032.0	42,123.5	43,813.2	4.7	2.6	-2.7	4.0	3.6
Game and fishing	3,728.9	4,165.7	5,447.1	5,369.2	5,489.4	2.2	5.5	-1.4	2.2	3.9
Gross product of the sector	341,443.8	441,098.4	521,317.1	577,393.9	620,207.3	5.4	3.4	10.7	7.4	4.3
Input	22,092.9	39,390.6	47,960.6	53,114.7	56,959.7	12.3	4.0	10.7	7.2	8.1
Value added	319,350.9	401,707.8	473,356.5	524,279.2	563,247.6	4.7	3.3	10.7	7.4	4.0

Table 4 X

EXPORTS OF COFFEE (GRAIN) REGIONAL BREAKDOWN PERIOD 1968-1972
Absolute and relative figures ('000 Quetzales FOB value)

Year	Total		U.S.A.		E.E.C.		Japan		U.K.		Canada		Others	
	Value	%	Value	%	Value	%	Value	%	Value	%	Value	%	Value	%
1968	73,419.2	100.0	35,744.3	48.7	21,794.3	29.7	1,291.0	1.7	11.3	-	634.0	0.9	13,944.3	19.0
1969	81,450.2	100.0	39,535.4	48.5	25,765.5	31.6	1,486.7	1.8	473.0	0.6	1,830.3	2.3	12,359.3	15.2
1970	100,577.2	100.0	44,273.4	44.0	38,423.9	38.2	937.4	0.9	810.3	0.8	1,727.3	1.7	14,404.9	14.4
1971	96,287.9	100.0	44,970.0	46.7	33,614.5	34.9	952.6	1.0	1,004.8	1.1	1,481.8	1.5	14,264.2	14.8
1972	105,330.8	100.0	40,013.5	38.0	44,624.6	42.4	2,795.0	2.7	983.0	0.9	1,301.0	1.2	15,613.7	14.8

EXPORTS OF COTTON REGIONAL BREAKDOWN PERIOD 1968-1972
Absolute and relative figures ('000 Qtz. FOB value)

Year	Total		U.S.A.		E.E.C.		Japan		U.K.		Others	
	Value	%	Value	%	Value	%	Value	%	Value	%	Value	%
1968	41,035.4	100.0	212.0	0.5	8,226.9	20.0	21,865.2	53.3	1,181.2	2.9	9,550.1	23.[illegible]
1969	40,348.2	100.0	112.1	0.3	15,083.7	37.4	17,250.3	42.7	895.6	2.2	7,006.5	17.4
1970	27,168.3	100.0	50.0	0.2	6,205.2	22.8	16,958.8	62.4	347.7	1.3	3,277.6	13.3
1971	25,996.6	100.0	119.5	0.5	3,953.6	15.2	17,750.1	68.3	895.8	3.4	3,277.6	12.6
1972	40,057.6	100.0	-	-	8,345.2	20.8	21,668.3	54.1	606.0	1.5	9,438.1	23.6

Table 4 - XI

EXPORTS OF BANANAS REGIONAL BREAKDOWN PERIOD 1968-1971
Absolute and relative figures ('000 Qtz. FOB value)

Year	Total		U.S.A.		Canada		E.E.C.		Sweden		Others	
	Value	%	Value	%	Value	%	Value	%	Value	%	Value	%
1968	4,166.4	100.0	3,814.3	91.5	-	-	352.1	8.5	-	-	-	-
1969	11,783.4	100.0	5,560.7	47.2	-	-	5,164.1	43.1	-	-	1,058.6	9.0
1970	13,553.8	100.0	4,964.2	36.6	-	-	7,508.1	55.4	-	-	1,081.5	8.0
1971	14,932.8	100.0	3,740.1	25.1	-	-	10,176.2	68.2	199.2	1.3	810.3	5.4
1972	17,061.8	100.0	11,491.7	67.3	-	-	4,994.7	29.3	81.6	0.5	493.8	2.9

EXPORTS OF CARDAMOM REGIONAL BREAKDOWN PERIOD 1968-1971
Absolute and relative figures ('000 Quetzales, FOB value)

Year	Total		U.S.A.		U.K.		E.E.C.		Saudi Arabia		Sweden		Others	
	Value	%	Value	%	Value	%	Value	%	Value	%	Value	%	Value	%
1967	2,349.4	100.0	383.4	16.3	15.0	0.6	462.2	19.7	399.6	17.0	693.3	29.5	359.9	16.9
1968	1,897.7	100.0	131.4	7.0	7.2	0.4	442.4	23.5	221.6	11.8	565.8	30.1	511.3	27.2
1969	2,548.7	100.0	131.4	5.1	11.8	0.5	723.8	28.4	452.7	17.8	464.1	18.2	764.9	30.0
1970	3,972.3	100.0	276.3	7.0	119.6	3.0	1,500.6	37.8	529.8	13.3	896.5	22.6	649.5	16.3
1971	3,409.4	100.0	207.8	6.1	-	-	1,128.3	33.1	389.9	11.4	476.4	14.0	1,207.0	35.4
1972	-	-	-	-	-	-	-	-	-	-	-	-	-	-

The structure of agricultural production for the next few years will not undergo any significant changes as the tendencies towards increased production are noted in the same traditional products. Although there are government policies in force to support Agricultural diversification in the direction of exports, the positive effects of such diversificati on will be seen more clearly on a long term basis.

Industrial Production

Industrial production recorded an average annual growth of 5.7% from 1968 to 1972, a fairly slow rate if one realizes that the country is in the first stages of industrialization, when greater dynamism should be evidenced. However, in countries well underway toward development, such as Guatemala, the manufacturing industries still face serious limitations of their development, the main reasons being the shortage of capital, a national technology, limited markets and poorly trained labour.

The structure of the industrial production is still, however, a reflection of incipient industrial development and demonstrates the predominance of manufacturers of the traditional kind, which in Guatemala's case amounts to approximately 80% of the total industrial product, with semi-manifactured products and metal-mechanicals accounting for the remaining 20%. This structure has been continued during the last several years without showing any significant change.

Table 4-XII

VALUE ADDED
STRUCTURE OF INDUSTRIAL PRODUCTION (In '000 Qtz. of 1958)
AVERAGE ANNUAL GROWTH

	1968	annual	1969	annual	1970	annual	1971	annual	1972
TOTAL	254,819.1	7.2	273,291.8	3.5	282,948.8	7.1	303,164.6	5.2	319,001.4
Traditional industries	197,559.6	6.6	210,683.0	4.9	221,074.1	8.9	240,842.3	5.4	253,849.6
Food	69,463.2	5.9	73,593.7	3.9	76,477.9	12.3	85,913.1	5.3	90,500.2
Beverages	27,158.5	6.5	28,940.2	5.6	30,580.7	8.3	33,149.3	5.0	34,807.6
Tobacco	15,240.5	3.4	15,760.3	11.7	17,607.4	2.4	18,045.6	2.4	18,490.9
Textiles	30,329.8	4.5	31,695.4	6.5	33,785.2	6.8	36,102.2	0.2	36,175.9
Footwear and apparel	31,476.7	5.9	33,356.5	2.3	32.557.0	5.7	34,419.3	3.5	35,635.4
Timber	3,945.5	25.9	4,970.6	11.5	5,546.4	6.7	5,173.3	12.5	5,822.5
Furniture	6,188.0	3.0	6,377.1	3.1	6,575.1	3.1	6,782.1	3.0	6,989.1
Printing	4,002.2	12.5	4,502.7	8.5	4,886.9	3.0	5,038.2	10.9	5,592.3
Tanning	3.660.8	0.3	3,673.3	-17.2	3,041.1	11.0	3,378.2	-0.1	3,373.5
Miscellaneous	6.094.4	28.2	7,813.2	28.1	10,016.4	28.1	12,841.0	28.0	16,462.2
Intermediates	26,380.3	7.0	28,232.1	4.1	29,401.6	-3.9	28,250.0	4.7	29,595.4
Paper	3,586.1	12.4	4,034.3	22.5	4,942.1	-4.7	4,705.0	22.9	5,787.0
Rubber products	4,478.9	-7.4	4,144.2	-4.7	3,948.8	-2.3	3,856.1	16.3	4,487.6
Chemicals	9,344.9	1.6	9,499.0	8.5	10,314.1	-5.4	9,750.2	1.5	9,903.7
Non metallic ore and minerals	8,970.4	7.6	10,554.6	-3.3	10,196.6	-2.5	9,938.7	-0.3	9,903.7
Metal-Mechanical Industries	30,879.2	11.3	34,376.7	-5.5	32,473.1	4.[illegible]	34,072.3	4.3	35,556.7
Metal products	21,134.6	11.6	23,600.7	-6.6	22,029.2	4.6	23,047.1	4.0	23,989.6
Non electric machinery	3,473.5	11.6	3,878.8	-6.6	3,620.[illegible]	4.6	3,789.9	4.0	3,942.8
Electric machinery and acc.	3,693.6	11.6	4,124.6	-6.6	3,849.9	4.6	4,027.8	4.0	4,192.6
Transport equipment	2,577.5	7.5	2,772.6	7.2	2,973.4	7.8	3,207.5	6.9	3,431.4

Computed in the Industrial Section of the CNPE
Source of figure: National Accounts of the Banco de Guatemala

Main Industrial Products Exported

The manufactured goods which are most important in terms of export are sugar and fresh meat, almost all of which is intended for countries outside the Central American Area.

The industrial products exported to the Central American Common Market are basically textiles, footwear, glass products, rubber (tyres), and chemical products. These industrial branches, which have encountered a satisfactory reception in the Central American markets, are the ones which have shown the greatest dynamism in recent years.

Table 4-XIII

TOTAL EXPORTS

Product	1968 Value	1968 Kg.	1969 Value	1969 Kg.	1970 Value	1970 Kg.	1971 Value	1971 Kg.
Total	222,231.5		255,409.4		290,181.6		286,935.7	782,979.4
Essential oils	1,675.2	614.7	1,824.8	542.5	2,293.4	612.8	2,354.4	660.0
Cotton	41,035.4	77,863.7	40,348.2	84,144.3	27,168.4	57,741.2	25,276.1	47,545.9
Sugar	8,028.7	56,437.4	6,657.4	46,041.7	9,152.[illegible]	57,343.0	9,854.7	66,723.2
Bananas	4,166.4	55,194.3	11,783.4	144,611.3	13,554.0	200,446.1	18,171.6	201,420.2
Alcoholic beverages	468.6	1,655.1	465.5	1,405.1	565.2	1,681.9	350.1	1,217.9
Paper bags and boxes								
Card-board	1,068.4	3,320.6	1,321.6	3,836.7	1,623.0	3,833.0	1,095.6	2,732.7
Cocoa	247.3	456.4	482.2	674.6	95.4	126.6	220.6	524.6
Coffee (grain)	73,419.3	94,292.8	81,450.1	99,649.3	100,577.2	95,124.8	96,287.9	100,044.6
Coffee, instant	1,164.4	629.1	1,418.0	778.4	2,033.9	860.6	1,746.3	770.8
Fresh meat	8,645.8	9,387.8	12,013.1	12,293.1	12,654.5	12,067.8	17,373.2	16,233.1
Chicle and chiquibul	415.8	316.9	1,747.6	1,670.2	1,557.6	1,093.6	758.1	662.9
Lead, zinc and other conc.	3,744.7	11,625.1	4,379.3	16,356.5	4,449.0	19,395.0	3,372.1	13,158.0
Fruit, fresh and preserv.	2,873.6	33,217.9	3,271.6	33,653.6	3,235.8	32,343.9	1,840.0	29,[illegible]5.9
Pulses	3,464.3	30,997.5	4,164.2	33,4[illegible]4.0	5,555.7	47,989.7	3,927.5	44,253.6
Tyres and tubes	4,127.7	2,193.9	3,776.4	2,059.5	4,389.6	2,373.0	4,629.0	2,470.9
Timber	651.3	9,9[illegible].6	1,147.7	19,545.9	1,806.9	29,776.9	1,620.3	23,118.2
Sawn Wood	188.7	537.3	138.2	337.4	188.4	416.6	187.7	630.2
Bee honey	535.2	2,586.7	565.7	2,564.5	527.2	2,035.3	925.4	3,004.8
Fish, crust. and mollusc.	931.0	782.9	1.662.1	1,124.7	2,787.2	1,851.3	2.479.1	1,621.0
Plants, seeds and flowers	2,060.2	701.2	1,945.8	725.0	4,200.9	1,283.2	195.1	196.1
Cotton seed	1,641.5	25,621.6	1,359.2	8,024.3	202.7	2,712.3	12.5	164.9
Cotton waste	-	-	-	-	-	-	720,6	8,051.8
Cardamom	-	-	-	-	-	-	3,409.5	719.4
Cut flowers and ornam. foll	-	-	-	-	-	-	1,218.8	2,076.3
Other	61,696.0	-	73,487.3	-	91,562.1	-	88,909.5	215,282.4

SOURCE: Statistical bulletin of the Banco de Guatemala

Table 4-XIII (Continued)

TOTAL EXPORTS (Annual growth taking as a base the export value)

	1968		1969		1970		1971
	Value	annual	Value	annual	Value	annual	Value
TOTAL	222,231.5	14.9	255,[illegible].4	13.6	290,181.6	- 1.1	286,935.7
Essential oils	1,657.2	10.1	1,824.8	25.6	2,293.4	2.6	2,354.7
Cotton	41,035.4	- 1.6	40,348.2	-32.6	27,168.4	- 6.9	25,276.1
Sugar	8,028.7	-17.0	6,657.4	37.4	9,152.9	7.6	9,854.7
Bananas	4,166.4	182.8	11,783.4	15.0	13,554.0	34.0	18,171.6
Alcoholic beverages	468.6	- 0.7	465.3	21.4	562.2	-38.0	350.1
Paper bags and c'board boxes	1,068.4	23.6	1,321.6	22.8	1,623.0	-32.4	1,095.6
Cocoa	247.3	94.9	482.2	-80.2	95.4	131.2	220.6
Coffee (grain)	73,419.3	10.9	81,450.1	23.4	100,577.2	- 4.2	96,287.9
Coffee, instant	,1,164.4	21.7	1,418.0	43.4	2,033.9	-14.1	1,746.3
Fresh meat	8,645.8	38.9	12.013.1	5.3	12,654.5	37.2	17,373.2
Chicle & chiquibul	415.8	320.2	1,747.6	-10.8	1,557.6	-51.3	758.1
Lead, zinc and other concentrates	3,744.7	16.9	4,379.3	1.5	4,449.0	-24.2	3,372.1
Fruit, fresh & preserved	2,873.6	13.8	3,271.6	- 1.0	3,235.8	-43.1	1,840.0
Pulses	3,464.3	20.2	4,164.2	33.4	5,555.7	-29.3	3,927.5
Rubber tyres & tubes	4,127.7	- 8.5	3,776.4	16.1	4,389.6	5.4	4,629.0
Timber	651.3	76.2	1,147.7	57.4	1,806.9	-10.3	1,620.3
Sawn wood	188.7	-26.7	138.2	36.3	188.4	- 0.3	187.7
Bee honey	535.2	5.6	565.7	- 6.8	527.2	75.5	925.4
Fish, crustac. & molluscs	931.0	78.5	1,662.1	67.6	2,787.2	-11.0	2,479.1
Plants, seeds & flowers	2,060.2	- 5.5	1,945.8	115.8	4,200.9	-95.3	195.1
Cotton seed	1,641.5	-17.1	1,359.2	-85.0	202.7	-93.8	12.5
Cotton waste	-	-	-	-	-	-	720.6
Cardamom	-	-	-	-	-	-	3,409.5
Cut flowers & ornam. foliage	-	-	-	-	-	-	1,218.8
Other	61,696.0	19.1	73,487.3	24.5	91,562.1	- 2.8	88.909.5

SOURCE: Statistical Bulletin of the Banco de Guatemala

Table 4-XIV

INDUSTRIAL EXPORTS

Product	1968		1969		1970		1971		1972	
	C.A.	R.W.	C.A.	R.W.	C.A.	R.W.	C.A.	R.W.	C.A.	R.W.
TOTAL	64,374.5	28,365.2	69,408.1	36,055.3	92,355.3	39,430.8	85,150.5	44,677.5	93,479.6	54,348.9
Food	12,393.3	19,609.9	12,234.8	23,410.6	15,247.9	28,273.2	13,052.9	33.096.9	13,795.5	39,417.0
Beverages	543.7	-	464.2	11.2	565.3	-	307.8	1.5	362.6	-
Tobacco	1,076.0	-	1,316.0	-	1,963.7	-	1,483.9	-	1,339.0	15.0
Textiles	14,330.3	1,400.5	16,416.5	1,453.6	19,565.4	1,417.5	16,598.0	1,479.4	18,456.8	1,729.2
Footwear	4,874.4	152.6	6,223.2	75.3	8,085.3	404.4	6,812.4	161.6	6,586.7	240.8
Timber & cork	449.4	1,040.0	749.2	692.3	1,217.8	992.7	1,486.8	1,406.4	1,135.0	1,901.0
Furniture & acc.	260.0	10.0	240.2	13.4	470.6	7.8	211.7	5.9	501.2	15.8
Paper & paper prod.	2,366.5	103.1	2,921.0	24.6	3,983.2	16.7	3,137.5	28.7	3,188.1	25.9
Print. & Publish.	452.7	13.7	771.0	177.0	793.3	6.3	640.4	37.5	614.8	10.8
Leather & leather goods	676.8	0.3	645.8	9.3	695.5	95.5	623.4	38.5	576.7	282.2
Rubber product	4,731.2	-	4,300.1	11.2	5,469.0	51.2	5,536.2	307.1	6,211.2	490.6
Chemicals	10,423.4	4,761.3	12,898.9	5,073.3	15,210.2	6,396.2	18,548.9	7,058.2	21,336.8	8,093.0
Oil derivatives	4.4	81.0	6.0	95.0	16.2	74.6	121.8	57.2	19.3	62.2
Non-metal minerals & ores	2,910.4	11.0	3,519.4	0.9	6,111.2	10.4	4,649.3	229.5	5,679.9	926.6
Basic metals	2,667.7	758.0	4,020.6	36.1	3,639.3	23.7	3,007.0	0.8	3,204.6	119.1
Metal product	1,656.2	259.5	950.4	739.9	1,940.3	1,042.9	1,609.2	2,432.4	2,364.4	511.3
Machinery, non-elec.	52.5	9.3	19.8	84.0	52.1	72.8	56.9	2.4	329.3	19.5
Machinery, electrical	2,732.8	53.8	121.4	3.511.1	4,430.0	260.4	4,550.1	121.9	4,931.6	184.3
Transport equip.	81.1	-	41.8	324.0	619.9	2.9	638.0	2.2	804.0	92.9
Miscellaneous Ind. products.	1,691.7	21.2	1.547.8	314.1	2.275.1	281.3	2,078.3	209.4	2,042.1	211.7

SOURCE: Industrial section of the CNPE
C.A. Central America
R.W. Rest of the World

TABLE 4 XIV (Continued)

INDUSTRIAL EXPORTS (Annual grouth)

PRODUCT	CENTRO AMERICA				REST OF THE WORLD			
	Δ 1969/1968	Δ 1970/1969	Δ 1971/1970	Δ 1972/1971	Δ 1969/1968	Δ 1970/1969	Δ 1971/1970	Δ 1972/1971
TOTAL	7.8	33.0	7.8	9.7	27.1	9.3	13.3	21.6
- Food	- 1.2	24.6	- 14.3	5.6	18.8	20.7	17.0	19.0
Beverages	- 14.6	21.7	-45.5	17.8	-	-	-	-
Tobacco	22.3	49.2	- 24.4	- 9,7	-	-	-	-
Textiles	14.5	19.1	-15.1	11.1	3.7	- 2.4	4.3	16.8
Footwear	27.6	29.9	- 15.7	- 3.3	- 51.8	450.2	- 60.0	49.0
Timber & cork	66.7	62.5	22.0	- 23.6	- 33.4	43.3	41.6	35.1
Furniture & acc.	7.6	95.9	- 55.0	136.7	34.0	- 41.7	- 24.3	167.7
Paper & paper prod.	23.4	36.3	- 21.2	1.6	- 76.1	- 32.1	71.8	- 9.7
Print. & Publish.	70.3	3.4	- 19.6	- 3.9	1191.9	- 96.4	495.2	- 71.2
Leather & leather goods	- 4.5	7.6	- 10.3	- 7.4	3000.0	926.8	- 59.6	632.9
Rubber products	- 9.1	27.1	1.2	12.1	-	357.1	499.8	59.7
Chemicals	23.7	17.9	21.9	15.0	6.5	26.0	10.3	14.6
Oil derivatives	36.3	170.0	651.8	- 84.1	16.2	- 21.4	- 23.3	8.7
Non-metal minerals & ores	20.9	73.6	-23.9	22.1	- 91.8	1055.5	2106.7	303.7
Basic metals	50.7	- 9.4	-17.3	6.5	- 95.2	- 34.3	- 96.6	1478.7
Metal Product	- 42.6	104.1	-17.0	46.9	185,1	40.9	- 58.5	18.2
Machinery, non-elec.	- 62.2	163.1	9.2	478.7	[illegible]	- 13.3	- 96.7	712.5
Machinery electrical	- 95.5	354.9	2.7	8.3	6426.2	- 92.5	- 53.1	51.1
Transport Equip.	48.4	138.30	2.9	26.0	-	- 99.1	- 24.1	4122.7
Miscellaneous Ind. products	- 8.5	46.9	- 9.6	- 1.7	1381.6	- 10.4	- 25.5	1.0

G) PRODUCTS IMPORTED

In view of the highly agricultural typology characterizing a country such as Guatemala, the majority of the products imported are intended to supply the industrial needs of the country, either by way of raw materials, semi-manufactured products, or capital goods.

The group including raw materials and semi-manufactured goods is the one which in 1972 is shown to be the most dynamic, as this group increased by almost 10% over the previous year. Only the item for construction materials recorded a slight decrease

The import of capital goods showed only slight increase (3.1%) in 1972 with respect to 1971, caused by the drop in the fields of machinery and transportation equipment, which, in 1971 had reached a very high level as a result of the purchases of a number of locomotives for FEGUA and a ship for AVIATECA.

Machinery and equipment for agriculture and industry will reach extremely high levels in 1972, showing significant increases (26 and 15% respectively).

On the other hand, consumer goods developed very slightly (2.5% over 1971).

In order to ascertain the specific products imported by Guatemala, import totals for 1960 to 1971 have been broken down to be able to determine which are the articles which play the largest part in total volume of imports.

CIF VALUE OF IMPORTS. BREAKDOWN BY ECONOMIC GROUPS (1)
PERIOD: JANUARY-DECEMBER 1972
- '000 Qtz -

ECONOMIC GROUPS	TOTAL		REST OF THE WORLD		CENTRAL AMERICA	
	Value	%	Value	%	Value	%
Total	336,550.0	100.0	266,500.0	100.0	70,000.0	100.0
Consumer goods	97,137.5	22.9	62,627.5	23.5	34,510.0	49.3
Non durable	61,800.0	18.4	31,980.0	12.0	29,820.0	42.6
Durable	29,601.1	8.8	25,051.1	9.4	4,550.0	6.5
Miscellaneous	5,736.4	1.7	5,596.4	2.1	140.0	0.2
Raw materials and interm.	162,742.0	48.3	130,052.0	48.8	32,690.0	46.7
Metallic	12,719.5	3.8	11,459.5	4.3	1,260.0	1.8
Non Metallic	110,491.0	32.8	83,681.0	31.4	26,810.0	38.3
Fuels and lubricants	24,784.5	7.3	24,784.5(a)	9.3	-	-
Buildings and materials	14,747.0	4.4	10,127.0	3.8	4,620.0	6.6
Capital Goods	76,620.5	22.8	73,820.5	27.7	2,800.0	4.0
Agricultural machinery, equipment and tools	8,288.5	2.5	7,728.5	2.9	560.0	0.8
Ind. mach., equip., and tools	49,144.0	14.6	46,904.0	17.6	2,240.0	3.2
Transport and communications equipment	19,188.0	5.7	19,188.0	7.2	-	-

FOB IMPORTS	295,657.8
IMPORT EXPENDITURE	40,842.2

(1) The distribution for the CEPAL group was calculated taking as a base the records of the Exchange Office save for Fuels and Lubricants the figures for which were taken directly from the Customs Receipts.

(a) Includes adjustment of crude oil by Qtz. 19,600,000

SOURCE: Balance of Payments Section of the Department of Economic Studies of the Banco de Guatemala.

Table 4-XVI

TOTAL IMPORTS (CIF)

Product	1968		1969		1970		1971	
	Value	Kg.	Value	Kg.	Value	Kg.	Value	Kg
TOTAL	249,433.6		250,212.6		284,273.9		303,283.1	
Dairy Products	2,496.3	3,799.4	2,243.4	2,426.7	3,032.8	4,149.4	3,305.7	3,850.3
Flour mill products	1,701.7	12,418.4	1.293.1	8,863.9	2,040.9	12.902.7	1,599.9	8,908.4
Yarns, fabrics & text. fin. goods	21,840.9	11,448.0	22,308.1	11,993.4	27,117.5	12,674.1	23,789.2	13,659.9
Knitwear	1,845.4	300.4	1,898.5	350.3	2,722.0	1,212.2	2,930.2	585.0
Footwear and textile articles	1,306.0	500.1	1,427.0	775.7	1,760.5	954.1	1,803.4	822.4
Clothing	2,721.1	430.6	3,354.9	684.0	4,039.8	773.8	3,821.4	692.5
Furniture and accessories	1,035.8	826.8	1,626.9	870.3	1,264.3	981.9	1,359.4	994.6
Wood pulp, paper & cb.	8,386.1	45,691.1	9,261.3	52,353.1	9,891.5	52.972.3	10,117.8	50,790.0
Articles of wood, paper & cardboard	4,011.1	9,630.2	3,201.4	6,995.8	3,607.6	5.601.7	3,284.0	4,895.2
Print., Publish., & allied industries	1,874.3	1.058.3	1,981.5	1.209.0	2,164.9	1.158.1	1,568.2	591.7
Rubber products	3,088.0	2,496.5	2,858.5	1,912.7	3.491.3	2,520.0	3,477.9	2.164.2
Basic industrial chemical products	26,252.0	126,522.9	25,655.2	142,150.5	29,584.3	193,357.3	36,112.9	205.879.6
Oils & fats, veg. & minerals	3,690.4	25.410.8	2,862.6	17,138.7	4,564.5	24.012.9	6,270.7	34,622.2
Oil refinery products	4,789.8	54,308.3	4,590.3	56,248.0	5,160.7	47.095.5	6,020.6	66,705.9
Glass and glassware	2,146.9	7,143.3	2.244.2	7.458.0	2.456.2	7.138.0	2,291.1	5,524.3
Iron and steel basic industries	13,979.0	95,324.1	15,057.2	92,937.2	17,843.1	89.999.0	17.640.4	80.910.6
Non. ferr. metals basic ind.	1,190.3	2,803.4	3,553.7	4,992.9	3,528.1	3,777.7	3,061.1	4.324.1
Metal prod. other than mach. & transp. equip.	11,876.9	12.949.1	9,280.7	9,445.3	12,091.3	10.099.2	12.852.9	11.288.5
Machinery, non-electrical	31,911.2	25,890.3	31,362.5	13,865.5	34.424.9	15.231.7	29,017.7	11.977.7
Electrical machinery & appliances	14,534.7	1,464.8	14.980.0	5,817.4	16,286.5	5.350.0	17,717.3	5.616.7
Vehicles, automobiles	22.027.8	15,351.1	16.792.4	13,864.4	22.167.0	14.594.1	26,107.8	15.651.6
Aircraft	1,424.0	84.2	861.5	63.4	[illegible]	59.1	978.2	52.1
Scientific instr. cont. & measur.	1.427.1	181.0	1.736.2	241.3	1.853.[illegible]	274.0	2.052.2	277.4
Photographic apparatus	1,081.4	154.7	1,096.4	143.4	1.298.9	181.0	1.471.9	179.8
Other	62.795.4	-	68.685.1	-	70.737.4	-	84.631.2	-

SOURCE: Industrial Section, NATIONAL COUNCIL FOR ECONOMIC PLANNING

Table 4-XVI (Continued)

TOTAL IMPORTS (Annual growth)

PRODUCT	Δ 1969/1968	Δ 1970/1969	Δ 1971/1970
TOTAL	0.13	13.6	6.6
Dairy products	-10.1	35.1	8.9
Flour mill products	-24.0	57.8	-21.6
Yarns, fabrics and textile finished goods	2.1	21.5	-12.2
Knitwear	2.8	43.3	7.6
Footwear and textile articles	9.2	23.3	2.4
Clothing	23.2	20.4	- 5.4
Furniture and accessories	57.0	-22.2	7.5
Wood pulp, paper and cardboard	10.4	6.8	2.2
Articles of wood, paper and cardboard	-20.1	12.6	- 8.9
Print, Publish., and allied industries	5.7	9.2	-27.5
Rubber products	- 7.4	22.1	-.0.3
Basic industrial chemical products	- 2.2	15.3	22.0
Oils and fats, veg. and mineral.	-22.4	59.4	37.3
Oil refinery products	- 4.1	12.4	16.6
Glass and glassware	4.5	9.4	6.7
Iron and steel basic industries	7.7	18.5	- 1.1
Non-ferr. metals basic industries	196.5	- 0.7	-13.2
Metal prod. other than mach & transp. equip.	-21.8	30.2	6.2
Machinery, non-electrical	- 1.7	9.7	-15.7
Electrical machinery and appliances	3.0	8.7	8.7
Vehicles, automobiles	-23.7	32.0	17.7
Aircraft	-39.5	29.4	-12.2
Scientific instr., control and measuring	21.6	8.4	8.9
Photographic apparatus	[illegible]	18.4	13.3
Other	9.3	2.9	19.6

The items Fibers, Fabrics and Finished Textiles, Basic Industrial Chemicals, Basic Industrial Iron and Steel, Metal Products other than Machinery and Transportation Equipment, Non-electrical Machinery and Apparatus, and Cars and Trucks are those which have attained the highest rates of participation; thus we see that their respective percentages per year have been%

Year	Percentage reached/ Total = 100
1968	56.3%
1969	54.1%
1970	56.1%
1971	53.8%

The most significant conclusion to be drawn from this situation is that the Metal-Mechancial industry is hardly developed at all in the country, since at the present time the most significant quantity imported is precisely that of the products coming from this branch of industry.

H) ADMINISTRATIVE INFORMATION RELATED TO DEVELOPMENT

The Government has made efforts to provide insitutions which render support and assistance, at least to the development of the most vitally necessary sectors of the economy.

The agricultural sector, which constitutes the basis of the national economy and which is characteristic of an incipient development, has the largest number of supporting organizations, listed in the following: the National Agricultural Bank (Banco Nacional Agrícola), which attends to credit assistance for the small and average-size agriculturalist; the Agricultural Trade Institute (Instituto de Comercialización Agrícola) responsible for the commercial handling of agricultural products in both the domestic and foreign markets; the Agricultural Services Office (La Dirección General de Servicios Agricolas), the main activity of which is to provide technical assistance and other support services to agricultural producers; the National Institute for Agricultural Transformation (El Instituto Nacional de Transformación Agrícola - INTA), which has as its fundamental objective, the gradual improvement of the distribution of land, working constantly toward breaking down concentrated land holdings; and FYDEP, an institution entrusted with the development and promotion of the economy of the Department of Petén.

In the Industrial Sector, there is the Natiaonal Finance Corporation (Corporación Financiera Nacional - CORFINA), which is intended to grant credits to small industry, mining operations and tourism. There is also GUATEXPRO, responsible for the promotion of manufactured products for export outside the Central American Region.

To build up tourism, there is the Guatemalan Institute of Tourism (Instituto Guatemalteco de Turismo - INGUAY).

The housing shortage is evident throughout the entire country; for this reason, the National Housing Bank (Banco Nacional de Viviendas - BANVI) has been organized, which facilitates the acquisition of homes by the population levels with the most limited resources.

In the field of Telecommunications, there is GUATEL (Guatemalan Communications Company) which in the last few years has extended its microwave network, connecting Guatemala with Central America and the rest of the world.

With regard to the training of the agricultural, industrial and service labour forces, there is the National Technical Institute of Qualification, Training and Productivity (Instituto Nacional Técnico de Capacitación Adiestramiento y Productividad).

The organizations listed above are those which have direct effect on the acceleration of the economic development of the country.

1) CONTENTS OF THE DEVELOPMENT PLAN

With the other Latin American countries, Guatemala has been one of the first to prepare Development Plans to confront economic problems, primarily those of under-development, which characterize the country.Up to now, five Five-Year Plans have been drawn up, the last for the 1971-1975 period. They are distinguished by the inclusion of more specific actions and fewer general outlines.

The goals pursued by the Development Plan now in force are:

a) To achieve sustained rate of growth (7.7%) in the GGP during the five years.

b) To distribute the profits accruing from this growth among all levels of the population, primarily the levels of most limited resources.

c) To seek to accelerate agricultural development basically, and to improve the educational and health levels of the human resources.

The fundamental objectives sought by the execution of the Plan are:

1) To increase the investment factor (Public and Private) during the 1971-1975 period (an annual increase of 1.6%).

2) To create the basic institutional means (re-structuring of the agricultural public sector) leading to increase and diversification of agricultural and livestock production as a basic element for the economic and social development of the country.

3) To reduce the vulnerability of the foreign sector.

4) To improve the distribution of earnings

5) To regionalize investments

6) To improve the organization of the public sector so that it will be an effective promoter of development.

The achievement of the expressed objectives requires great effort on the part of the country and specifically by the government. This will be oriented in two ways: 1) in the fiscal aspect, and 2) in the foreign sector. With regard to the first, fiscal administration will be improved in order to eliminate tax evasion. The effect of the San José Protocol (30% tax on imported luxury articles) and modification of taxes on vehicles circulation and income allow and increase of 43% in tax income to be anticipated. With regard to the foreign sector, the plan considers an ambitious increase of exports, basically of an agricultural nature, through increase and diversification of the production of this sector. Consequently, the greater part of the Plan is centered on providing technical and financial support to the small and average size agriculturalist.

Among other economic activities to which the Plan gives priority are the increase of tourism and the export of nickel (to date, the operational phase has not been initiated).

The Plan also considers the desirability of Guatemala's continuing to be an integral part of the Central American Common Market, inasmuch as the process of industrialization is hastened through it, the imports which contribute to the worsening of the Balance of Payments are progressively replaced. In addition, to achieve stability in the Balance of Payments, the Plan recommends the reduction of luxury goods as well as the gradual elimination of funds placed abroad on a medium term basis.

Guidelines of Industrial Policy

The guidelines for industrial policy contained in the 1971-1975 National Development Plan are of a general nature with the exception of specific actions related to the improvement of the institutional framework in order to provide for industrial development.

The principal fields of action relative to industrial development included in the Plan are listed below:

a) Consolidation and expansion of existing industry in order to extend the use of existing installed capacity, and to increasingly incorporate national raw material components in the industrial process.

b) Promotion of new industrial projects having some of the following characteristics:

1) Use of national agricultural products
2) Enjoyment of a compariative advantage in the Common Market (regional criteria in order to avoid duplication of investment in the same industrial branches and to attain an optimum locatlization)
3) With export possibilities outside the Central American area.

<u>Institutional Aspects</u>

Within the institutional framework involved with industrial development, the absence of a state financing institution specializing in the industrial sector which has the technical and financial capability to promote industrial development, is well known.

It is necessry to re-emphasize that the public sector still does not have a clear idea of the role it is to play in industrial promotion.

The institutional structure related to industrial development is the following:

1) Ministry of Economy, maximum organization of the Industrial Sector.

2) Secretariat General of the National Council of Economic Planning, responsible for industrial programming and the preparation of technical studies which provide a basis for the decisions of the Ministry of Economy.

3) The Institute of Qualification Training andProductivity, entrusted with the training and development of the human resources (INTECAP).

4) Tha National Financing Corporation (CORFINA), responsible for the financing of industrial projects identified in the plans for industrial development.

The other entities which are supposed to collaborate with the above-mentioned government organizations are:

a) The Chamber of Industry and Commerce, and appropriate organization, to discuss industrial development, in confidence, with the persons directly involved.

b) The Industrial Bank, with financial assistance to supplement he work carried out by the Financing Corporation.

Small Industry Program

Taking into consideration the fact that the small industries constitute an important level in the industrial sector, the National Development Plan seeks to support small industries by means of the following activities:

a) Granting credits to small industry through preferential credit mechanisms, channelled mainly through the Financing Corporation.

b) Providing technical assistance in order to improve productivity, product processes, and machinery installation.

c) Providing technical assistance to improve the level of promotors and workers, or to increase the business capacity of the small industries.

d) Creating an adequate institutional organization for trade negotiations, which would allow maximum advantage to be realized in the Central American markets and those outside the geographical area.

e) After establishing the institutional organization for commercialization, it should propose to the small industrialist the means to conquer the domestic market of the country.

J) INSTITUTIONAL AND ACTUAL RELATIONSHIPS OF GUATEMALA WITH THE REST OF CENTRAL AMERICA

The movements toward integration of the five Central American countries initiated the crystallization of their union in 1958 through the creation of organizations, policies and mechanisms which now constitute the Central American Common Market.

The institution which gave initial impetus to the Central American Economic Union was the Economic Union was the Economic Commission for Latin America (Comisión Económica para América Latina - CEPAL) of the United Nations which, through the series of investigations on the historical and political development of the five countries of the isthmus, discovered that they are characteristics of basically similar conditions in the economic, social and political order, and that, therefore, more rapid achievement of their development would be attained through association of the five countries. In addition to CEPAL, the recommendations issued by the Council of Economic Cooperation of the C.A. isthmus, composed of the Ministers of Economy, were also determining factors for the union.

The first basic multilateral legal instruments in which economic integration is supported are:

1) The Multilateral Treaty of Free Trade and Economic Integration (subscribed in 1958).
2) The Agreement on the program of Central American Industries of Integration (1958).

3) The Central American Agreement on the establishment of import tariffs.

4) The General Treaty of Economic Integration (1960).

OBJECTIVES AND CONTENTS OF THE PRINCIPAL AGREEMENTS

1) The proposal of the Multilateral Treaty of Free Trade was to develop a customs union among the territories of the five countries, after the perfection of the program of free exchange during a period of ten years.

2) The program of the Central American Industries of Integration had as its primary objective to act in key sectors of the economy, that is, in manufacturing industries, the installation of which would accelerate the process of industrialization. A type of programming was followed in which each country originated the development of specific industries which would involve advantageous utilization of scale economies, the improvement of productivity and quality, regulations regulations regarding capital participation of Central American origin, and the development of natural resources.

3) The Agreement on the establishment of import tariffs, in addition to seeking a customs union, sought to offer adequate customs prot ction to those economic activities which replaced imports and contributed to the industrial and agricultural development of the region. High tariffs were set for articles which were produced in Central America, and moderate or low

appraisals. for the same and other necessary elements of production not produced in the area.

4) The General Treaty of Economic Integration is a document of wider extent, giving priority emphasis to the perfecting of a free trade zone for natural and manufactured products originating in the Central American countries, as well as the adoption of a uniform Central American tariff schedule referred to the common exterior tariffs applicable to imports coming from third countries. In this sense, its provisions were responsible for establishing standards and conditions for the exchange of products, all with a view toward inter-regional trade developing on the basis of the most intelligent and rational qualification and culminating in a customs union.

Among other aspects, the General Treaty includes provisions concerning transportation (freedom of transport), financing (agreement to establish the Central American Bank of Economic Integration and Industrial Policy), adoption of an agreement concerning the program of Central American industries of integration and promises to subscribe to uniform legislation on fiscal incentives for industrial development. In agricultural matters, only the pledge to subscribe to a protocol leading to regulation of inter-change, coordinating policies of supply, and insuring the widest freedom of trade for a limited number of products was contracted. The treaty also included some provisions intended to achieve a degree of coordination at the regional level in monetary and exchange aspects, as well as the establishment of regional organizations with specific attributes.

1) The Central American Economic Council (management and coordination of the economic policy of integration).
2) The Executive Council (application and administration of the Treaty).
3) Permanent Secretariat (Supervisory functions for conformance with the treaties and as technical secretariat for the agencies of the General Treaty).

With the signing of the General Treaty, commercial relations in Central America were intensified and a series of necessary protocols were gradually signed, referring to provisions and regulation of more concrete matters considered only uperficially in the General Treaty.

The Agreement on the program of Central American integration industries, the activities of the Central American Bank of Economic Integration, and Central American activities in the area of fiscal incentives for industrial development were intended to bring about balanced growth of he different industrial sectors.

PROBLEMS PRESENTED BY THE APPLICATION OF THE LEGAL INSTRUMENTS

The period of rapid industrial expansion and inter-regional commercial exchange in the Central American isthmus ook place between 1960 and 1966, a period in which the utilization of installed capacity was intensified and industrial producion fields of easily fabricated, non-durable consumer goods

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After 1966, it became apparent that the countries had not benefitted equally from the process of economic integration.

The lack of perfection in the free trade program was clearly obvious: a relative inflexibility of external tariffs.

At the national level, decreased tax earnings due to the liberation of trade, and the application of national laws for industrial promotion, became evident. As a result of the lack of opportune factors for the tax system, the necessity of applying internal taxes on consumption became urgent.

The General Treaty also lacked a social policy aimed at standardizing the movements of inter-regional labour and to attend to such miscellaneous aspects as social security, wage policy, and the participation of workers in the integration process. For these reasons, the effect on the distribution of income in the integration process has been a negative one.

1) Obstacles encountered in the Free Trade Zone.

The problems which appeared mainly in the first 8 years that the General Treaty was in force with reference to free trade, were concerned with doubts about the origin of goods, the concession of exemption from duty, the application of taxes on consumption, and illegal trade practices. These are factors which directly affect the competitive conditions of the companies.

2) The program of integration industries has demonstrated its ineffectiveness in complying with the objectives sought: There are only two companies under this Agreement, one in Guatemala (wheels and trucks) and the other in Nicaragua (soda and chlorine).

It would appear that the contents of this Agreement lacked a well-defined policy, and the lack of decision on the part of integrationist agencies allowed various important industries, such as fertilizers, petroleum by-products some chemical and metal-mechanical products, to be established solely with the stimulus of free trade, without the programming and coordination necessary to achieve the complementation and specialization anticipated in the program of integration industries.

3) The final working out of the Central American Agreement on import tariffs has been accomplished through the signing of protocols and other instruments containing agreements on uniform customs duties.

At the present time, of 1548 items listed under commercial interchange, 98% (1511) have been made comparable. Nevertheless, the percentages of comparability attained are theoretical since the full effectiveness of the uniform customs duties in the five countries has not been reached without substantial delays; there have been lapses from 2 years and 7 months in the most rapid case to 4 years and 1 month in the slowest. In addition to all this, 3 of the new instruments of comparbility signed are not accepted by Honduras, and another is not accepted by either Honduras or El Salvador. In some cases, the differences between national appraisals and the uniform ones are considerable, and thus have a negative effect on the operation of the Common Market.

4) The Agreement on fiscal incentives for industry has not been adopted at the same time by all the five countries; there have been years of delay in the adoption of this treaty. Moreover, it has not been fully applied on the basis of uniform standards which in some substantial aspects have turned out to be quite different.

The preceding examination of the principal instruments and mechanisms of the regional industrial policy make it obvious that a revision of the entire system of instruments now in existence is necessary in order to accelerate the process of industrialization and to adapt them to the next stage of development.

PRESENT SITUATION OF THE COMMON MARKET

The armed conflict between El Salvador and Honduras, which occurred in 1969 , broke the existing legal ordinances. The General Treaty of integration became ineffective in view of the break in diplomatic and consular relations between El Salvador and Honduras.

The Common Market is now divided into two free trade zones:

1) El Salvador with Guatemala, Nicaragua and Costa Rica, and,
2) Honduras with Guatemala, Nicaragua and Costa Rica.

Honduras has a decree (97) in force which violates the basic provisions of the Central American legal system of integration.

The Economic Council (composed of the Ministers of Economy) and the Executive Council (composed of Vice-Ministers of Economy), which are the two controlling organizations, have not operated since the armed conflict in 1969.

At the present time, the permanent Secretariat (SIECA) is carrying out a series of studies in various fields of Central American economy with the idea of preparing a regional scheme of integrated development which will overcome the series of difficulties encountered during the course of Integration.

Table 4-XVII

PARTICIPATION OF GUATEMALA IN INTER-CENTRAL AMERICAN TRADE

(In millions of Central American pesos)

Year	Total C.A. trade	% of Participation by Guatemala Imports	% of Participation by Guatemala Exports
1966	174,735	19.3	31.5
1967	213,958	19.7	30.7
1968	258,294	19.1	30.0
1969	249,014	20.6	34.7
1970	299,128	21.7	35.5
1971	270,432	24.6	33.9

SOURCE: Integrated Development of Central America in the Present Decade . SIECA. October 1972

From the Table above, it will be noted that Guatemala occupies a dominant position both as purchaser and as vendor, within the Central American Common Market.

The principal industrial products imported by Guatemala from the rest of the countries are traditional articles such as food and textiles. It also purchases chemical substances and products, and paper products, in relatively important quantities.

4.3 SELECTION OF THE FUTURE INDUSTRIAL PROMOTION AND DEVELOPMENT ZONE SITE

The site selected as the future Industrial Promotion and Development Zone is the South-Western section corresponding to the provincial capitals of the Departments of Quezaltenango and Retalhuleu as first choice, and that of Suchitepéquez (Mazatenango) as second choice.

The methodology followed in arriving at the selection of this zone is based on the following phases:

1. In the first phase, the Government, in accordance with the advice of ONUDI, established the South-West, composed of the Departments of Quezaltenango, Retalhuleu, Suchitepéquez, San Marcos and Sololá, as the future industrial development zone.

2. An "in-situ" review, together with a comparative study of the economies, infrastructure and services of the rest of the departments, has confirmed the preferable nature of the previous selection of the first three departments made by the referenced Organizations.

3. Analysis of the regional economy advised the selection of the capitals of the Departments of Quezaltenango and Retalhuleu as the first choice for the establishment of the Industrial

Promotion and Development Zone, followed by the capital of Suchitepéquez (Mazatenango) as second choice.

This selection is founded on the study of the status and possibilities of the following aspects:

- Transportation and Communications Infrastructure
- Provision of services
- Availability of labour
- Available resources
- Availability of land
- Capital market
- etc.

which the capitals present in relation to the rest of the selected Departments.

4.4 ANALYSIS OF THE REGIONAL ECONOMY OF THE SELECTED ZONE

NOTE: "In the study of the regional economy, we have encountered a lack of statistical data for the development of certain subjects. For this reason, these subjects are described in a general manner."

The area selected as the future Industrial Promotion and Development Zone is located in the South-Western region and is composed of the capitals of the Departments of Quezaltenango, Retalhuleu and Suchitepéquez (Mazatenango).

This zone has varied geographical characteristifs and social-economic resources due to the fact that one part pertains to the Upper Plateau and the other to the Coast and the estuaries.

The agricultural and livestock production is the main source of wealth in the economy; among other crops, the cultivation of the following is prominent: coffee, cotton, sugar cane, rubber, fruits and cattle raising.

With regard to the nature of the infrastructure and services required for the optimum development of the zone in its industrial and civic aspects it has a normal structure although slightly deficient in some aspects, such as telephone service, electrical power, etc.

The Central Government, however, in the 1971-1975 Development Plan, has as one of its objectives the provision of the services required to solve the problems of infrastructure, education, health , etc of the region. Actually, there are specific programs centered on the extension and improvement of education at both the primary and intermediate levels, and the creation of health centers for better attendance of the population.

The degree of industrialization is very low, in spite of the existence of raw materials which could be developed. At the present time, there are the following types of industry: textiles, liquor production, cosmetics, flours and starches, cement, carbonated waters, oils, sugar refining , carpentry and body work for vehicles, but in a dimension and with a technology which it would be highly desirable to improve.

The region has a total population estimated at 1,447,695 inhabitants in a territory of 12,230.0 Km^2, with a density of 118.4 inhabitants/ Km^2; the rate of growth is 1.93%.

A considerable degree of movement of the population is to be noted due to the lack of sources of employment; thus, it is noted that the inhabitants of the Upper Plateau emigrate to the Coast and estuaries and those from the capitals of the departments to the Capital City, in search of work.

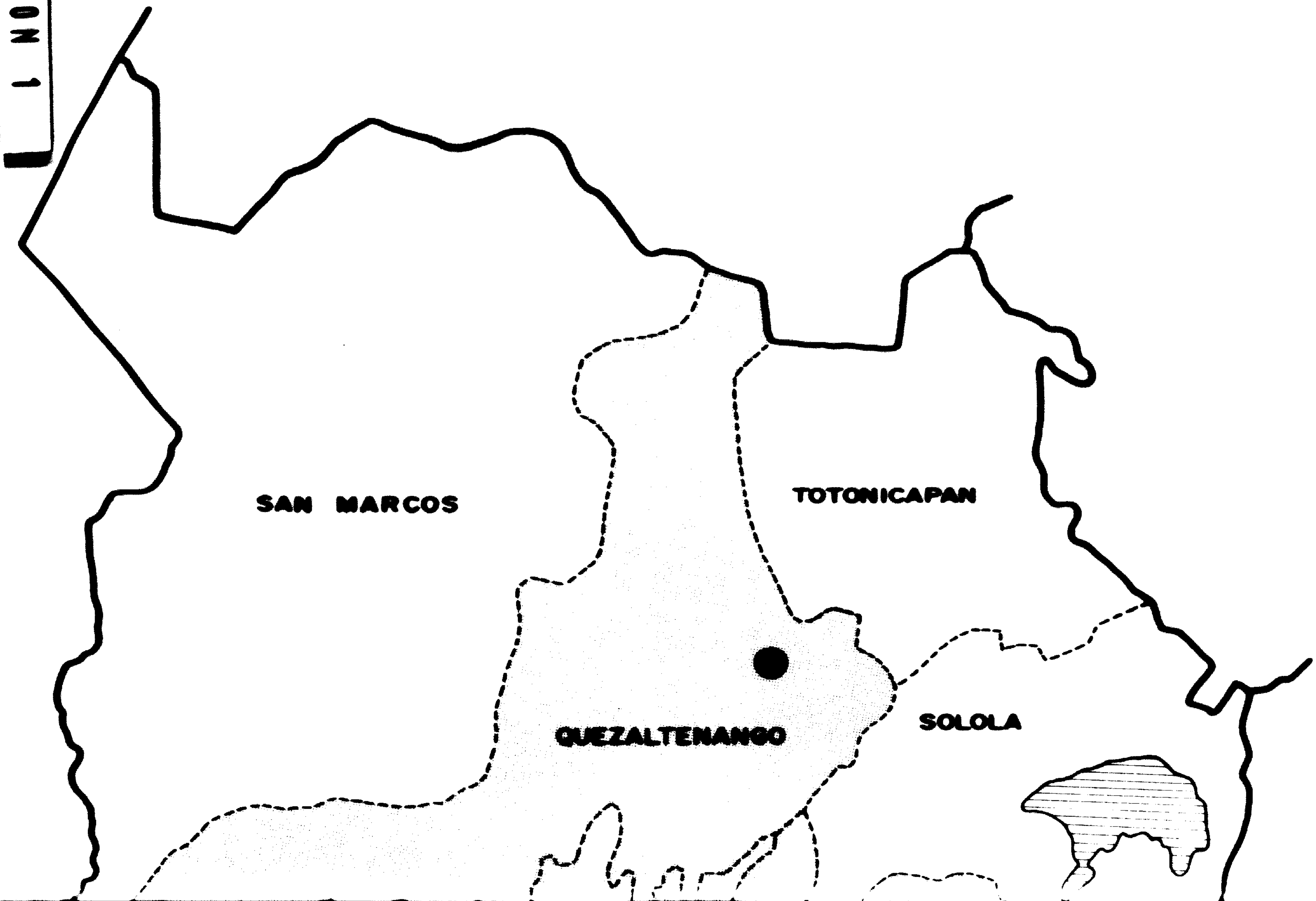
At the Departmental level, the growth and dynamic situation of the population is as follows:

Department	Territorial Extent	Population	Density inhab/Km^2	Rate of Growth
Quezaltenango	1951	341,289	174.9	2.11
Retalhuleu	1856	146,969	79.2	2.14
Suchitepequez	2510	228,336	91	2.16

The population development from 1967 to 1971 was:

SECTION 1

AREA SELECTED FOR INDUSTRIAL DEVELOPMENT AND PROMOTION CENTRES



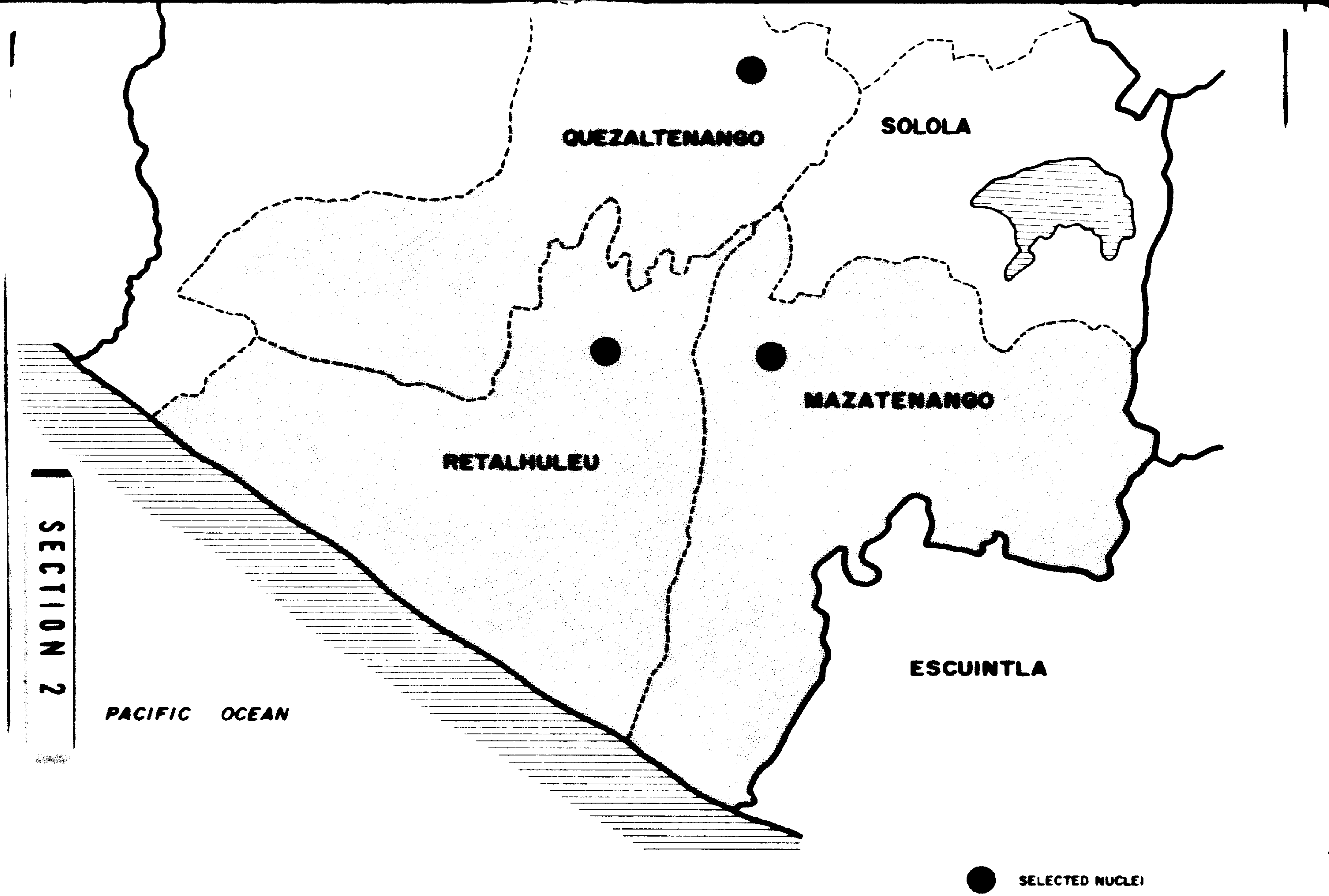

SECTION 2
QUEZALTENANGO
SOLOLA
MAZATENANGO
RETALHULEU
ESCUINTLA
PACIFIC OCEAN
SELECTED NUCLEI

Table 4-XVIII

POPULATION TRENDS

DEPARMENT

Year	Quezaltenango		Retalhuleu		Suchitepequez	
	Inhab.	% Growth	Inhab.	%Growth	Inhab.	%Growth
1967	300,166	-	129,260	-	203,199	-
1968	307,826	2.55	132,534	2.50	209,592	3.15
1969	315,622	2.53	135,839	2.49	215,044	2.60
1970	323,990	3.28	139,339	2.58	219,552	2.10
1971	333,223	2.85	143,793	3.20	225,748	2.82

DEPARTMENTAL CAPITAL

Year	Quezaltenango		Retalhuleu		Suchitepequez	
	Inhab.	% Growth	Inhab.	%Growth	Inhab.	%Growth
1967	48,867	-	16,968	-	21,839	-
1968	50,452	3.24	17,502	3.15	22,535	3.19
1969	52,590	4.24	18,370	4.96	23,050	2.29
1970	54,449	5.53	19,095	3,95	23,624	2.49
1971	56,416	3.61	20,224	5.91	24,607	4.19

The economically active population in the region is, in general terms, between 55% and 62%.

The population density for 1967-1971 was:

DENSITY INHAB/Km^2

Years	Quezaltenango Dept.	Quezaltenango Capital	Retalhuleu Dept.	Retalhuleu Capital	Suchitepequez Dept.	Suchitepequez Capital
1967	153.9	407.2	69.6	21.30	81.00	61.60
1968	157.8	420.4	71.4	22.00	83.50	63.30
1969	161.8	438.3	73.2	23.10	85.70	64.70
1970	166.1	453.7	75.1	24.00	87.50	66.4
1971	170.1	470.1	77.5	25.40	89.90	69.10

The migratory movement in the region is strongly accented at harvest time, with the inhbaitants of the Upper Plateau emigrating to the Coast and the estuaries.

The characteristics of this type of emigration are thos of transiency and of an economically unskilled population seeking new sources of income for their subsistence.

In the capitals of the departments, the largest percentage (although still very low) of skilled labour is to be found, especially in the following branches: electricity, textiles, construction and metal-mechanical (small-scale). The provisions of educational services in the capitals of the departments includes nursery schools, primary, basic and miscellaneous, both public and private in nature. The faculties of the Universities of San Carlos and Rafael Landivar are also in operation, although the lack of brief courses with immediate application for the development of the zone is noted.

AVAILABILITY OF RESOURCES

The basic natural resource which the Departments of Retalhuleu, Suchitepéquez and Quezaltenango possess id land; the first two, located on the coast and estuaries of the Pacific, are characterized by extensive plains, joined to highly fertile soil.

On the other hand, Quezaltenango, the territorial limitations of which separate it from the estuaries and extend to the Western Upper Plateau of the Republic , also has lands which are relatively superior agriculturally in comparison with the rest of the Upper Plateau (but inferior to those of the Coast). These are utilized mainly in the production of wheat, corn and fruits. A relatively important development of sheep, pork and cattle breeding is also observed in this department, as in the remainder of the Western Upper Plateau. The cattle production is lower in comparison with other regions of the country.

With reference to the Retalhuleu-Suchitepéquez zone, as a function of the previously mentioned fertility of the soil, it reveals an aptitude for the cultivation of a variety of products and high yields; however, the first choices are corn, cotton, coffee and sugar cane, in amounts which represent significant percentages of the total production of each of these products at the national level. The flat configuration of the land is also advantageous for the more intense development of livestock activities than occurs in other departments of the country which are more mountainous. Thus, there are large herds of livestock , mainly cattle.

With respect to potential mineral resources in the three departments in question, it is still not possible to confirm the existence of important quantities of some minerals. Nevertheless, particularly in Quezaltenango, the existence of mercury and sulphur deposits is assumed.

Basic Services

The availability of water in the region is satisfactory. Various programs are now being carried out to provide this important service to villages in the zone which still lack potable water. In addition to the present adequate supplies of water, there are large reserves of this resource.

With reference to electric power, the present electrical needs of the zone have been met through the efforts of the National Institute of Electrification (INDE), with possibilities for expansion in the future. From an evaluation of the present drainage system in general terms, the conclusion is reached that it is in a poor state; however, the concern of both the Central and Local governments for the solution of this problem is evident, and there are now various projects being developed for the completion and improvement of the existing drainage system.

The degree and development of telecommunications services in the three departments is deficient at the present time, since there is a much greater demand for this service than can be met by the supply now available. The difficulty noted may be overcome in the course of the present year. Through GUATEL, the national micro-wave network is being extended in the interior of the Republic, and this system will allow the satisfaction, at least in part, of the present necessities for telephone communication in the entire interior of the Republic.

The medical services made available to the population of the region are relatively adequate, as there is a National Hospital, Government Centers and Health Posts in each of the departments; there are also some private hospital centers.

As is true at the national level also, the educational problem' of the region is considerable. The absence of up-to-date statistics does not allow quantification of the deficiencies of this service nor of the educational level of the area.

Among the services which the zone does have, and which are considered satisfactory, are transportation and the business and services of the national monetary system. There are branch offices of the main banks of the country in each of the departmental capitals.

Transportation Infrastructure

The road system of the region (both highways and railroads) answers the needs of the movement of products and persons between the interior locations of each department and transport to other consumer regions of the country and abroad. In the Northern part of Quezaltenango, there is a stretch of the Inter-American Highway (CA-1) which at its western and eastern ends connects with the territories of Mexico and El Salvador. The two departments located in the South of the country (Retalhuleu and Suchitepéquez) are traversed by another branch of the internationally important highway, (CA-2) named for the Pacific Coast, which also connects the principal production centers of Guatemala with Mexico and El Salvador. There are also, in Retalhuleu and Suchitepéquez, sections of railroad which form an integral part of the national system of railroads, connecting all the principal cities of the country and the ports of the Pacific and Atlantic, key points of entry and exit for goods for foreign destinations.

To conclude, it is considered that the road system not only meets the requirements of the present economic development but is also capable of meeting the future demands of industrial and agricultural expansion of the region.

Industrialization

At the present time, the region does not have any agricultural industries of any importance; this would be the most practical type of industry to develop as a function of the proximity and abundance of agricultural products in the area. The factors which have retarded this development may well be the lack of capital and the absence of any centralization of products, the major part of which are destined for other areas of the country and abroad (coffee, cotton).

The Department of Quezaltenango, has a relatively high number of industrial establishments (approximately 112) . It occupies second place after the Capital City in terms of the number of establishments. The structure of the industrial production is diversified, but there is an obvious predominance of manufactured milling products and textiles. Wood and leather industries also show some degree of importance. There are a few companies producing drinks (wine and liquor) which absorb an important part of the labour force of the region. The origin of the raw materials used is the same department in some cases, but in other cases they are imported from other regions of the country or abroad.

Retalhuleu and Suchitepéquez, with fewer industries than Quezaltenango, have textile factories and sawmills for wooden furniture which employ a significant number of workers. In Suchitepéquez there are an important number of sugar mills and refineries (8) of considerable size; there are also some medium-size companies producing chemical products (5 establishments) and essential oils (4 establishments). In addition, there are wood industries, salt refineries and other activities oriented toward the gathering of shellfish.

With reference to possible areas of location for new industrial centers in each of the 3 departments, it is thought that in the North and North-East of the city of Quezaltenango there are advantageous conditions for the establishment of industrial centers.

The city of Retalhuleu has favourable zones for the location of industries, and the city of Mazatenango has extensive adequate areas for the formation of industrial centers, at relatively low land costs.

General Services Specifically for Agriculture

The Ministry of Agriculture, through the Office of Agricultural Services (DIGESA), is now developing specific programs in the region for the diversification of crops, as well as for the development of the present agricultural structure. For this purpose, it has Centers for Research, Training, Technical Assistance and to provide credits for the small and medium-size agriculturalist.

The Wheat Growers Union, which operates in the city of Quezaltenango, has developed an extensive program for the improvement of techniques of cultivation, as well as improving crop yield.

There are other associations which, although they do not have offices in the locations, have developed extensive programs for agricultural improvement, among which there are: the National Coffee Association; the Cotton Growers Association; the Stockmen's Association and others.

General Services Specifically for Industry

The specific services provided to the industries located in these areas are channelled through an agency of the Chamber of Industry and Commerce located in the City of the City of Quezaltenango. It is felt that the activities carried out by this organization are not sufficient to attend to all the assistance which should be made available to the type of industry developed in the region; the problems presented by the small industrialists are attributable, more than anything else, to the lack of technical and financial assistance, as well as to the absence of effective assistance in commercializing the industrial products.

4.4.1 SELECTION OF INDUSTRIAL AND COMPLEMENTARY ACTIVITIES

The fundamental objective of this chapter is that of determining in a general sense the outline of advantages-weaknesses o of the Quezaltenango-Retalhuleu-Mazatenango zone in terms of the location of various types of industry.

There are certain limitations in principle since there are factors which condition and restrict the possibility of installation. Thus we find that, due to the incipient industrial activity to be observed in the area, it is advisable to give priority to those industrial activities which will be subsidiaries of the raw material obtained in the area, since it is advisable, in initiating an industrial take-off, to start out from what is at hand, and continue to add new activities according to the requirements created.

Nine groups of industrial activities have been defined, with a total of 46 sectors. In the first definition, sectors have been omitted which, without going into extensive explanation, are not feasible in the area of the study (such as shipyards, steel and iron-works, refineries, basic non-ferrous metals industries, etc.)

Four localization factors have been established:

- Proximity of raw materials
- Proximity of market
- Supply of electric power
- Labour

Obviously, the list could be extended much more, but these four factors have been considered the most decisive.

The outline of advantages-weaknesses of the Quezaltenango-Retalhuleu- Suchitepéquez area in terms of industrial localization is not planned, therefore, in any way other than with reference to the four criteria of localization mentioned.

A system of assigning points has been followed (0, 1, 2, 3), both for the requirements of the sector (demand) and for the specific possibilities offered by the zone (supply).

Basically, the assigning of points has been made on the basis of the following criteria:

Demand:	0 -	No demand (for this factor)
	1 -	Slight demand
	2 -	Fair amount of demand
	3 -	Decisive for the industry
Supply:	0 -	Not available, either in the present or in the future (for this factor)
	1 -	Slight availability, or not available now, but available in the future
	2 -	Slight availability now, but will be available in the future
	3 -	Available in abundance

With reference to each factor, the following are considered:

- **Raw Materials**

  There are sectors which require raw materials nearby, and others which do not. In addition, the zone can, or cannot, provide the raw materials which each type of industry requires.

- **Market**

  Each sector has a specific market and can have more or less need for proximity to this market. The zone of Quezaltenango-Retalhuleu-Suchitepéquez, due to its position in relation to the main consumer center (Guatemala), is assigned a point value of 2.

- **Electric Power**

  In principle, it would always be possible to provide the zone with sufficient power. However, at the present time the zone does not have an extensive power supply and for this reason it is assigned a 2.

- **Skilled Labour**

  On a short-range basis, the proposed zone does not have available more than a limited number of labourers ready to work. For this reason, a 0 is assigned for point value in this case.

OUTLINE OF ADVANTAGES-WEAKNESSES OF QUEZALTENANGO-RETALHULEU-MAZATENANGO IN RELATION TO THE DIFFERENT INDUSTRIAL SECTORS

It has now been shown how certain value indices between 0 and 3 have been established both for supply (in the zone studied) and demand (for each industrial sector).

Once the supply and demand indices have been established for each sector, a third index is worked out which summarizes the adequacy or inadequacy of the zone in relation to each sector.

The points assigned for this index are rated in accordance with the following matrix:

Availability of Quetzaltenango-Retalhuleu-Mazatenango (SUPPLY)	REQUIREMENTS OF THE SECTOR (DEMAND)				
		0	1	2	3
	0	2	1	1	0
	1	2	3	1	1
	2	2	2	3	1
	3	1	2	2	3

The values of the index of adequacy have the following meaning:

0 - The possibility of installation is excluded

1 - Installation is very difficult

2 - Installation is indifferent

3 - The zone is ideal for installation

The the following , a Table is drawn up indicating, by sectors and by localization factors, the demand index (1st. column), the supply index (2nd column) , and the resulting adequacy index (3rd column).

The total of the indicators is always 0 when a 0 value appears in the adequacy index of any localization factor.

Table 4.XIX

INDICATORS OF WEAK AND STRONG POINTS BY SECTORS

	Prox of Raw Material	Prox of Markets	Elec Power	Qualif Labour	Total Indicator
1 FOOD	3 3 3	0 2 2	1 2 2	0 0 2	9
1 01 Preserves, anim. orig.	3 3 3	0 2 2	1 2 2	0 0 2	9
1 02 Preserves, veg. origin	3 3 3	0 2 2	3 2 1	0 0 2	8
1 03 Dairy products	2 1 1	3 2 1	2 2 3	0 0 2	7
1 04 Preserves, fish	3 0 0	0 2 2	3 2 1	0 0 2	0
1 05 Flour & Bakery prod	1 1 3	3 2 1	3 2 1	1 0 1	6
1 06 Sugar refining	3 3 3	0 2 2	1 2 2	2 0 1	8
1 07 Cocoa & chocolate	2 1 1	0 2 2	2 2 3	0 0 2	8
1 08 Oils & fats	2 3 2	0 2 2	1 2 2	1 0 1	7
1 09 Coffee & derivatives	1 3 2	1 2 2	1 2 2	0 0 2	8
1 10 Miscellaneous food prod.	1 1 3	3 2 1	1 2 2	1 0 1	7
2 BEVERAGES					
2 01 Spirits and wines	2 0 1	0 2 2	2 2 3	0 0 2	8
2 02 Beer and malt	0 0 2	3 2 1	1 2 2	1 0 1	6
2 03 Non alcoholic beverages	0 0 2	3 2 1	2 2 3	0 0 2	8
3 TEXTILES & CLOTHING					
3 01 Textile products	0 0 2	0 2 2	3 2 1	0 0 2	7
3 02 Knitted goods	0 0 2	1 2 2	3 2 1	1 0 1	6
3 03 Other textile prod	0 0 2	1 2 2	3 2 1	0 0 2	7
3 04 Ready-made clothing	0 0 2	2 2 3	3 2 1	0 0 2	8
4 LEATHER INDUSTRY					
4 01 Tanneny products	3 3 3	0 2 2	2 2 3	1 0 1	9
4 02 Footwear	0 2 2	0 2 2	2 2 3	0 0 2	9
4 03 Other leather goods	0 2 2	3 2 1	2 2 3	0 0 2	8
5 TIMBER AND CORK					
5 01 Wood manuf. goods	3 0 0	0 2 2	2 2 3	1 0 1	0
5 02 Furniture & auxiliary industry	1 0 1	2 2 3	1 2 2	2 0 1	7

Table 4 XIX (Continued)

Sector	Prox of Raw Material	Prox of Markets	Elec Power	Qualif Labour	Total Indicator
6 CHEMICAL PRODUCTS					
6 01 Pesticides & fertilizers	3 0 0	0 2 2	2 2 3	1 0 1	0
6 02 Plastic manuf products	0 0 2	2 2 3	2 2 3	1 0 1	9
6 03 Pharmaceuticals	0 0 2	0 2 2	3 2 1	0 0 2	7
6 04 Soap and cosmetics	0 1 2	3 2 1	2 2 3	1 0 1	7
6 05 Paint, varnish & lacq	1 0 1	1 2 2	2 2 3	2 0 1	7
6 06 Other chem. products	1 0 1	1 2 2	2 2 3	2 0 1	7
7 NON METALLIC MINERALS					
7 01 Building clay	3 0 3	2 2 3	1 2 2	1 0 1	0
7 02 Glass	2 0 1	2 3 2	2 3 2	2 0 1	6
7 03 Porcelain & ceramics	1 0 1	2 3 2	2 3 2	1 0 1	6
7 04 Cement gypsum & lime	3 0 0	2 2 3	1 2 2	1 0 1	0
7 05 Cement derivatives	2 0 1	3 2 1	1 2 2	2 0 1	5
7 06 Other non-metal prod	2 0 1	2 2 3	1 2 2	2 0 1	7
8 METAL MANUF GOODS					
8 01 Tools & hardware	2 0 1	2 2 3	2 2 3	3 0 0	0
8 02 Structural metal prod	3 0 0	2 2 3	2 2 3	2 0 1	0
8 03 Agricul machinery	1 0 1	1 2 2	1 2 2	3 0 1	6
8 04 Elec appar & mach	1 0 1	1 2 2	2 2 3	3 0 0	0
8 05 Bicycles & motor cycles	1 0 1	1 2 2	1 2 2	3 0 0	0
8 06 Mech. workshops	0 1 2	3 2 1	1 2 2	3 0 0	0
9 MISCELLANEOUS					
9 01 Toys	0 0 2	0 2 2	2 2 3	2 0 1	8
9 02 Jewellery & costume jew.	0 0 2	2 2 3	2 2 3	2 0 1	9
9 03 Other industries	0 0 2	1 2 2	2 2 3	2 0 1	8

PLANNING OF A STRATEGY FOR INDUSTRIAL SITING

The data shown in the foregoing table make it possible to prepare a strategy for locating industry by sectors in the area of Quezaltenango-Retalhuleu-Mazatenango.

This strategy is summarized in the following points:

- To define the sectors which in the first place seem to be excluded

- To classify the sectors not excluded in accordance with the scoring obtained in the table. Logically the higher scoring assumes a greater probability of siting in the zone.

Taking into account that the different factors for siting have not been considered and that an exhaustive list of the said factors has not been drawn up, the enumeration that follows should be understood to be nothing more than a first approximation.

Sectors Excluded

1.04	Preservation of fish
5.01	Processing of wood
6.01	Pesticides and fertilizers
7.01	Clay for construction
7.04	Lime and gypsum, cement

8.01	Tools and hardware
8.02	Structural metal products
8.04	Electrical machinery and apparatus
8.05	Bicycles and motor-cycles
8.06	Mechanical workshops

Probable Sectors

Total indicators = 9

1.01	Preserves of meat
4.01	Tanning of skins
4.02	Footwear
6.02	Processing of plastics
9.02	Jewellery and imitation jewellery

Total indicators = 8

1.01	Preservation of vegetables
1.06	Processing and refining of sugar
1.07	Cocoa and chocolate
1.09	Coffee and by-products
2.01	Spirits (beverages)
2.04	Non-alcoholic beverages
3.04	Making-up of textiles
4.03	Other leather articles
9.01	Toys
9.03	Other industries

	Total indicators = 7
1.03	Dairy products
1.08	Oils and fats
1.10	Various foodstuffs
3.01	Articles made of textiles
3.03	Other textile products
5.02	Furniture and auxiliary industry
6.03	Pharmaceutical products
6.04	Soaps and cosmetics
6.05	Paints, varnishes and lacquers
6.06	Other chemical products
7.06	Other non-metallic products
	Total indicators = 6
1.05	Flour milling and bakery operations
2.02	Beer and malt
3.02	Knitwear
7.02	Glass
7.03	Earthenware and porcelain
8.03	Agricultural machinery
	Total indicators = 5
7.05	Cement by-products

4.4.2. GUIDELINES FOR INFRASTRUCTURAL AND SERVICE NEEDS

The present situation concerning infrastructure and services in the selected zone provides facilities that are, in principle, sufficient for the needs required by the establishment of an Industrial Development and Promotion zone.

Some of the facilities required to locate a growth centre in this zone would need small finishing touches with respect to the present situation (such as the roadway system) but the rest of the infrastructure and services require modifications that in many cases are substantial with respect to the existing situation.

The most urgent action needed is the provision of a fluid and flexible system of telephone lines for the purpose of easing the day to day operations that have to be carried out by all industrial centres. There are real deficiencies and poor telephone service with which to promote the industrial development of a zone of the type selected.

In view of the geographical division by a mountain range between Quezaltenango, Retalhuleu and Mazatenango, it would be advisable to install a tunnel between both capitals to unify the zone and to create an awareness of unity with respect to industrial development.

Water, electric power and drainage services should be re-installed in the three capital cities and adapted to the needs, both industrial and urban, that will be created by the new plan for industrial development.

In particular, works should be undertaken to ensure a good water supply and the normal drainage of all the waste generated by an increased industrial activity.

All the requirements enumerated should be considered as a real priority in order to be able to develop all the industrial activity which it is desired to increase in the zone.

Apart from this, action should be taken to solve the problems of:

Housing
Education
Health
Ports and airways infrastructure

All industrial development brings with it the demographic growth that *per se* gives rise to a series of needs that those in authority should try to forsee and provide for before they cause real problems. In this sense, the selected zones require a coherent and ordered action in the building of housing for the population growth that will occur, new educational installations (at all levels) and health centres that will be needed by the new population.

It must not be forgotten that these services are a priority condition, without which a large number of professional persons and other workers would not undertake to move to the selected zone, a question worthy of careful study by the competent governmental organs, to be taken into account at the time of implementing the project.

With regard to the roadway infrastructure, the existing system can sustain (although with certain needs) all the increase in transportation that is foreseen with the designation of the zone as an Industrial Promotion and Development Centre. It is not the same with the port infrastucture (Champerico), since the needs that will arise will overload the port structure that exists at present. It would be necessary to make preparations for the large increase in operations of receiving and moving merchandise which will be experienced in the future.

4.4.3. GUIDELINES FOR MEASURES AND INCENTIVES TO PROMOTE THE ZONE

The existing industrial structure in the Republic of Guatemala presents a number of peculiarities on which it is necessary to comment before stating the means needed to promote the zone.

- The capital city and its surrounding area is such a strong focus of attraction that it is going to be very difficult to achieve the establishment of industries in or the movement of existing industries to the other areas of the country. It must be taken into account that

Guatemala City is the most important consumer market in the country, it possesses the best infrastructure and services, it has a larger and better qualified labour force and is the best communications centre, connecting the capital with other national and international markets.

- All these attributes of the capital have resulted in nearly 70% of the existing industry being located within the metropolitan area.

For these reasons, it will be hard and difficult work to succeed in getting industrialists to invest in or move to the zone selected for industrial development, where the Government has to adopt sufficiently attractive measures to achieve the establishment of a true Centre for Industrial Promotion and Development.

From the beginning there must be an awareness that the said measures must be very beneficial for industry, otherwise the installation of industries in the selected zone will be little short of impossible.

In accordance with the characteristics of the zone and the needs for implantation, the measures that it is considered suitable to attract capital and investments in the industries and the physical movement of persons and activities are the following:

1. Obligatory exporopriation of land needed for the construction or extension of factories and imposition of rights of way for access roads, transport lines, power distribution systems and piping for liquids and gas in cases where these are needed.

2. Reduction of up to 100% of the following taxes:
   - General tax on transfer of property and legalized juridical procedures.
   - General sales tax on the purchase of capital goods and basic equipment when these are not manufactured in Guatemala.
   - Customs duties on capital goods and tools when they are not manufactured in Guatemala
   - Any excise tax or valuation tax imposed by local authorities on the establishment or extension of industrial plants installed in their area.

3. Freedom from amortization during the first ten-year period.

4. Subsidies charged to the corresponding items in the programme of public investments with a contribution of up to 10% of investment.

   Subsidies granted should be the responsibility of the Ministry of Finance to ensure that they are properly applied.

5. Preference in obtaining official loans. In the absence of other sources of financing, the central Government will establish assignations or special loans for the financing of the economic

and social activities being established in the growth center.

6. The economic and social activities being established in the Development Centre should also enjoy the following:

   - Exemption from the quotas of the urban contribution and all taxes on buildings
   - Examption from the imposition of local ordinary and special excise taxes on buildings

7. The Government should motivate local investors (in the three Departments there are possibilities) so that they may decide to invest in the industries being installed in their area.

8. A university should be established in each of the three capitals in order to encourage professional people to settle in the area and to educate future management personnel for the industries being created.

9. The lack of a qualified labour force makes it advisable to promote the school at Mazatenango, to a suitable extent, focussing its programmes toward the activities chosen for the future industrial centres.

10. For those activities which the Government considers preferential (in this case, those activities which take advantage of the resources of the area which are suitable for industrial exploitation should be taken into account) it should even participate as a para State company, subsidizing up to about 70 % of the investment necessary for the installation of the factory.

11. Recretational activities should be created in the area, or encouraged, in order to attract future workers of the Growth Centre to settle in the area.

4.5. RECOMMENDATIONS

Section 4.4.3 indicates the measures that should be adopted by the Government in order, to promote and develop the industrial potential of the chosen area, which is one of the fundamental aims of the project. In this section, therefore, only recommendations of a general kind will be made, concerning the best development of industry in the not too distant future.

Recommendations:

- The decentralization of industry is of great importance, since otherwise the Capital of Guatemala will become a total and absolute centre of the activities of the country which would being about living problems for all the inhabitants of the city.'

- The present situation of industry in Guatemala makes it advisable that the Government should adopt the measures enumerated in section 4.4.3. in order to succeed in establishing a true Centre for Industrial Promotion and Development since otherwise the project is likely to be a failure.

ANNEXE : 1

RECOMMENDATION OF PROJECTS THAT COULD ARISE FROM THE STUDY CARRIED OUT

The implementation of the present study has provided the opportunity to create an awareness of a series of problems affecting the industrial development of Guatemala and has shown that by taking suitable measures (carrying out new projects) they can be solved and in this way contribute to the industrial development of the country.

Decongestion of the metropolitan area can be achieved by taking the following steps:

- Identify the industrializable resources existing in the areas surrounding the municipalities selected.
- Make a study of the optimal siting of industrial complexes which would help to decongest the metropolitan area and at the same time serve to increase the industrial development of the Central Region of Guatemala.

The requirements in terms of experts and man/months for the implementation of the projects enumerated are the following:

Activity	Nº of experts	man/months required
- To identify the industrializable resources in the areas of the municipalities selected	3	4 months
- Optimal siting of industrial complexes to decongest the metropolitan area	1	3 months

The Industrial Decentralization study with the selection of a zone in the south-west region could include the following projects:

- A study that would identify and promote the industrializable resources of the region of South Guatemala.

- As a complementary measure new regional industrial growth centres could be planned and the establishment of industrial complexes could be planned.

- A study that discovers all the industrializable resources of the country, and especially those of the agricultural sector, with the aim of obtaining an acceleration of the necessary industrialization process that the Republic of Guatemala requires.

For the implementation of these projects the following will be needed:

Activity	No of experts	Man/months required
- Identification and promotion of industrializable resources of the South Region of Guatemala	1	3 months
- Planning of new regional industrial growth centres and the establishment of industrial complexes	1	4 months
- Identification of the industrializable resources of the country, especially those of the agricultural sector.	2	9 months

ANNEXE 2

QUESTIONNAIRES USED

QUESTIONNAIRE FOR INTERVIEWING THE COMPETENT AUTHORITIES OF THE ZONE OF POSSIBLE INDUSTRIALIZATION

FIXED DATA

Department ______________________________

Person/s interviewed ______________________________

____

Position held ______________________________

Interviewer ______________________________

Date ____________ ____________ ____________

INTERVIEW DATA

Question Nº 1

Delimitation of Department

Area of Department ______ Kms^2. Area of City ______ Km^2.

Nº of inhabitants in Department (Year 1972) ______________________________

Nº of inhabitants in the City (Year 1972) ______________________________

Evolution of Population in Department

Years	Nº of inhabitants	% of increase
1967	____________	____________
1968	____________	____________
1969	____________	____________
1970	____________	____________
1971	____________	____________

Evolution of Population in the City

Years	Nº of inhabitants	% of increase
1967	____________	____________
1968	____________	____________
1969	____________	____________
1970	____________	____________
1971	____________	____________

Establishment of the population pyramid in the Department and in the City:

Population pyramid in the Department

Population pyramid in the City

Population density per Km^2 (Year 1972)

In the Department	In the City

Migration Figures

Emigration

a) Total for Dept. (Years 1966-1972): ______________________

Annual average: ______________________

Destination centres of emigration:

Centre (Place)	Approximate № of persons	% of total emigrants

Type of persons who emigrate:

Sex	%	Age	%	Sector	%

b) Total of the City (Years 1966-1972): ______________

Annual average : ______________

Destination centres of emigration :

Centre (Place)	Approximate Nº of persons	% of total emigrants

Type of persons who emigrate:

Sex	%	Age	%	Sector	%

Remarks

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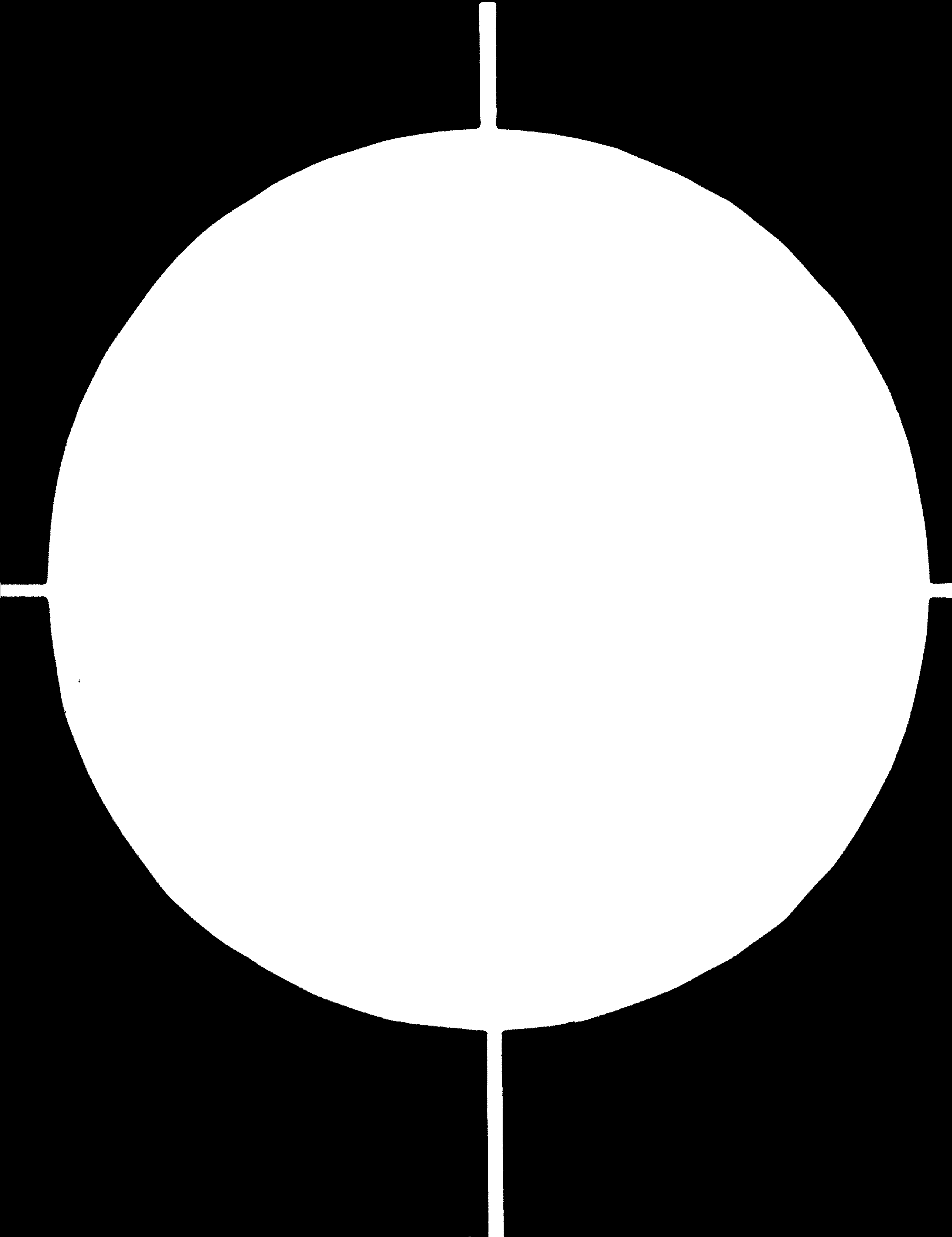

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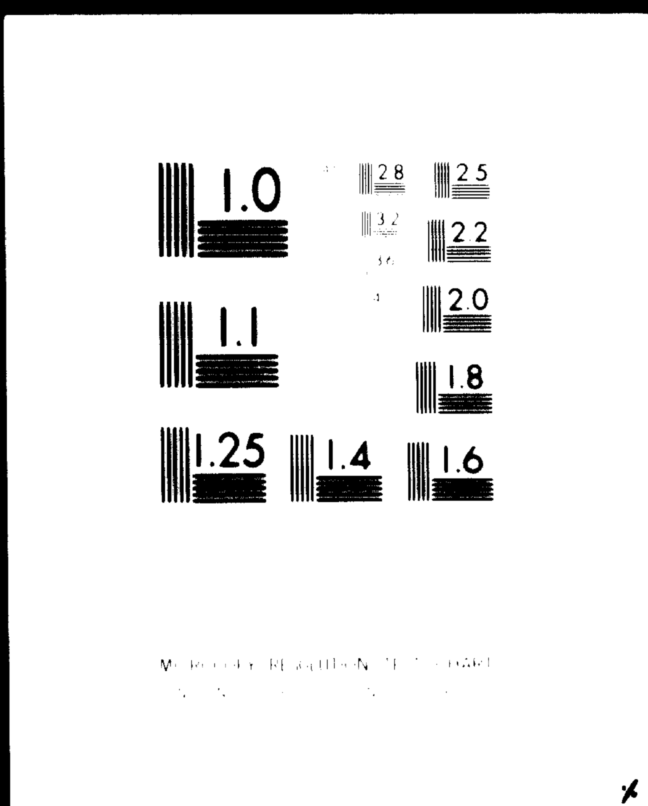

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Immigration

a) Total for Dept. (Years 1966-1972): ______________________

Annual average: ______________________

Centres or places to which they immigrate:

Centre (Place)	Approximate Nº of persons	% of total immigrants

b) Total for the City (Years 1966-1972): ______________________

Annual average: ______________________

Centres or places to which they immigrate:

Centre (Place)	Approximate Nº of persons	% of total immigrants

Type of persons who immigrate:

Sex	%	Age	%	Sector	%

Remarks:

INCOME LEVELS

In the Department

Year	Per capita income level	% of increase over previous year	Remarks on income level in the City
1966			
1967			
1968			
1969			
1970			
1971			
1971			

Qualifications and specialization of the labour force

a) In the entire Department:

No. of persons of industrial working age:

Fem. ______

Male ______

No. of persons holding university degrees: ______

Nº of qualified persons (having followed some courses)

Fem. ______

Male ______

Nº of unqualified persons Fem. ______

Male ______

Total number of persons working in:

Agriculture : ______

Industry : ______

Services : ______

b) In the City:

Nº of persons of industrial working age:

Fem: ____________

Male ____________

Nº of persons holding university degrees: ____________

Nº of qualified persons (having followed some course):

Fem: ____________

Male ____________

Nº of unqualified persons: Fem: ____________

Male ____________

LEVEL OF EDUCATION

Educational establishments in the Department:

		YES	NO	Nº of schools	Nº of graduates per annum
Urban primary schools	Dept.	___	___	________	________
	City	___	___	________	________
Rural primary schools	Dept.				
	City				
Intermediate schools	Dept.				
	City				
Higher education	Dept.				
	City				

Question Nº 2

AVAILABILITY OF RESOURCES IN THE DEPARTMENT

Natural Resources

Agri-cultural	Coffee:	____________
	Sugar cane:	____________
	Cereals:	____________
	Fruit:	____________
	WOOD:	____________
	Maize:	____________
	Beans:	____________
	Others (Specify)	____________
		____________
		____________

Remarks:

Minerals (Specify): ______________________________

____

____

____

____

Others (Specify): ______________________________

____

____

____

____

Of all the resources mentioned which are those most suitable as raw materials for the industry of the Department?

<u>Remarks:</u>

Degree to which the agriculture is mechanized and to which the cultivation is rationalized:

WATER

a) Situation regarding Water services in the Department:

Existence of drinkable water: ______________________

Approximate quantity of "pajas" : ______________________

Availability of water for industrial use (specify clearly) ______

b) Situation regarding Water services in the City:

Existence of drinkable water: ______________________

Approximate quantity of "pajas" : ______________________

Availability of water for industrial use (specify clearly) ______

Remarks:

ELECTRIC POWER

a) Supply of electric power in the Dept.: Yes ______ No ______

Supplied by: Empresa Eléctrica de Guatemala ____________

INDE ________ Municipality ____________________________

b) Supply of electric power in the City: Yes _____ No _______

Supplied by : Empresa Eléctrica de Guatemala ____________

INDE ___________ Municipality __________________________

What problems would be encountered in providing power for industry ? (specify clearly) : ____________________________

____

____

____

____

SEWAGE

Remarks on the Sewage System in the Department:

____

____

Situation regarding this service in the City: ____________________

____

____

Sewage system in the industrial zones of the Department:

____

____

Sewage system in the industrial zones of the Capital City of the Department:

____

____

TRANSPORT AND COMMUNICATIONS INFRASTRUCTURE

On Departmental level

	YES	NO	Approx. Kms in service	Kms of asphalt	Kms of earth road
Railway	___	___	________	_____	_____
Inter-American Highway C.T.	___	___	________	_____	_____
Atlantic Highway	___	___	________	_____	_____
National Highway	___	___	________	_____	_____
Departmental Highway	___	___	________	_____	_____

Remarks on the adequacy of this service for the effective industrial development of the Department: ______________________________

Remarks on the adequacy of this service for the effective industrial development of the City: ______________________________

Remarks:

__At City level__

	YES	NO	Approx. Kms in service	Kms of asphalt	Kms of earth road
Railway	___	___	________	_____	_____
Inter-American Highway C.T.	___	___	________	_____	_____
Atlantic Highway	___	___	________	_____	_____
National Highway	___	___	________	_____	_____
Departmental Highway	___	___	________	_____	_____

Remarks on the adequacy of this service for the effective development of industry in the Department: ________________________

____

____

____

____

Remarks on the adequacy of this service for the effective development of industry in the Capital City: ________________________

____

____

____

____

Remarks:

HEALTH

What services exist in the Department and in the City for attending to the population ?

		YES	NO	Nº	Nº of Beds	Private	Muni-cipal	State
Hospital	Dept.							
	City							
Health Centre	Dept.							
	City							
First Aid Post	Dept.							
	City							
Dispensary	Dept.							
	City							

TELECOMMUNICATIONS

What services exist in the Department and in the City ?

		YES	NO	Nº of Tele-graphs	Borough	Public	Domes-tic	Indus trial
Magnetic Telephone	Dept.							
	City							
Automatic Telephone	Dept.							
	City							
Telegraph	Dept							
	City							
Radio-communi-cation	Dept.							
	City							

LAND

Present situation regarding land (urban and industrial zones) in the Department and in the City:

		Price per M^2	Projects for Urban Development
Urban Zone	Dept.		
	City		
			Possible industrial-ization zones
Industrial Zone	City		
	Dept.		

Remarks:

Question Nº 3

TOTAL AGRICULTURAL PRODUCTION, NET AGRICULTURAL INCOME AND ITS DISTRIBUTION

Agricultural production in the Department

	Total Production of the Department					
Products	1967	1968	1969	1970	1971	1972

Remarks:

Total Production of the City

Products	1967	1968	1969	1970	1971	1972

Remarks:

AGRICULTURAL INCOME AND ITS DISTRIBUTION

	YEARS					
Agricultural Income	1967	1968	1969	1970	1971	1972

Remarks:

Question Nº 4

DEGREE OF INDUSTRIALIZATION

Industrial resources in the Department (Year 1972)

Kind of industry	Nº of firms	Location Sector	Places of origin of raw materials

Existing projects: ______________________________

Industrial resources in the City (Year 1972)

Kind of industry	Nº of firms	Location	Sector	Places of origin of raw materials

Existing projects: ______________________________

____

____

____

Remarks:

Question Nº 5

PROXIMITY TO THE MARKET

Agricultural production

Facility of access to nearby markets: ______________________

____

____

____

____

Means of connection with the large national consumer markets (explain clearly): ______________________________

____

____

____

____

Industrial production

Facility of access to nearby markets: ____________________

____

____

____

____

Means of connection with the large national consumer markets (explain clearly): ____________________

____

____

____

____

Remarks:

At City level

Agricultural production

Facility of access to nearby markets: ____________________

Means of connection with the large national consumer markets (explain clearly): ____________________

Industrial production

Facility of access to nearby markets: ____________________

Means of connection with the large national consumer markets (explain clearly): ____________________

Remarks:

Question Nº 6

SERVICES AVAILABLE

a) Public services

Urban services at Departmental level: ______________________

____

____

____

Extra-urban services at Departmental level: ______________

____

____

____

Urban services at City level: ___________________________

____

____

____

Extra-urban services at City level: ____________________

____

____

____

Remarks:

b) **Commercial services**

The situation at Departmental level: ______________________

____

____

____

The situation at City level: ______________________________

____

____

____

____

c) **Financial services**

The situation at Departmental level: ____________________

____

____

____

The situation at City level: ____________________

____

____

____

d) Marketing services (Explain clearly) ____________________

Systems used at Departmental level: ____________________

____

____

____

Systems used at City level: ____________________

____

____

____

e) Transport services

Services used for the supply of raw materials at Departmental level: ____________________

____

____

____

Services used for the supply of raw materials at City level:

____

____

____

Services used for the distribution of products at Departmental level:________________________________

____

____

____

Services used for the distribution of projects at City level:

____

____

____

EXISTING MEANS FOR TRANSPORT OF MERCHANDISE AT DEPARTMENTAL LEVEL: ________________________

____

____

____

____

EXISTING MEANS OF TRANSPORT OF MERCHANDISE AT CITY LEVEL: ______________________________

____

____

____

____

f) General supplies for specific agricultural purposes

Departmental level:

City level:

g) General supplies for specific industrial purposes

Departmental level:

City level:

h) Co-operatives movements noted:

Departmental level: ________________

____

____

____

____

City level: ________________

____

____

____

____

i) Other existing services:

____

____

____

____

Question Nº 7

Agricultural, commercial **and industrial** privileges and concessions **granted** to the Department by the State:

____

____

____

____

____

Question Nº 8

Suggestions with respect to the kinds of industry suitable for this Department in the event of its being selected as an industrial development centre:

QUESTIONNAIRE USED AT INTERVIEWS IN THE MUNICIPALITIES WHICH WERE POTENTIAL NUCLEI for industrial decongestion of the metropolitan area of Guatemala

Fixed data

Municipality ____________________ Department ________________

Person/s interviewed ______________________________________

Interviewer ____

Date ____

INTERVIEW DATA

Area of Municipality _____ Km^2 Area of the City ________ Km^2

Population of Municipality ________ Population of City __________

Nº of persons of industrial working age ______________________

Nº of qualified persons ________ % of University Graduates _____

Education: Establishments existing in the City:

	Yes	No	Nº of schools	Nº of graduates per annum
Urban primary schools	___	___	__________	______________________
Rural primary schools	___	___	__________	______________________
Intermediate schools	___	___	__________	______________________

Question Nº 2

Availability of natural resources in the Municipality

Agri-cultural

Coffee ______

Vegetables ______

Flowers ______

Woods ______

Cereals ______

Others (specify) ______

______

Mineral ______

______

Others (specify) ______

Prospects: ______

______

Question Nº 3

Availability of industrial resources.

Are there industries in the Municipality? Yes ______ No. ______

Kind of industry	Number	Location
______	______	______
______	______	______
______	______	______
______	______	______
______	______	______
______	______	______

Existing projects: ______

______

Industrial prospects: ______

______

Question Nº 4

Situation regarding facilities in the Municipality

WATER Is there drinkable water in the Municipality

YES ______________ NO ______________

What quantity of "pajas" are there ? ______________

Water supplies available for industry : ______________

Nª of "pajas" ______________ Resources available to the Municipality ______________

____

Projects and prospects for the future ______________

____

____

SEWAGE Is there a sewage system in the Municipality?

YES ______________ NO ______________

Does the system extend to all parts of the area ? Yes ___ No ___

In some parts ______________ In the main streets ______________

Do industries and industrial zones have sewage systems. Yes ___ No. ___

Future prospects ______________

____

TRANSPORT: Is there an urban transport system? Yes ___ No ___

Urban

Routes	Journeys/day	Nº of vehicles

Extra-urban

Routes	Journeys/day	No. of vehicles

ELECTRIC POWER

Does the municipal centre have a supply of electric power?

Yes ______________ No ______________

By whom is it supplied . Municipality ____________ INDE _______

Private Enterprise _______________

Type of generation: Hydro-electric _________ Diesel _________

HEALTH

What services exist in the municipal centre for attending the population?

	Yes	No	Nº of beds	Private	Municipal	State
Hospital	___	___	______	______	______	______
Health Centre	___	___	______	______	______	______
Health post	___	___	______	______	______	______
Dispensary	___	___	______	______	______	______

TELECOMMUNICATIONS: What services are there in the municipal centre?

	Yes	No	No.of Telephones	Borough	Public	Home	Industrial
Magnetic Telephone	___	___	____________	______	______	___	______
Automatic Telephone	___	___	____________	______	______	___	______
Telegraph	___	___	____________	______	______	___	______
Radio-Communication	___	___	____________	______	______	___	______

MEANS OF PUBLICITY

What means of publicity are there in the municipal centre?

	YES	NO	Frequency of publication
Radio-diffusion			
Newspapers			
Magazines			

Question Nº 5

Roadway infrastructure What roadway systems are there in the Municipality?

	YES	NO	Approx Kms in service	Approx Kms asphalt	Approx Kms earth roads
Railway					
Inter-American Highway					
Atlantic Highway					
National Highway					
Departmental Highway					

Question Nº 6

The present situation regarding land. (urban zones and industrial zones)

Urban zone: Area ____________________

Price per M^2 ____________________ Future urbanization projects

____

Prospects for the Municipality ____________________

____

<u>INDUSTRIAL ZONE</u>: Area ______________________

Price per M^2 ____________ possible industrialization zones ______________________

Projects for future industrial zones ______________________

____

Prospects for the Municipality ______________________

<u>Question N° 7</u>

Agricultural, Commercial and Industrial privileges and concessions of the urban and industrial centre granted to the Municipality at present (Specify) ______________________

____

____

____

____

____

<u>Question N° 8</u>

Suggestions with regard to the most suitable industry to be established in this Municipality.

____

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UNITED NATIONS
UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

INDUSTRIAL INVESTIGATIONS IN GUATEMALA

(In two volumes)

Volume II

Utilization of installed excess industrial capacity

Contract: 73/10 (12) Project: DP/GUA/72/015

TECNIBERIA
MADRID - SPAIN
August 1973

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INTRODUCTION

During the course of the decentralization study, Guatemalan industry has been considered in terms of a projective approach; nevertheless, the usefulness of any action oriented toward the future is questionable if it does not take into account what exists in the present, which is the basis that will have to provide support for the development of the activities of the country's secondary sector.

There is little doubt that measures to promote new industries will have only slight efficacy if they are not complemented by other measures tending to secure maximum utilization of the present productive capacity.

From these considerations arises the necessity of considering the present industrial status of the country, and, in particular, those aspects related to utilization of the existing productive capacity, on the basis of which this study has been carried out.

In view of the characteristics of the work, and bearing in mind the spirit which animates all of the actions of the United Nations, special attention has been given throughout the performance of the work to achieving the maximum technological transfer between those responsible for it and the specialists lending their collaboration in Guatemala; similarly, the attempt has been made in the preparation of this study to reflect the fundamental methodological aspects which have served as the basis for its execution.

. Determination and analysis of the overall complex of problems affecting the industrial activities of the country.

. Establishment of the basic guidelines which will allow these problems to be resolved, through the increase of productivity, and, at the same time, define the framework to serve as the support of the future development of the industrial activity of Guatemala.

In view of the limitations and scope of the present study, the investigation to be carried out has to be more intensive in character; in addition, it cannot attempt to establish quantitatively the degree of under-utilization of the productive capacity of Guatemala, but only verify the existence of this idle capacity, determine qualitatively the causes which lead to it, and detail the corrective actions which would have to be taken for its partial or complete elimination.

Taking these limitations into account, the investigation cannot cover the entire industrial scene, that is, it must be restricted only to certain activities. This in turn involves the necessity of establishing a selection of industries in order to reduce the field of analysis to a group of branches which are of such a nature as to entail priority of attention.

On the basis of what has been stated to this point, the composition of the three basic sections which must make up this study may be inferred:

. Selection of activities to define the principal field of investigation.
. Analysis of the information obtained from the investigation carried out to establish the industrial diagnosis
. Establishment of recommendations.

1. - OBJECTIVES AND CONCLUSIONS

1.1. - OBJECTIVES OF THE STUDY

The principal objectives of this study may be summarized in the following points:

. Detection of the causes which lead to inadequate utilization of the Guatemalan industrial productive capacity.

. Determination of the measures which would have to be adopted to increase the degree of utilization of this capacity, insofar as this may be possible.

The attainment of the first of these objectives requires that an industrial diagnosis be made, at a macroeconomic level, which, in short, must be based on an analysis of the overall complex of problems affecting the industrial activities of the country.

Achievement of thesecond of these objectives should be based on the permananet correction of the deficiencies determined by means of the previously cited diagnosis.

Consequently, the two stated objectives are for all practical purposes equal to another two which correspond to a more ambitious plan:

1.2. GENERAL CONCLUSIONS

1. In view of the absence of previous data on the idle capacity the first phase of the study was devoted to establishing a classification of industrial activities by order of importance, based on the interest of each industrial branch as far as the short term industrial development of the country is concerned.

2. The said classification by order of importance permitted the establishment of the prioritary sectors and an analysis of the corrective action to be taken which is summarized in the recommendations relative to the following industries: food, clothing, (textile, ready-made clothing and footwear) and wood; and, with a complementary character, to the handicrafts industry.

3. In the second phase, the diagnosis of the industry is carried out, showing the deficiencies of the firms in the country; among those having greater relevance are the following:

- Poor capacity for negotiating purchases
- Scarcity of qualified personnel
- Financing difficulties
- Excessive frequency of financial failures
- Inadequate trade channels
- Low level of organization
- Insufficient research work
- Inadequacy of structure of the handicraft industries.

4. Consequently, the following recommendations are established:

- The creation of purchasing centers
- Increased programmes for professional promotion
- Creation of credit cooperatives
- Creation of trading associations
- Creation of an industrial consultancy center on a national level
- Development of private consultancy
- Increased research work
- Creation of handicraft cooperatives at municipal level

5. These general recommendations are complemented by others directed especially to the activities that constitute the principal field of research, defined in Section 2 of these conclusions.

6. The study as a whole permits the conclusion that it is advisable to approach the industrial development of the country in an integrated manner, thus avoiding the dispersion of efforts which exists at the present time.

2. - SELECTION OF ACTIVITIES

It has already been noted that it is necessary to make a selection in order to determine the group of industrial activities toward which the investigation must be polarized.

One stumbles over a serious obstacle at the outset, however; the absence of reliable statistical data which allow the determination, with a minimum of exactness, of the existing idle capacity in each of the industrial sectors of Guatemala.

As a result, due to the impossibility of making a direct investigation which would permit these data to be obtained, it becomes necessary to establish certain criteria in order to make this previously mentioned selection, among which criteria the magnitude of the existing unused capacity cannot be included.

One of the first alternatives could be to give priority to those activities for which the investment in equipment would be proportionally highest. However, this criterion turns out to be insufficiently complete since it does not take into account various socio-economic aspects. For example:

. Consider an industry whose rate of production undergoes sharp variations during the year and which has low grade equipment. The seasonal nature of the production can result in work stoppages with social effects unrelated to the unused capacity relative to equipment, but not less important for this reason.

. Assume the case of an industry with sales which are concentrated in one period of the year of limited duration. Two alternatives are presented:

a) Increase the rate of production in the months preceding the sales season and reduce or eliminate productive work for the rest of the year.

b) Regulate this rate throughout the entire year.

In the first case, it would be necessary to oversize the productive capacity with respect to the second. In the second case, it would be necessary to maintain a high volume of stock for a large part of the year

From a purely economic point of view, it is feasible that the first alternative is the more interesting since it is the one which results in greater idle time than the second. That would happen if the expenses involved in the financing of working capital, in the second case, had a greater effect on the cost of the product than that which would be involved in the higher value of equipment depreciation in the first case.

. Considerations similar to the previous example may be established when the seasonal nature of the work is caused by the raw materials.

. Idle time may be produced in an industry with no relation to the utilization of equipment, even more so when the efficiency of labour is low.

The importance of this aspect depends on the characteristics of the process and is even more so when the volume of labour occupied is greater, the less the degree of mechanization of this process and the greater the influence of the activity developed by the operators in the efficiency of the machines (consider the diagrams of man-machine time utilized by production organization specialists).

. Finally, it must be pointed out that the organizational level of an industrial plant has a dominant importance in the optimization of the use of productive capacity.

As may be inferred from the preceding considerations, it is practically impossible to establish priorities relative to unused capacity without having knowledge of the extent of that unused capacity for each of the industrial activities, the determination of which also involves extreme difficulties. As an example to illustrate the statements of the preceding lines, consider two activities which have amounts of capital equipment 1 and 2, and rates of under-utilization of 50% and 10% respectively. There is no question but that, other factors being equal, it would be the first and not the second to which priority of attention would have to be given.

All of the reasoning expressed leads to insistence that, given the objectives of the project, its planning should be based on the term "productivity" more than on that of "unused capacity", a much more limited concept and one subject to errors of interpretation.

In summary, if the selection is made on the basis of partial arguments relative to idle time, setting aside the lack of accuracy which is involved in this, there is also the risk of directing attention toward sections in which the under-utilization of productive capacity is not in actual fact very significant, and, at the same time, whose role in the industrial development of the country is not relevant in nature.

As a result, it has been thought preferable to use a system of selection unrelated to the concept of unused capacity but which permits the use of a rigorous methodology and the attainment of certain results closely connected with the objectives of the study of "Industrial Investigations". It has therefore been decided to base the selection on the "degree of interest which each of the industrial activities presents in terms of the future industrial and economic development of the country". This involves, in short, the establishment of a hierarchical arrangement of these activities, the utility of which is undoubtedly a decisive element in the definition of any action tending to advance or channel the industrial development of the country on a short-range basis.

It must be emphasized that this hierarchical arrangement must be made taking into account the present composition of the activities considered, which will serve as a complement to the study of "Industrial Decentralization" in which attention is directed toward the creation of new lines of development. In brief, it is concerned with making possible the articulation of present and future industry in the development policy of Guatemala.

2.1. - METHOD OF APPROACH

The method of approach which has been defined for the establishment of the hierarchical arrangement of activities follows the diagram presented in Figure G.2.1.

First, the degree of separation at which it is going to operate must be defined , for which purpose it is necessary to bear in mind the various existing classifications of activities, and which one, or several, of them is most frequently used for the tabulation of the statistical data. The availability of these dat a, according to the various levels of separation, is another aspect which must be taken into account. Finally, it is necessary to select a level of separation which permits generalization of the conclusions obtained, for one group of each of the industrial activities of which it is composed. That is, the attempt is made to group activities with the maximum homogeneity, insofar as this is possible.

As a result of the weighing of the three factors referred to in the paragraph above, the classification which is going to be used is obtained, as well as the level at which the overall industrial complex must be broken down.

Second, after defining the preceding bases, it is necessary to establish the aspects which must be taken into account in order to determine the importance of an industrial activity within the economic framework of the country. For this purpose it is necessary to take into consideration, primarily, the basic guidelines

CHART G.I

METHOD OF APPROACH HIERARCHICAL ARRANGEMENT

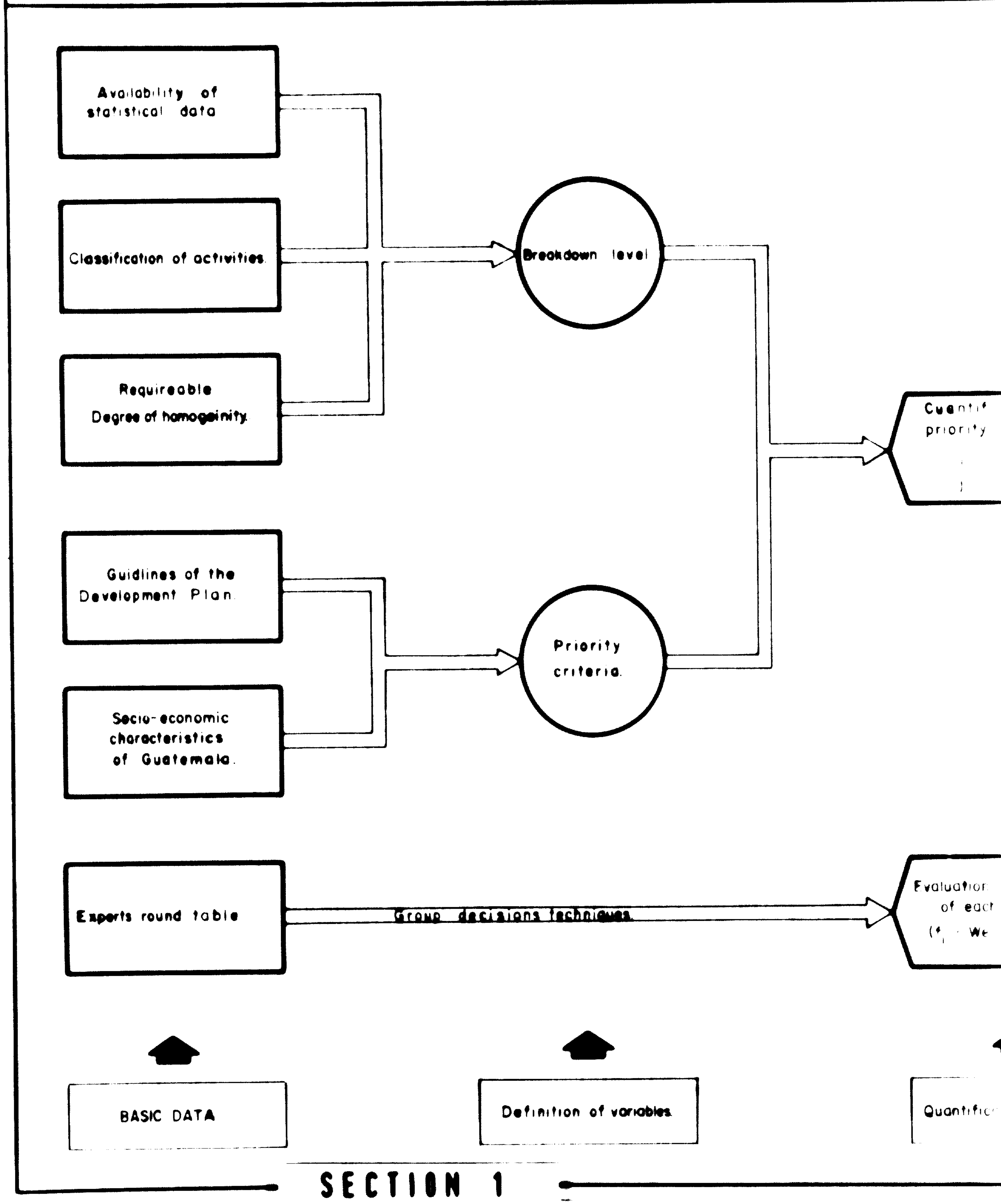
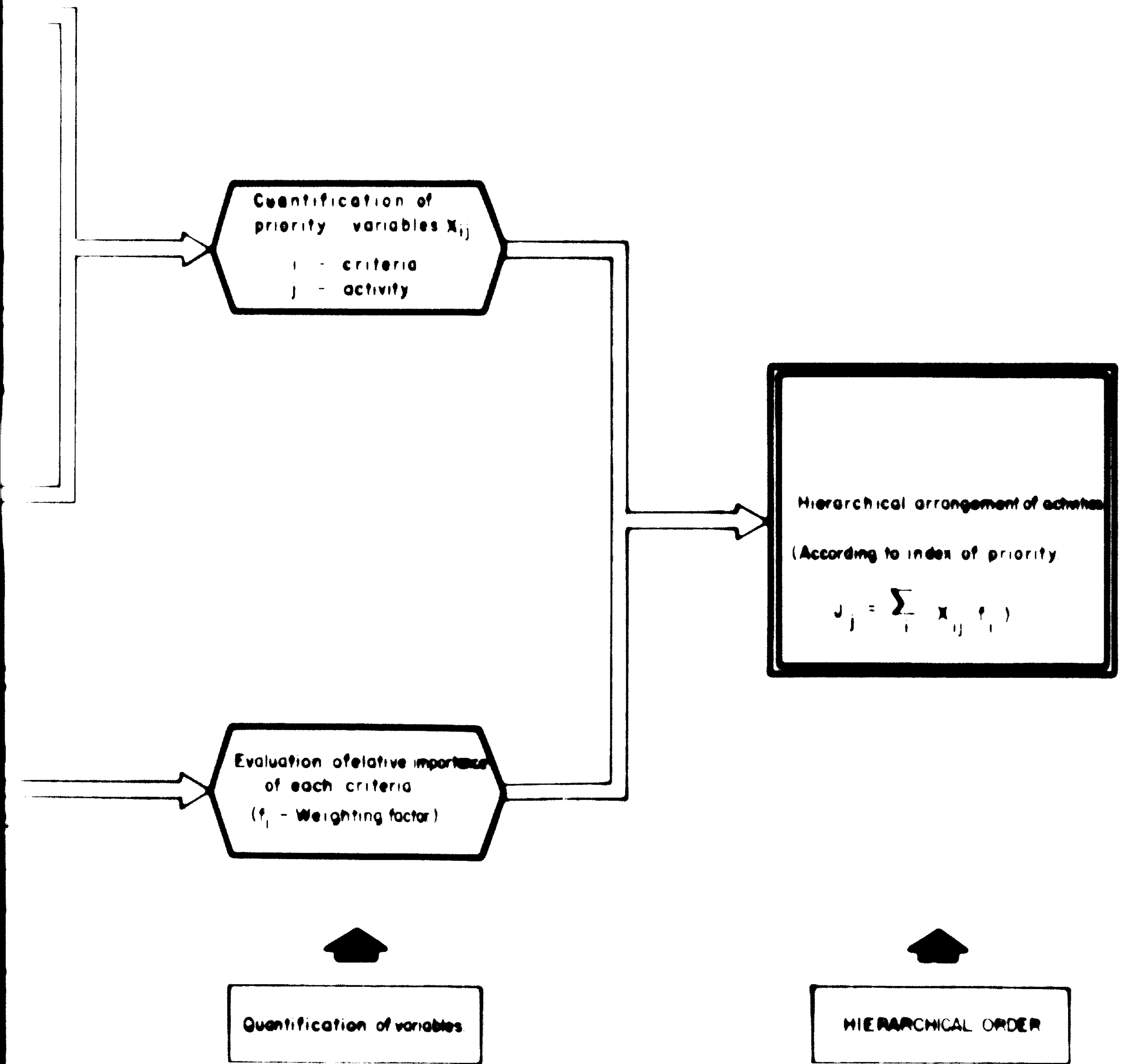


CHART 6.I

RCHICAL ARRANGEMENT OF INDUSTRIAL ACTIVITIES



SECTION 2

given in the National Development Plan and, in general, the entire pattern of economic and social characteristics for the country and its industry.

The aspects defined are, actually, the criteria of hierarchical arrangement, which constitutes the basis by which the relative importance of each activity must be established in terms of the short-range industrial development of Guatemala; obviously, however, the influence which each of these criteria must have in the determination of this importance need not be the same in all cases for any reason whatsoever. Consequently, the problem arises of evaluating the relative weights of each aspect in the final decision. Bearing in mind the impossibility of using statistical data for this purpose, and the inconvenience of assigning to one person alone the responsibility for using certain subjective reasonings, it has been considered most desirable to establish the required relative weights by means of one or more "round tables", to be held with the participation of highly qualified experts associated with the various organizations of the country. The purpose of these round tables is, therefore, to estimate the relative weight of each of the criteria to be taken into account for the establishment of the hierarchical arrangement. In order to quantify this weight, a variable is defined which is called the "Weight Factor" designated by f_i, in which the subscript i identifies the criterion considered.

The development of the round tables is planned in accordance with the following scheme, established in accordance with techniques similar to those which make up the widely known Delfos Method:

1. - Exposition of the objectives and scope of the study.

2. - Explanation of the methodology to be pursued in order to establish the classification of activities by order of importance.

3. - Description of the mechanisms by means of which the round tables will be developed in order to attain the proposed objective, that is, the evaluation of the weight factors f_i corresponding to the criteria of hierarchical arrangement considered."

The most important rules which must be followed in accordance with the group's decision making techniques are made known.

4. - Working Plan

4.1. - Preliminary consideration with respect to the positive or negative incidence which each of the criteria might have on the industrial and economic development of the country.

4.2. - Determination, by concensus, of the criterion or criteria corresponding to the level of greatest weight (level 1). This level is assigned a weight factor $f_1 = 10$, as a point of reference.

4.3. - Determination of the criterion or criteria corresponding to the lowest level (level n) by concensus.

4.3.1. - Request for evaluation of level n

4.3.2. - If the values obtained present a distribution greater than one unit (considering closed intervals, that is, including the minimum/maximum values), comparative discussion of level n with respect to 1 is planned.

4.3.3. - A new evaluation is requested and the cycle is repeated until a convergence is reached in the results. The convergence is accepted as such when the distribution of results is not greater than 1 unit.

4.4. - Determination of the criterion or criteria corresponding to level n-1 and evaluation of same by means of the mechanics explained in point 4.3, establishing the basis of the discussion between this level and those of 1 and n. Concensus is reached when the distribution of results is less than 10% of the interval between the values of the factors corresponding to the greatest and lowest levels.

4.5. - Repetition of the procedure until the evaluation corresponding to each of the hierarchical classifying criteria considered is obtained.

Completing the phases described, it is only necessary to quantify the priorities for each of the industrial activities to reach mathematically the order which is sought. (In the following, x'_{ij} designates the value given to criterion i for activity j).

By the utilization of existing statistical data or by estimate in cases requiring it, a determination is made of the matrix of variables x'_{ij}. In actual fact, what is obtained is n distribution of variables, with n being the number of criteria of hierarchical arrangement. For example, the values of the production generated by the different activities would be one of these distributions in which the criterion of hierarchical arrangement would be the value of production. In the same way, growth rates in consumption per activity would be another distribution in which the criterion of hierarchical arrangement would in this case be the dynamism of consumption.

If then one takes into account the fact that the distributions mentioned are, essentially, different among themselves, both in terms of their own nature and in the absolute value reached by the variables and for the dispersion that they present, it becomes clear that it is necessary to submit them to some type of modification in order to make their comparison possible.

The solution to this problem is the typification of the distribution considered, by means of which the variables x'_{ij} are transformed into x_{ij}

according to the expression:

$$x_{ij} = \frac{x_{ij} - \bar{x}_i}{s_i}$$

where $\bar{x}_i$ and s_i are, respectively, the arithmetical mean and the standard deviation of the distribution corresponding to the criteria of hierarchical arrangement i and are, therefore, given by

$$\bar{x}_i = \frac{\sum_j x'_{ij}}{n}$$

$$s_i = \sqrt{\frac{_j (x'_{ij} - \bar{x}_i)^2}{n}}$$

Calculating the values of the standardized variables x_{ij}, it is possible to determine the index of hierarchical arrangement J_j corresponding to each industrial activity through the formula

$$J_j = \sum_i f_i \cdot x_{ij}$$

The hierarchical arangement sought is obtained by ordering the activities in a descending series according to the value of the J_j indices, that is, according to the ratio

$$J_j - 1 < J_j < J_j \; 1$$

2.2. - CLASSIFICATION OF ACTIVITIES BY ORDER OF IMPORTANCE

The preparation of the classification of industrial activities by order of importance is a direct result of the application of the method referred to in Section 2.1.

It must be emphasized that the execution of this work constitutes an effort of considerable interest, inasmuch as it is based on a model created especially for this project, the usefulness of which on a long-range basis may well be of substantial value in making decisions in the general area of industrial development.

It must also be pointed out that the creation and utilization of this model involves an effort going beyond the limits of this study in itself. It was nevertheless decided to carry it out due to the interest with which its planning was met and the support that it found on the part of INTECAP and the Economic Planning Council, particularly for the processing of the large amount of statistical data which it was necessary to prepare, and for the organization of the round tables required to establish the weight of the criteria by consensus.

It is necessary in any case to point out the tentative and investigatory nature of the arrangement worked out, the object of which is in short, the creation of a systematic classification which will allow consideration on an overall comprehensive basis or the criteria serving as a basis for decision making in the area of industrial development. That is, it is concerned with providing an implement to facilitate the formulation of these decisions, avoiding by this method the necessity of establishing subjective considerations, frequently based solely on partial aspects of the problem.

Finally, the fact must be emphasized that the order of importance established is referred to the industrial activities as they actually are at the present, for the purpose of deriving conclusions concerning the possible encouragement and development of these activities in the near future.

2.2.1. - Criteria of classification by order of importance

The deductive process for the determination of the means by which the criteria which have to be taken into consideration to determine the "importance of each of the industrial sectors in the future industrial development of Guatemala" is set out in chart form in Figure G.2.II. In the following, brief comments are made on the form in which each of the basic aspects considered gave rise to the definition of the criteria explained.

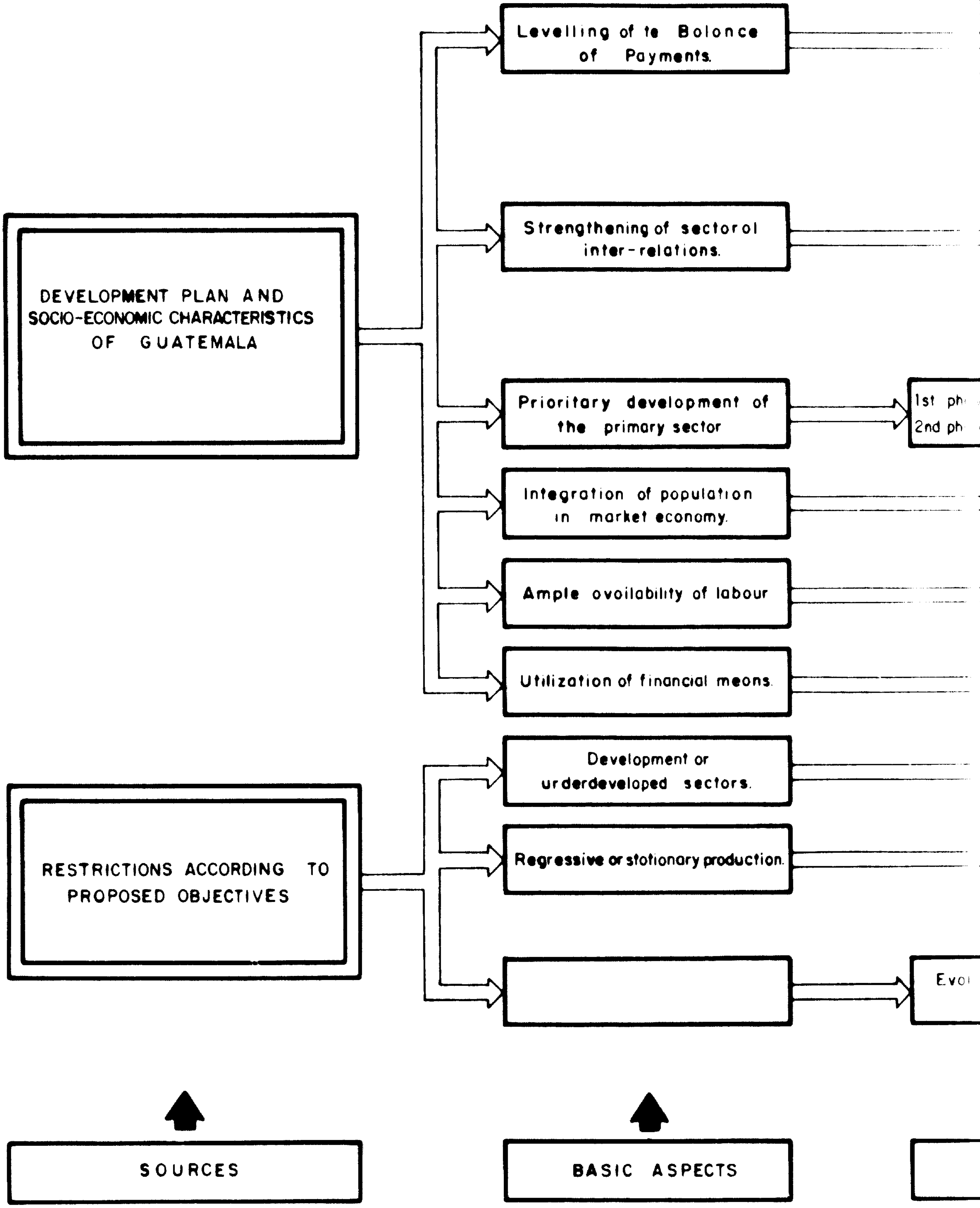
. Levelling the Balance of Payments

There is no doubt that the levelling of the balance of payments can be achieved by means of increasing exports and/or replacing imports.

The first alternative becomes more teasible as the articles obtain greater possibilities of penetrating the foreign markets.

The second alternative could lead essentially to consideration of the volume of imports; however, this could

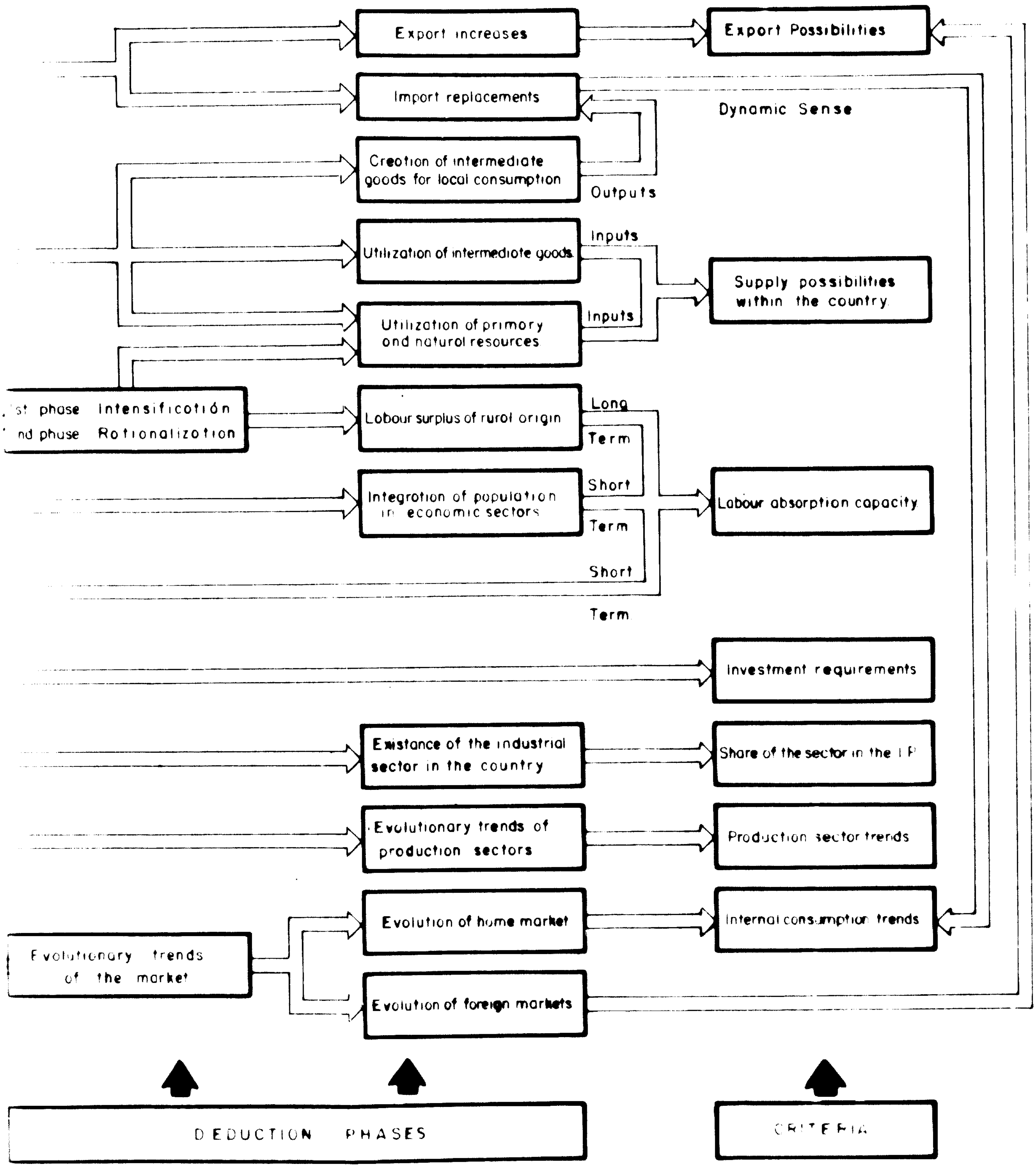
PROCESS OF DEFINITION OF THE HIERA



SECTION 1

CHART G 2 II

HIERARCHICAL ARRANGEMENTS CRITERIA



SECTION 2

involve development of industries, the products of which present a regressive market; this is to say that the corresponding imports would have to spontaneously decrease in any case. This circumstance, together with the fact that two of the criteria defined are the dynamism of consumption and of the production sector, the difference of which would be the foreign trade balance, that is, net imports would incline us toward not introducing new criteria relative to the volume of imports.

. <u>Strengthening interrelationships between industrial fields</u>

The increase of the degree of industrial and economic integration is based on strengthening the interrelationships between the different industrial fields and this is attained either through the generation of outputs which serve to supply the existing sectors, or through the development of activities with inputs which would be available in the country.

The first alternative is in actual fact a substitute for imports, since what would happen is that a raw material which the consumer industry is now obliged to import would be available within the country.

The second alternative is equivalent to promoting the utilization of natural resources, either primary or intermediate.

. <u>Priority development of the Primary Sector</u>

The Development Plan of Guatemala allots preferential character to development of the agricultural sector, granting secondary priority to the rationalization and mechanization of plants.

The Plan proposes to absorb a large volume of labour within the near future. However, this line of development cannot be continued indefinitely, above all if, as is certainly desirable, the standard of living is to be gradually improved and the wage level raised. Therefore, the intensification of agricultural development based on the absorption of labour should be followed on a long range basis by a rationalization of those processing operations which maintain the competitive level of products in the market. As a result, gradually and on a long range basis, there will tend to be a labour surplus stemming from rural sources which should be taken over by the secondary and tertiary sectors.

On the other hand, the priority of agriculture underlines the importance of developing the industries which consume raw materials of agrarian origin.

The reasoning presented is indicative of the interest of the industrial activities which have a large job creating capacity and of those which use agricultural products.

. Integration of the population in the market economy

A large part of the Guatemalan population is to be found in an economy of a very primitive nature, at the subsistence level, outside the limits of the market economy. The basic guidelines to overcome this situation tend toward the employment of the working population within economic sectors other than agriculture. Once again, the interest in activities capable of absorbing labour is apparent.

. Abundance of labour supply

Outside the limits of the previously mentioned aspects there is the fact, checked through more than forty interviews held with experts a.d industrial managers of the country, that there exists in Guatemala today a substantial supply of labour which is not qualified for industry. This fact leads once again to a consideration of the industries with a large capacity for creating new jobs.

. Profitable utilization of financial resources

The lack of balance between what is available financially in the country and the investments required for its economic development lead to the establishment, as a primary objective of the industrial sector, of a maximum degree of profitable utilization of the existing financial means. This leads to a centering of attention on those industrial activities which require a minimum of investment to generate a unit of profit, that is, the activities for which the yield of the capital investment will be the maximum.

As a result of this, the participation of each activity in the industrial product receives basic interest at the time that its importance in the economy of the country is evaluated.

. Regressive or stationary production

The evolution of the output of a sector in the country, even though it does have a certain degree of correlation with that of consumption, may well present quite different features with respect to the latter.

The historical development of a sector is indicative of the existence or non-existence in the country of certain conditions or an industrial climate which encourages, or inhibits, respectively, the development of this sector. It may be stated that the development trends of an industrial activity reveal to some extent at least the capacity of the sector for self-development within the country.

This line of reasoning leads us to take into account the dynamism of production activities as one more element in the qualification of relative importance.

. Regressive orstationary market

The development of, and the trend in domestic consumption, that is, the effective demand for the products manufactured, is an element to be taken into consideration at the time of determining lines and policies of industrial expansion.

In the case of Guatemala, one must distinguish three possible markets from the geographical point of view:

- Guatemala
- Central American area
- Rest of the world

However, given the lack of stability of the Central American markets and the consequent risks involved for the economy of the country in assigning a major role to this market in the planning of the industrial development of the country, it would seem most advisable to include the Central American area with the foreign market in general. For this reason, the factors on which attention must be focussed, according to the line of reasoning stated, are the growth rates of domestic and foreign consumption, of which, the second, the difficulties of whose quantification are obvious, is included in the item "export possibilities", which includes, as we have indicated, the possibilities of exporting to the C.A.C.M.

To sum up. the criteria which must be taken into account for the attainment of the proposed objectives are:

- Possibilities of exporting the goods produced by the industrial activity.

- Feasibility of supply of raw materials within the country.

- Capacity for absorption of labour.

- Investment requirements.

- Share of the activity concerned in the Industrial Product.

- Dynamism of the production activity.

- Trends of internal consumption of the articles produced by the activity in question.

2.2.2. - Quantification of variables and weight factors

In the preceding section, the criteria which must serve as the basis for the establishment of the desired order have been defined. This in itself, however is not enough; it is also necessary to determine the variables by which these criteria are going to be evaluated, in order to proceed to the subsequent matter of their quantification.

There is no doubt that, theoretically, it would be possible to use different variables as indicators of the previously mentioned criteria; however, the selection of one or another is conditioned by the availability of statistical data and the degree of breakdown to which these data are tabulated.

Taking into consideration both these aspects and the consideration discussed in Section 2.1., the degree of breakdown utilized corresponds to that of three digits in the Uniform International Industrial Classification (UIIC) of the United Nations, Revision Nº 1. It would have been desirable to use Revision Nº 2, at the level of four digits, but this is not possible in view of the existing statistical tabulations.

In accordance with the considerations expressed above, the variables which are going to be used as indicators for the criteria enumerated are the following:

Criterion: Possibilities for export of the goods produced by the industrial activity concerned.

Variable: Estimation of these possibilities by Guatexpro. This estimate has had to be made on the basis of the typical products of the activity under consideration, (in the following, it is to be understood that when reference is made to industrial activities, it is at the 3 digit level of INMC Revision Nº 1).

. __Criterion:__ Feasibility of supplying raw materials within the country.

. __Variable:__ Percentage of raw materials from the country itself within the total of raw materials consumed.

. __Criterion__: Capacity for absorption of labour.

. __Variable:__ Ratio between total man/hours and gross value added.

. __Criterion__: Investment requirements.

. __Variable:__ Ratio between investment and value of production.

. __Criterion:__ Contribution of the activity to the Industrial Product.

. __Variable.__ Value of the production.

. __Criterion__: Trends of the production.

. __Variable__: Growth rate relative to production for the period 1968-1971, the only period for which the required data are available.

. __Criterion:__ Trends of domestic consumption of the goods produced by the activity concerned

. <u>Variable:</u> Growth rate of consumption for the period 1960-1971.

In relation to the variables defined, it is of interest to make the following remarks:

- The only variable which it has not been possible to quantify, in accordance with the available statistical data, is "Export Possibilities". For this reason, Guatexpro was requested to make an estimate inasmuch as this organization could do so, in the light of their experience and the store of data they have with relation to the foreign market.

- The quantification of the remaining variables has been carried out on the basis of the existing statistical data, which <u>conditions the reliability of the results obtained from these data</u>.

- The fact that historical statistical data are used, or that referring to current activities, constitutes a limitation in the sense that it does not take into account the differences between the various industrial activities with reference to: idle time, structural aspects, mechanization, etc. It is obvious that in a purely theoretical case, the ideal thing would be to use, for certain cases, standardized ties; that is considering the characteristics of these activities according to how the plants would have to be operated in keeping with the current technological level.

- The relative growth rates are calculated as the quotient between the increment of the variable considered and its value at the beginning of the period. The values of production, sales and exports for the year 1971 are adjusted to the year 1968 according to the indices of domestic price variations, obtained from the statistical publication "America en Cifras" (America inFigures); a similar method has been employed with import values, taking into consideration the indices of prices corresponding to the articles coming from abroad.

- Finally, it must be emphasized that the system utilized does not allow the strategic value which special industrial activities may have for the economic development of the country (for example, the steel industry), to be taken into consideration.

To make possible the calculation of the variables enumerated, it was first necessary to make up statistical tables 2.I. to 2.IX. From these tables 2.X to 2.XIV were obtained, which, together with 2.I. and 2.X. show the seven distributions of the variables of the order of importance or classification by order of priority defined. Later, work continued on the standardization of these distributions, with 2 degrees of freedom; the matrix of standardized variables is included in table 2.XV.

However, when the classification by priority is extended to all of the industrial activities, it must be kept in mind that the data corresponding to the least developed may introduce

Table 2.1.

DEVELOPMENT OF INDUSTRIAL PRODUCTION

GUATEMALA PERIOD 1968-1971

(Total value in thousand Quetzales)

CRITERION: PARTICIPATION IN INDUSTRIAL PRODUCTION

CIIU Code Revision I	ACTIVITY	YEAR 1968	YEAR 1971
201	Slaughtering of livestock, processing and preservation of meat.	24,982.0	30,132.7
202	Dairy products operations	5,832.6	6,643.0
203	Packing and preservation of fruit and vegetables.	10,595.5	9,437.3
204	Packing and preservation of fish and other seafood.	575.3	3,748.8
205	Flour milling operations.	17,445.8	44,112.3
206	Bakery operations.	4,754.7	6,473.1
207	Processing and refining of sugar	24,067.9	27,070.6
208	Cocoa, chocolate and confectionery production.	6,269.4	8,355.7
209	Miscellaneous industries.	11,450.4	19,711.4
211	Distilling, processing and mixing of spirits.	13,027.2	6,664.1
212	Wine production.	4,123.2	2,147.2
213	Brewing of beer and production of malt	7,403.5	9,521.5
214	Production of non-alcoholic drinks and carbonated waters.	6,876.7	7,573.0
220	Tobacco industry.	13,733.7	12,15[illegible].1
231	Spinning, weaving and finishing of textiles.	29,622.3	38,979.5
232	Manufacture of knitted fabrics.	11,469.9	13,533.0
233	Manufacture of string, cord and rope.	4,255.6	4,192.8
239	Manufacture of textiles not classified elsewhere.	-	35.2

(Continued)

Table 2.1. (Cont.)

DEVELOPMENT OF INDUSTRIAL PRODUCTION

GUATEMALA PERIOD 1968-1971

(Total value in thousand Quetzales)

CRITERION: PARTICIPATION IN INDUSTRIAL PRODUCTION

CIIU Code Revision I	ACTIVITY	YEAR	
		1968	1971
241	Footwear manufacture	3,632.1	6,704.1
242	Shoe repair	-	-
234	Manufacture of apparel other than footwear	4,416.8	8,448.4
244	Articles other than clothing made from textiles	1,134.0	1,324.8
251	Sawmills, workshops for finishing and other woodwork operations	4,619.5	6,645.1
252	Packing cases of wood and cane and small cane articles	365.3	505.9
259	Manufacture of cork and wood products not classified elsewhere	152.9	617.2
260	Manufacture of furniture and accessories	3,026.9	2,797.2
271	Manufacture of wood pulp, paper and cardboard	3,039,6	4,045.3
272	Manufacture of articles made from wood pulp, paper and cardboard	-	-
280	Printing, publishing and allied industries	8,079.8	10,096.9
291	Tanning and finishing workshops	2,551.3	3,124.0
292	Manufacture of leather goods except clothing	-	-
293	Manufacture of leather goods except footwear and other clothing	-	-
300	Manufacture of rubber products	14,452.0	12,263.7
311	Basic industrial chemical products including fertilizers	2,004.4	1,527.4

(Continued)

Table 2.1 (Cont.)

DEVELOPMENT OF INDUSTRIAL PRODUCTION

GUATEMALA PERIOD 1968-1971

(Total value in thousand Quetzales)

CRITERION: PARTICIPATION IN INDUSTRIAL PRODUCTION

CIIU Code Revision I	ACTIVITY	YEAR 1968	1971
312	Vegetable and animal oils and greases	13,161.9	13,016.7
313	Production of paints, varnishes and lacquers	2,957.5	3,590.5
319	Production of miscellaneous chemicals	17,187.0	36,492.4
321	Oil refineries	17,433.2	21,003.0
329	Miscellaneous oil and coal based products	244.4	112,1
331	Clay products for building	520.1	760.2
332	Glass and glass products	4,722.3	8,203.0
333	Earthenware, china and porcelain	543.3	20.6
334	Cement (hydraulic) production	5,659.3	6,537.1
339	Processing of non-metal bearing ores not classified elsewhere	6,578.6	7,552.4
341	Basic iron and steel industries	6,613.1	13,076.3
342	Basic non-ferrous metal industries	221.0	51.8
350	Metal products other than machinery and transport equipment	-	-
360	Construction of machinery other than primary machinery and motors except electrical material	132.5	506.8
370	Construction of electrical machinery, apparatus, accessories and articles	209.1	11,263.8

(Continued)

Table 2.1 (Cont.)

DEVELOPMENT OF INDUSTRIAL PRODUCTION
GUATEMALA PERIOD 1968-1971

(Total value in thousand Quetzales)

CRITERION: PARTICIPATION IN INDUSTRIAL PRODUCTION

	ACTIVITY	YEAR	
		1968	1971
381	Shipbuilding and ship repair	106.5	6.5
382	Production of railway equipment	-	-
383	Manufacture of motor vehicles	1,722.2	2,051.7
384	Repair of motor vehicles	-	-
385	Manufacture of motor cycles and bicycles	434.1	884.2
386	Aircraft construction	80.9	102.2
389	Production of transport material not classified elsewhere	-	18.1
391	Manufacture of professional scientific instruments for measuring and control	18.0	192.2
392	Manufacture of photographic apparatus and optical instruments	168.8	107.4
393	Watch and clock making	-	-
394	Manufacture of jewellery and allied articles	151.6	518.6
395	Manufacture of musical instruments	-	-
399	Manufacturing industries not classified elsewhere	-	-

SOURCE: First Annual Survey of the Manufacturing Industry in the Central American Isthmus. Final version 1968.

Industrial Survey of the Department of Statistics. Year 1971.

Table 2.11

DEVELOPMENT OF SALES OF INDUSTRIAL PRODUCTS IN GUATEMALA, PERIOD 1968-1971

(Total value in thousand Quetzales)

CIIU Code Revision I	ACTIVITY	YEAR	
		1968	1971
201	Slaughtering of livestock, processing and preservation of meat.	24,269.1	29,821.8
202	Dairy products operations	5,701.2	6,220.0
203	Packing and preservation of fruit and vegetables	10,657.4	8,362.1
204	Packing and preservation of fish and other seafood	574.9	3,679.5
205	Flour milling operations	16,197.3	44,032.5
206	Bakery operations	4,654.6	6,627.2
207	Processing and refining of sugar	24,393.7	26,575.8
208	Cocoa, chocolate and confectionery production	6,187.8	7,799.5
209	Miscellaneous industries	9,902.5	21,193.4
211	Distilling, processing and mixing of spirits	12,909.1	9,962.9
212	Wine production	4,105.0	2,634.2
213	Brewing of beer and production of malt	7,067.9	9,446.2
214	Production of non-alcoholic drinks and carbonated waters	6,763.4	7,472.1
220	Tobacco industry	13,550.9	12,700.3
231	Spinning, weaving and finishing of textiles	28,232.2	11,916.9
232	Manufacture of knitted fabrics	10.536.2	11,916.9
233	Manufacture of string, cord and rope	4,239.6	2,835.0
230	Manufacture of textiles not classified elsewhere	-	31.6

(Continued)

Table 2.11 (Cont.)

DEVELOPMENT OF SALES OF INDUSTRIAL PRODUCTS

IN GUATEMALA, PERIOD 1968-1971

(Total value in thousand Quetzales)

CIIU Code Revision I	ACTIVITY	YEAR	
		1968	1971
241	Footwear manufacture	-	31.6
242	Shoe repair	3,567.5	7.437.8
243	Manufacture of apparel other than footwear	4,386.7	8,238.7
244	Articles other than clothing made from textiles	1,325.3	891.2
251	Sawmills, workshops for finishing and other woodwork operations	4,373.2	6,463.3
252	Packing cases of wood and cane and small cane articles	330.4	469.9
259	Manufacture of cork and wood products not classified elsewhere	139.2	620.4
260	Manufacture of furniture and accessories	2,314.7	2,875.7
271	Manufacture of wood pulp, paper and cardboard	3,192.7	4,485.7
272	Manufacture of articles made from wood pulp, paper and cardboard	-	-
280	Printing, publishing and allied industries	8,032.2	8,914.4
291	Tanning and finishing workshops	2,568.9	3,870.5
292	Manufacture of leather goods except clothing	-	-
293	Manufacture of leather goods except footwear and other clothing	-	-
300	Manufacture of rubber products	14,050.2	14,210.9
311	Basic industrial chemical products including fertilizers	1,860.8	1,483.2

(Continued)

Table 2.11 (Cont.)

DEVELOPMENT OF SALES OF INDUSTRIAL PRODUCTS IN GUATEMALA, PERIOD 1968-1971

(Total value in thousand Quetzales)

CIIU Code Revision I	ACTIVITY	YEAR	
		1968	1971
312	Vegetable and animal oils and greases	12,177.9	13,196.4
313	Production of paints, varnishes and lacquers	2,744.4	3,286.5
319	Production of miscellaneous chemicals	15,999.8	34,475.7
321	Oil refineries	17,291.6	23,233.5
329	Miscellaneous oil and coal based products	213.5	112.9
331	Clay products for building	526.2	402.8
332	Glass and glass products	4,742.3	8,070.8
333	Earthenware, china and porcelain	332.2	18.6
334	Cement (hydraulic) production	5,654.9	6,859.7
339	Processing of non-metal bearing ores not classified elsewhere	5,967.3	7,537.5
341	Basic iron and steel industries	6,052.[illegible]	10.579.9
342	Basic non-ferrous metal industries	222.1	83.2
350	Metal products other than machinery and transport equipment	-	-
360	Construction of machinery other than primary machinery and motors except electrical material	132.5	498.0
370	Construction of electrical machinery, apparatus, accessories and articles.	220.7	11,308.2

(Continued)

Table 2.11 (Cont.)

DEVELOPMENT OF SALES OF INDUSTRIAL PRODUCTS IN GUATEMALA, PERIOD 1968-1971

(Total value in thousand Quetzales)

CIIU Code Revision I	ACTIVITY	YEAR	
		1968	1971
381	Shipbuilding and ship repair	106.5	6.5
382	Production of railway equipment	-	-
383	Manufacture of motor vehicles	1,627.9	2,065.1
384	Repair of motor vehicles	-	-
385	Manufacture of motor cycles and bicycles	579.8	812.8
386	Aircraft construction	79.3	102.2
389	Production of transport material not classified elsewhere	-	18.1
391	Manufacture of professional scientific instruments for measuring and control	18.0	198.8
392	Manufacture of photographic apparatus and optical instruments	77.5	122.0
393	Watch and clock-making	-	-
394	Manufacture of jewellery and allied articles	126.9	249.7
395	Manufacture of musical instruments	-	-
399	Manufacturing industries not classified elsewhere	-	-

SOURCE: First Annual Survey of the Manufacturing Industry in the Central American Isthmus. Final Version 1968.

Industrial Survey of the Department of Statistics. Year 1971.

Table 2.III.

VALUE OF THE INDUSTRIAL PRODUCTION OF GUATEMALA, YEAR 1971

(Gross value added in thousand Quetzales)

CIIU Code Revision 1	ACTIVITY	Gross value added
201	Slaughtering of livestock, processing and preservation of meat	15,124,259
202	Dairy products operations	1,818,523
203	Packing and preservation of fruit and vegetables	4,295,732
204	Packing and preservation of fish and other seafood products	1,479,572
205	Flour milling operations	18,406,325
206	Bakery operations	2,070.119
207	Processing and refining of sugar	2,244,993
208	Cocoa, chocolate and confectionery production	4,494,952
209	Miscellaneous industries	4,424,934
211	Distilling, processing and mixing of spirits	1,873,964
212	Wine production	242,620
213	Brewing of beer and production of malt	3,682,851
214	Production of non-alcoholic drinks and carbonated waters	2,016,774
220	Tobacco industry	5,723,999
231	Spinning, weaving and finishing of textiles	12,380,769
232	Manufacture of knitted fabrics	4,086,302
233	Manufacture of string, cord and rope	2,160,699
239	Manufacture of textiles not classified elsewhere	17,090

(Continued)

Table 2.III (Cont.)

VALUE OF THE INDUSTRIAL PRODUCTION OF GUATEMALA, YEAR 1971

(Gross value added in thousand Quetzales)

CIIU Code Revision I	ACTIVITY	Gross value added
241	Footwear manufacture	636,615
242	Shoe repairing	-
243	Manufacture of apparel other than footwear	1,410,742
244	Articles other than clothing made from textiles	711,959
251	Sawmills, workshops for finishing and other woodwork operations	10,458,542
252	Packing cases of wood and cane and small cane articles	282,752
259	Manufacture of cork and wood products not classified elsewhere	287,346
260	Manufacture of furniture and accessories	755,420
271	Manufacture of wood pulp, paper and cardboard	922,867
272	Manufacture of articles made from wood pulp, paper and cardboard	-
280	Printing, publishing and allied industries	5,281,807
291	Tanning and finishing workshops	1,074,843
292	Manufacture of leather goods except items of clothing	-
293	Manufacture of leather goods except footwear and other items of clothing	-
300	Manufacture of rubber products	3,862,526
311	Basic industrial chemical products including fertilizers.	982,161

(Continued)

Table 2.III (Cont.)

VALUE OF THE INDUSTRIAL PRODUCTION

OF GUATEMALA. YEAR 1971

(Gross value added in thousand quetzales)

CIIU Code Revision I	ACTIVITY	Gross value added
312	Vegetable and animal oils and greases	2,160,605
313	Production of paints, varnishes and lacquers.	794,537
319	Production of miscellaneous chemicals	15,037,573
321	Oil refineries	2,005,377
329	Miscellaneous oil and coal based products	67,976
331	Clay products for building	542,824
332	Glass and glass products	7,346,715
333	Earthenware, china and porcelain	10.204
334	Cement (hydraulic) production	2,680.560
339	Processing of non-metal bearing ores not classified elsewhere	5,532,911
341	Basic iron and steel industries	6,548,335
342	Basic non-ferrous metal industries	25,204
350	Metal products other than machinery and transport equipment	-
360	Construction of machinery other than primary machinery and motors except electrical material	457,337
370	Construction of electrical machinery, apparatus, accessories and articles	5,091,595

(Continued)

Table 2.III (Cont.)

VALUE OF THE INDUSTRIAL PRODUCTION OF GUATEMALA. YEAR 1971

(Gross value added in thousand Quetzales)

CIIU Code Revision I	ACTIVITY	Gross value added
381	Shipbuilding and ship repair	4,131,415
382	Production of railway equipment	-
383	Manufacture of motor vehicles	3,325,083
384	Repair of motor vehicles	-
385	Manufacture of motor cycles and bicycles	253,762
386	Aircraft construction	2,718
389	Production of transport material not classified elsewhere	6,770
391	Manufacture of professional scientific instruments for measuring and control	84,431
392	Manufacture of photographic apparatus and optical instruments	78,799
393	Watch and clock-making	-
394	Manufacture of jewellery and allied articles	368,022
395	Manufacture of musical instruments	-
399	Manufacturing industries not classified elsewhere	-

SOURCE: Industrial Survey of the Department of Statistics. Year 1971.

Table 2.IV

INDUSTRIAL INVESTMENT IN GUATEMALA

YEAR 1971

(Net investment in thousand Quetzales)

CIIU Code Revision I	ACTIVITY	Net Investment
201	Slaughtering of livestock, processing and preservation of meat	376,464
202	Dairy products operations	236,688
203	Packing and preservation of fruit and vegetables	1,153,286
204	Packing and preservation of fish and other seafood products	-
205	Flour milling operations	606,875
206	Bakery operations	133,174
207	Processing and refining of sugar	2,179,245
208	Cocoa, chocolate and confectionery production	223,144
209	Miscellaneous industries	471,733
211	Distilling, processing and mixing of spirits	809,491
212	Wine production	66,024
213	Brewing of beer and production of malt	1,045,450
214	Production of non-alcoholic drinks and carbonated waters	367,526
220	Tobacco industry	218,949
231	Spinning, weaving and finishing of textiles	1,668,234
232	Manufacture of knitted fabrics	806,852
233	Manufacture of string, cord and rope	67,805
239	Manufacture of textiles not classified elsewhere	1,356

(Continued)

Table 2.IV. (Cont.)

INDUSTRIAL INVESTMENT IN GUATEMALA

YEAR 1971

(Net investment in thousand quetzales)

CIIU Code Revision I	ACTIVITY	Net Investment
241	Footwear manufacture	301,530
242	Shoe repairing	-
243	Manufacture of apparel other than footwear	250,453
244	Articles other than clothing made from textiles	12,510
251	Sawmills, workshops for finishing and other woodwork operations	93,777
252	Packing cases of wood and cane and small cane articles	51,934
259	Manufacture of cork and wood products not classified elsewhere	136,147
260	Manufacture of furniture and accessories	92,459
271	Manufacture of wood pulp, paper and cardboard	353,537
272	Manufacture of articles made from wood pulp, paper and cardboard	-
280	Printing, publishing and allied industries	366,700
291	Tanning and finishing workshops	63,564
292	Manufacture of leather goods except items of clothing	-
293	Manufacture of leather goods except footwear and other items of clothing	-
300	Manufacture of rubber products	993,021
311	Basic industrial chemical products including fertilizers.	1,724,402

(Clothing)

Table 2.IV. (Cont.)

INDUSTRIAL INVESTMENT IN GUATEMALA

YEAR 9171

(Net investment in thousand Quetzales)

CIIU Code Revision I	ACTIVITY	Net Investment
312	Vegetable and animal oil and greases	67,005
313	Production of paints, varnishes, and lacquers	87,021
319	Production of miscellaneous chemicals	1,153,446
321	Oil refineries	356,017
329	Miscellaneous oil and coal based products	10,101
331	Clay products for building	1,500
332	Glass and glass products	741,110
333	Earthenware, china and porcelain	9,750
334	Cement (hydraulic) production	393,520
339	Processing of non-metal bearing ores not classified elsewhere	670,818
341	Basic iron and steel products	2,499,960
342	Basic non-ferrous metal industries	1,065
350	Metal products other than machinery and transport equipment	-
360	Construction of machinery other than primary machinery and motors except electrical material	109,003
370	Construction of electrical machinery apparatus, accessories and articles	236,246

(Continued)

Table 2.IV (Cont.)

INDUSTRIAL INVESTMENT IN GUATEMALA

YEAR 1971

(Net investment in thousand Quetzales)

CIIU Code Revision I	ACTIVITY	Net Investment
381	Shipbuilding and ship repair	586,345
382	Production of railway equipment	-
383	Manufacture of motor vehicles	66,128
384	Repair of motor cehicles	-
385	Manufacture of motor cycles and bicycles	20,000
386	Aircraft construction	9,315
389	Production of transport material not classified elsewhere	-
391	Manufacture of professional scientific instruments for measuring and control	6,754
392	Manufacture of photographic apparatus and optical instruments	13,514
393	Watch and clock-making	-
394	Manufacture of jewellery and allied articles	2,878
396	Manufacture of musical instruments	-
399	Manufacturing industries not classified elsewhere	-

SOURCE: Industrial Survey of the Department of Statistics. Year 1971

Table 2.V.

TOTAL MAN/HOURS WORKED IN GUATEMALAN

INDUSTRY, YEAR 1971

CIIU Code Revision I	ACTIVITY	Total Man/Hours
201	Slaughtering of livestock, processing and preservation of meat	1,871,043
202	Dairy products operations	1,678,338
203	Packing and preservation of fruit and vegatables	1,272,919
204	Packing and preservation of fish and other seafood products	1,410,605
205	Flour milling operations	1,437,064
206	Bakery operations	3,467,274
207	Processing and refining of sugar	2,362,799
208	Cocoa, chocolate and confectionery production	2,362,799
209	Miscellaneous industries	3,477,779
211	Distilling, processing and mixing of spirits	458,570
212	Wine production	265,086
213	Brewing of beer and production of malt	726,660
214	Production of non-alcoholic drinks and carbonated waters	991,496
220	Tobacco industry	1,490,186
231	Spinning, weaving and finishing of textiles	8,990,006
232	Manufacture of knitted fabrics	4,308,543
233	Manufacture of string, cord and rope	1,174,636
239	Manufacture of textiles not classified elsewhere	19,440

(Continued)

Table 2.V. (Cont.)

TOTAL MAN/HOURS WORKED IN GUATEMALAN

INDUSTRY, YEAR 1971

CIIU Code Revision I	ACTIVITY	Total Man/Hours
241	Footwear manufacture	3,721,864
242	Shoe repair	-
243	Manufacture of apparel other than footwear	3,343,308
244	Articles other than clothing made from textiles	996,742
251	Sawmills, workshops for finishing and other woodwork operations	5,103,838
252	Packing cases of wood and cane and small cane articles	291,515
259	Manufacture of cork and wood products not classified elsewhere	540,693
260	Manufacture of furniture and accessories	2,761,251
271	Manufacture of wood pulp, paper and cardboard	839,959
272	Manufacture of articles made from wood pulp, paper and cardboard	2,023,479
280	Printing, publishing and allied industries	4,110,124
291	Tanning and finishing workshops	1,111,994
292	Manufacture of leather goods except items of clothing	-
293	Manufacture of leather goods except footwear and other items of clothing	-
300	Manufacture of rubber products	1,123,964
311	Basic industrial chemical products including fertilizers	426,079

(Continued)

Table 2.V. (Cont.)

TOTAL MAN/HOURS WORKED IN GUATEMALAN INDUSTRY, YEAR 1971

CIIU Code Revision I	ACTIVITY	Total Man/Hours
312	Vegetable and animal oils and greases	910,329
313	Production of paints , varnishes and lacquers	348,577
319	Production of miscellaneous chemicals	4,574,331
321	Oil refineries	285,508
329	Miscellaneous oil and coal based products	39,338
331	Clay products for building	460,498
332	Glass and glass products	1,048,489
333	Earthenware, china and porcelain	59,485
334	Cement (hydraulic) production	135,252
339	Processing of non-metal bearing ores not classified elsewhere	4,760,882
341	Basic iron and steel industries	1,952,652
342	Basic non-ferrous metal industries	39,962
350	Metal products other than machinery and transport equipment	-
360	Construction of machinery other than primary machinery and motors except electrical material	38,320
370	Construction of electrical machinery, apparatus, accessories and articles	1,674,573

(Continued)

Table 2.V. (Cont.)

TOTAL MAN/HOURS WORKED IN GUATEMALAN INDUSTRY. YEAR 1971

CIIU Code Revision I	ACTIVITY	Total Man/Hours
381	Shipbuilding and ship repair	17,670
382	Production of railway equipment	-
383	Manufacture of motor vehicles	522,741
384	Repair of motor vehicles	-
385	Manufacture of motor cycles and bicycles	48,450
386	Aircraft construction	55,696
389	Production oftransport material not classified elsewhere	17,792
391	Manufacture of professional scientific instruments for measuring and control	158,177
392	Manufacture of photographic apparatus and optical instruments	58,218
393	Watch and clock-making	-
394	Manufacture of jewellery and allied articles	129,093
395	Manufacture of musical instruments	-
399	Manufacturing industries not classified elsewhere	-

SOURCE: Industrial Survey of the Department of Statistics. Year 1971.

Table 2. VI

FOREIGN TRADE IN MANUFACTURED PRODUCTS

YEAR 1968

(In thousand Quetzales)

CIIU Code Revision I	ACTIVITY	Imports	Exports
201	Slaughtering of livestock, processing and preservation of meat	827.4	1,035.1
202	Dairy products operations	2,496.3	826.4
203	Packing and preservation of fruit and vegetables	656.4	2,350.7
204	Packing and preservation of fish and other seafood products	275.3	929.9
205	Flour milling operations	1,701.7	843.2
206	Bakery operations	463.0	71.4
207	Processing and refining of sugar	7.2	8,599.4
208	Cocoa, chocolate and confectionery production	718.2	2,928.0
209	Miscellaneous industries	3,897.2	2,928.0
211	Distilling, processing and mixing of spirits	838.4	2.0
212	Wine production	181.0	467.2
213	Brewing of beer and production of malt	498.4	3.3
214	Production of non-alcoholic drinks and carbonated waters	0.4	71.2
220	Tobacco industry	45.2	1,076.0
231	Spinning, weaving and finishing of textiles	21,840.9	8,997.5
232	Manufacture of knitted fabrics	1,845.4	5,808.1
233	Manufacture of string, cord and rope	150.2	11.2
239	Manufacture of textiles not classified elsewhere	1,750.3	919.0

(Continued)

Table 2.VI. (Cont.)

FOREIGN TRADE IN MANUFACTURED PRODUCTS

YEAR 1968

(In thousand Quetzales)

CIIU Code Revision I	ACTIVITY	Imports	Exports
241	Footwear manufacture	1,750.3	919.0
242	Shoe repairing	-	-
243	Manufacture of apparel other than footwear	2,721.1	1,798.1
244	Articles other than clothing made from textiles	1,403.7	1,838.7
251	Sawmills, workshops for finishing and other woodwork operations	409.3	1,449.9
252	Packing cases of wood and cane and small cane articles	29.4	12.0
259	Manufacture of cork and wood products not classified elsewhere	181.1	27.5
260	Manufacture of furniture and accessories	1,035.8	270.0
271	Manufacture of wood pulp, paper and cardboard	8,386.1	1,356.8
272	Manufacture of articles made from wood pulp, paper and cardboard	4,011.1	1,112.8
280	Printing, publishing and allied industries	1,874.3	466.4
291	Tanning and finishing workshops	704.2	487.2
292	Manufacture of leather goods except footwear and other items of clothing	0.1	5.3
293	Manufacture of leather toods except footwear and other items of clothing	345.5	184.6
300	Manufacture of rubber products	3,088.0	4,731.2
311	Basic industrial chemical products including fertilizers	26,252.0	483.0

(Continued)

Table 2.VI. (Cont.)

FOREIGN TRADE IN MANUFACTURED PRODUCTS

YEAR 1968

(In thousand Quetzales)

CIIU Code Revision I	ACTIVITY	Imports	Exports
312	Vegetable and animal oils and greases	3,690.4	4,360.3
313	Production of paints, varnishes and lacquers	933.0	800.6
319	Production of miscellaneous chemicals	21,153.4	9,540.8
321	Oil refineries	4,789.8	85.0
329	Miscellaneous oil and coal based products	148.0	0.4
331	Clay products for building	232.0	32.0
332	Glass and glass products	2,146.9	2.337.9
333	Earthenware, china and porcelain	836.7	33.5
334	Cement (hydraulic) production	878.0	346.0
339	Processing of non-metal bearing ores not classified elsewhere	215.8	182.0
341	Basic iron and steel industries	95.4	2,632.0
342	Basic non-ferrous metal industries	1,190.3	783.7
350	Metal products other than machinery and transport equipment	11.876.3	1,915.7
360	Construction of machinery other than primary machinery and motors except electrical material	31,911.2	61.8
370	Construction of electrical machinery apparatus, accessories and articles	1,150.3	2.786.6

(Continued)

Table 2. VI. (Cont.)

FOREIGN TRADE IN MANUFACTURED PRODUCTS

YEAR 1968

(In thousand Quetzales)

CIIU Code Revision I	ACTIVITY	Imports	Exports
381	Shipbuilding and ship repair	337.3	1.0
382	Production of railway production	76.0	-
383	Manufacture of motor vehicles	22,027.8	64.3
384	Repair of motor vehicles	-	-
385	Manufacture of motor cycles and bicycles	1,220.4	0.5
386	Aircraft production	4,224.0	-
389	Production of transport material not classified elsewhere	794.4	15.3
391	Manufacture of professional scientific instruments for measuring and control	1,427.1	8.6
392	Manufacture of photographic apparatus and optical instruments	1,081.4	0.6
393	Watch and clock-making	598.0	-
394	Manufacture of jewellery and allied articles	276.5	10.0
395	Manufacture of musical instruments	760.7	164.1
399	Manufacturing industries not classified elsewhere	4,680.9	1,529.6

SOURCE: Prepared by the Economic Planning Council.
Central American Annual Statistics of Foreign Trade of SIECA.

Table 2.VII.

FOREIGN TRADE IN MANUFACTURED PRODUCTS

YEAR 1971

(In thousand Quetzales)

CIIU Code Revision I	ACTIVITY	Imports	Exports
201	Slaughtering of livestock, processing and preservation of meat	485.2	19,493.0
202	Dairy products operations	3,305.7	396.2
203	Packing and preservation of fruit and vegetables	723.2	2,011.9
204	Packing and preservation of fish and other seafood products	422.7	2,470.1
205	Flour milling operations	1,599.9	890.1
206	Bakery operations	952.6	67.8
207	Processing and refining of sugar	20.4	11,067.8
208	Cocoa, chocolate and confectionery production	505.6	299.0
209	Miscellaneous industries	4,378.2	6,534.8
211	Distilling, processing and mixing of spirits	979.7	1.7
212	Wine production	165.7	303.0
213	Brewing of beer and production of malt	758.0	4.6
214	Production of non-alcoholic drinks and carbonated waters	0.4	-
220	Tobacco industry	57.8	1,483.9
231	Spinning, weaving and finishing of textiles	23,789.2	12,138.9
232	Manufacture of knitted fabrics	2,930.2	5,184.7
233	Manufacture of string, cord and rope	245.0	9.6
239	Manufacture of textiles not classified elsewhere	937.3	744.2

(Continued)

Table 2.VII. (Cont.)

FOREIGN TRADE IN MANUFACTURED PRODUCTS

YEAR 1971

(In thousand Quetzales)

CIIU Code Revision I	ACTIVITY	Imports	Exports
241	Footwear manufacture	1,803.4	3,514.0
242	Shoe repairing	-	-
243	Manufacture of apparel other than footwear	3,821.4	2,347.6
244	Articles other than clothing made from textiles	1,535.9	1,112.4
251	Sawmills, workshops for finishing and other woodwork operations	435.5	2,838.0
252	Packing cases of wood and cane and small cane articles	707.1	6.1
259	Manufacture of cork and wood products not classified elsewhere	112.4	49.1
260	Manufacture of furniture and accessories	1,359.4	217.6
271	Manufacture of wood pulp, paper and cardboard	10,117.8	2,000.5
272	Manufacture of articles made from wood pulp, paper and cardboard	3,284.0	1,165.7
280	Printing, publishing and allied industries	1,266.6	677.9
291	Tanning and finishing workshops	580.4	467.4
292	Manufacture of leather goods except items of clothing	-	-
293	Manufacture of leather goods except footwear and other items of clothing	372.5	194.5
300	Manufacture of rubber products	3,477.9	5,843.3
311	Basic industrial chemical products including fertilizers	36,112.9	1,019.3

(Continued)

Table 2.VII. (Cont.)

FOREIGN TRADE IN MANUFACTURED PRODUCTS

YEAR 1971

(In thousand Quetzales)

CIIU Code Revision I	ACTIVITY	Imports	Exports
312	Vegetable and animal oils and greases	6,270.7	4,286.4
313	Production of paints, varnishes and lacquers	759.8	1,093.6
319	Production of miscellaneous chemicals	25,363.5	19,207.8
321	Oil refineries	6,020.6	178.6
329	Miscellaneous oil and coal based products	55.7	0.4
331	Clay products for building	427.3	27.0
332	Glass and glass products	2,229.1	4,532.1
333	Earthenware, china and porcelain	1,005.7	27.5
334	Cement (hydraulic) production	288.9	114.1
339	Processing of non-metal bearing ores not classified elsewhere	1,010.2	178.1
341	Basic iron and steel industries	17,640.5	2,940.8
342	Basic non-ferrous metal industries	3,061.1	67.0
350	Metal products other than machinery and transport equipment	12,852.4	2,013.4
360	Construction of machinery other than primary machinery and motors except electrical material	29,017.7	59.3
370	Construction of electrical machinery, apparatus, accessories and articles	17,717.3	4,266.5

(Continued)

Table 2. VII. (Cont.)

FOREIGN TRADE IN MANUFACTURED PRODUCTS

YEAR 1971

(In thousand Quetzales)

CIIU Code Revision I	ACTIVITY	Imports	Exports
381	Shipbuilding and ship repair	872.4	0.1
382	Production of railway equipment	200.0	-
383	Manufacture of motor vehicles	26,107.8	630.5
384	Repair of motor vehicles	-	-
385	Manufacture of motor cycles and bicycles	471.1	2.9
386	Aircraft construction	978.2	-
389	Production of transport material not classified elsewhere	337.4	6.7
391	Manufacture of professional scientific instruments for measuring and control	2,052.2	48.2
392	Manufacture of photographic apparatus and optical instruments	1,471.9	5.6
393	Watch and clock-making	763.9	-
394	Manufacture of jewellery and allied articles	181.8	12.1
395	Manufacture of musical instruments	997.4	300.7
399	Manufacturing industries not classified elsewhere	6,570.0	1,921.1

SOURCE: Prepared by the Economic Planning Council. Central American Annual Statistics of Foreign Trade of SIECA.

Table 2. VIII.

VALUE OF RAW MATERIALS PURCHASED FOR

GUATEMALAN INDUSTRY ACCORDING TO ORIGIN. YEAR 1971

(In thousand Quetzales)

CIIU Code Revision I	ACTIVITY	Imports	TOTAL
201	Slaughtering of livestock, processing and preservation of meat	3,244.5	23,348.9
202	Dairy products operations	112.4	2,862.5
203	Packing and preservation of fruits and vegetables	765.3	1,718.8
204	Packing and preservation of fish and other seafood products	395.1	1,203.3
205	Flour milling operations	9,263.7	23,120.6
206	Bakery operations	107.3	3,893.7
207	Processing and refining of sugar	26.3	13,461.5
208	Cocoa, chocolate and confectionery production	623.5	2,517.8
209	Miscellaneous industries	2,373.7	10,114.6
211	Distilling, processing and mixing of spirits	9.1	3,785.5
212	Wine production	114.7	556.1
213	Brewing of beer and production of malt	976.6	1,260.8
214	Production of non-alcoholic drinks and carbonated waters	1,354.5	2,917.3
220	Tobacco industry	302.8	4,385.7
231	Spinning, weaving and finishing of textiles	10,890.7	20,027.2
232	Manufacture of knitted fabrics	2,528.1	5,987.0
233	Manufacture of string, cord and rope	546.0	1,796.4
239	Manufacture of textiles not classified elsewhere	1.0	2.0

(Continued)

Table 2.VIII. (Cont.)

VALUE OF RAW MATERIALS PURCHASED FOR

GUATEMALAN INDUSTRY ACCORDING TO ORIGIN, YEAR 1971

(In thousand Quetzales)

CIIU Code Revison I	ACTIVITY	Imports	TOTAL
241	Footwear manufacture	765.5	3,386.1
242	Shoe repairing	-	-
243	Manufacture of apparel other than footwear	1,800.0	4,072.1
244	Articles other than clothing made from textiles	98.2	534.9
251	Sawmilling, workshops for finishing and other woodwork operations	120.9	3,116.7
252	Packing cases of wood and cane and small cane articles	-	181.8
259	Manufacture of cork and wood products not classified elsewhere	46.9	121.7
260	Manufacture of furniture and accessories	179.0	1,353.8
271	Manufacture of wood pulp, paper and cardboard	1,862.8	1,209.6
272	Manufacture of articles made from wood pulp, paper and cardboard	-	-
280	Printing, publishing and allied industries	2,271.5	5,159.7
291	Tanning and finishing workshops	520.2	1,875.0
292	Manufacture of leather goods except items of clothing	-	-
293	Manufacture of leather goods except footwear and other items of clothing	-	-
300	Manufacture of rubber products	3,114.2	4,832.2
311	Basic industrial chemical products including fertilizers	25.0	278.9

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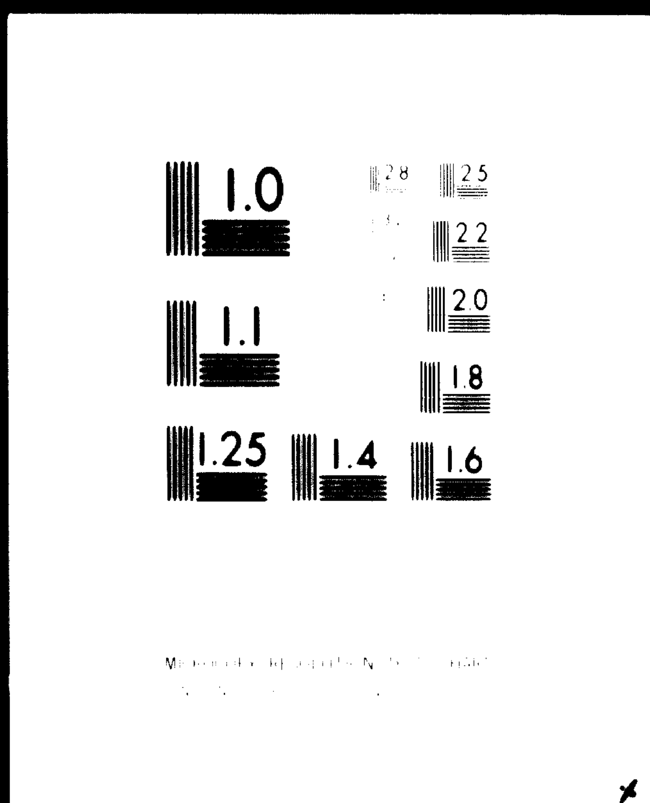

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Table 2. VIII. (Cont.)

VALUE OF RAW MATERIALS PURCHASED FOR GUATEMALAN INDUSTRY ACCORDING TO ORIGIN, YEAR 1971

(In thousand Quetzales)

CIIU Code Revision I	ACTIVITY	Imports	TOTAL
312	Vegetable and animal oils and greases	969.4	10,114.6
313	Production of paints, varnishes and lacquers	1,352.0	1,529.7
319	Production of miscellaneous chemicals	12,600.7	18,896.5
321	Oil refineries	17,984.4	17,984.8
329	Miscellaneous oil and coal based products	30.5	45.6
331	Clay products for building	-	9.7
332	Glass and glass products	185.7	190.7
333	Earthenware, china and porcelain	-	9.7
334	Cement (hydraulic) production	1,344.0	8,296.1
339	Processing of non-metal bearing ores not classified elsewhere	451.4	2,639.9
341	Basic iron and steel industries	4,336.7	4,514.8
342	Basic non-ferrous metal industries	-	20.7
360	Metal products other then machinery and transport equipment	-	-
360	Construction of machinery other then primery machinery and motors except electrical material	74.8	155.8
370	Construction of electrical machinery, apparatus, accessories and articles	3,252.0	4,305.4

(Continued)

Table 2.VIII. (Cont.)

VALUE OF RAW MATERIALS PURCHASED FOR GUATEMALAN INDUSTRY ACCORDING TO ORIGIN. YEAR 1971

(In thousand Quetzales)

CIIU Code Revison I	ACTIVITY	Imports	TOTAL
381	Shipbuilding and ship repair	1.7	2.0
382	Production of railway equipment	-	-
383	Manufacture of motor vehicles	5,187.5	5,885.4
384	Repair of motor vehicles	-	-
385	Manufacture of motor cycles and bicycles	445.7	445.7
386	Aircraft production	4.5	73.8
389	Production of transport material not classified elsewhere	0.3	8.7
391	Manufacture of professional scientific instruments for measuring and control	17.7	35.3
392	Manufacture of photographic apparatus and optical instruments	49.1	49.1
393	Watch and clock-making	-	-
394	Manufacture of jewellery and allied articles	85.6	137.5
395	Manufacture of musical instruments	-	-
399	Manufacturing industries not classified elsewhere	-	-

SOURCE: Industrial Survey of the Department of Statistics. Year 1971.

Table 2, IX

ASSESSMENT OF FEASIBILITY OF EXPORTING

INDUSTRIAL PRODUCTS

CRITERION: EXPORT POSSIBILITIES

CIIU Code Revision I	ACTIVITY	Export Possibilities
201	Slaughtering of livestock, processing and preservation of meat	3
202	Dairy products operations	1
203	Packing and preservation of fruit and vegetables	3
204	Packing and preservation of fish and other seafood products	2
205	Flour milling operations	1
206	Bakery operations	2
207	Processing and refining of sugar	2
208	Cocoa, chocolate and confectionery production	3
209	Miscellaneous industries	-
211	Distilling, processing and mixing of spirits	2
212	Wine production	1
213	Brewing of beer and production of malt	1
214	Production of non-alcoholic drinks and carbonated waters	1
220	Tobacco industry	1
231	Spinning, weaving and finishing of textiles	3
232	Manufacture of knitted fabrics	3
233	Manufacture of string, cord and rope	2
239	Manufacture of textiles not classified elsewhere	3

(Continued)

Table 2. IX. (Cont.)

ASSESSMENT OF FEASIBILITY OF EXPORTING

INDUSTRIAL PRODUCTS

CRITERION: EXPORTS POSSIBILITIES

CIIU Code Revision I	ACTIVITY	Export Possibilities
241	Footwear manufacture	3
242	Shoe repairing	-
243	Manufacture of apparel other than footwear	3
244	Articles other than clothing made from textiles	2
251	Sawmills, workshops for finishing and other woodwork operations	3
252	Packing cases of wood and cane and small cane articles	1
259	Manufacture of cork and wood products not classified elsewhere	2
260	Manufacture of furniture and accessories	3
271	Manufacture of wood pulp, paper and cardboard	1
272	Manufacture of articles made from wood pulp, paper and cardboard	-
280	Printing, publishing and allied industries	1
291	Tanning and finishing workshops	1
292	Manufacture of leather goods except items of clothing	2
293	Manufacture of leather toods except footwear and other items of clothing	2
300	Manufacture of rubber products	2
311	Basic industrial chemical products including fertilizers	1

(Continued)

Table 2.IX. (Cont.)

ASSESSMENT OF FEASIBILITY OF EXPORTING

INDUSTRIAL PRODUCTS

CRITERION: EXPORT POSSIBILITIES

CIIU Code Revision I	ACTIVITY	Export Possibilities
312	Vegetable and animal oils and greases	2
313	Production of paints, varnishes and lacquers	1
319	Production of miscellaneous chemicals	2
321	Oil refineries	1
329	Miscellaneous oil and coal based products	1
331	Clay products for building	1
332	Glass and glass products	3
333	Earthenware, china and porcelain	2
334	Cement (hydraulic) production	2
339	Processing of non-metal bearing ores not classified elsewhere	1
341	Basic iron and steel industries	1
342	Basic non-ferrous metal industries	1
350	Metal products other than machinery and transport equipment	1
360	Construction of machinery other than primary machinery and motors except electrical material	3
370	Construction of electrical machinery, apparatus, accessories and articles	3

(Continued)

Table 2. IX. (Cont.)

ASSESSMENT OF FEASIBILITY OF EXPORTING
INDUSTRIAL PRODUCTS
CRITERION: EXPORT POSSIBILITIES

CIIU Code Revision I	ACTIVITY	Export Possibilities
381	Shipbuilding and ship repair	1
382	Production of railway equipment	1
383	Manufacture of motor vehicles	1
384	Repair of motor vehicles	1
385	Manufacture of motor cycles and bicycles	2
386	Aircraft construction	1
389	Production of transport material not classified elsewhere	1
391	Manufacture of professional scientific instruments for measuring and control	3
392	Manufacture of photographic apparatus and optical instruments	3
393	Watch and clock-making	1
394	Manufacture of jewellery and allied articles	2
395	Manufacture of musical instruments	3
399	Manufacturing industries not classified elsewhere	-

SOURCE: Estimated by Guatexpro on the basis of their data bank.

Table 2.X.

DEVELOPMENT OF INDUSTRIAL PRODUCTION

PERIOD 1968-1971

(Indices of relative growth)

CRITERION: DYNAMISM OF PRODUCTIVE CAPACITY

CIIU Code Revision I	ACTIVITY	Index of relative growth
201	Slaughtering of livestock, processing and preservation of meat	0.1381
202	Dairy products operations	0.0455
203	Packing and preservation of fruit and vegetables	-0.1595
204	Packing and preservation of fish and other seafood products	5.1486
205	Flour milling operations	1.3859
206	Bakery operations	0.2846
207	Processing and refining of sugar	0.0613
208	Cocoa, chocolate and confectionery production	0.2576
209	Miscellaneous industries	0.6244
211	Distilling, processing and mixing of spirits	-0.5173
212	Wine production	-0.5063
213	Brewing of beer and production of malt	0.2135
214	Production of non-alcoholic drinks and carbonated waters	0.0391
220	Tobacco industry	-0.1645
231	Spinning, weaving and finishing of textiles	0.2399
232	Manufacture of knitted fabrics	0.1133
233	Manufacture of string, cord and rope	-0.0703
239	Manufacture of textiles not classified elsewhere	-

(Continued)

Table 2.X. (Cont.)

DEVELOPMENT OF INDUSTRIAL PRODUCTION

PERIOD 1968-1971

(Indices of relative growth)

CRITERION: DYNAMISM OF PRODUCTIVE CAPACITY

CIIU Code Revision I	ACTIVITY	Index of Relative growth
241	Footwear manufacture	0.7416
242	Shoe repairing	-
243	Manufacture of apparel other than footwear	0.8049
244	Articles other than clothing made from textiles	0.1022
251	Sawmills, workshops for finishing and other woodwork operations	0.3573
252	Packing cases of wood and cane and small cane articles	0.3065
259	Manufacture of cork and wood products not classified elsewhere	2,8083
260	Manufacture of furniture and accessories	-0.1280
271	Manufacture of wood pulp, paper and cardboard	0.2557
272	Manufacture of articles made from wood pulp, paper and cardboard	-
280	Printing, publishing and allied industries	0.1791
291	Tanning and finishing workshops	0.1554
292	Manufacture of leather goods except items of clothing	-
293	Manufacture of leather goods except footwear and other items of clothing	-
300	Manufacture of rubber products	-0.1992
311	Basic industrial chemical products including fertilizers	-0.2809

(Continued)

Table 2.X. (Cont.)

DEVELOPMENT OF INDUSTRIAL PRODUCTION

PERIOD 1968-1971

(Indices of relative growth)

CRITERION: DYNAMISM OF PRODUCTIVE CAPACITY

CIIU Code Revision I	ACTIVITY	Index of relative growth
312	Vegetable and animal oils and greases	-0.0668
313	Production of paints, varnishes and lacquers	0.1572
319	Production of miscellaneous chemicals	1.0035
321	Oil refineries	0.1368
329	Miscellaneous oil and coal based products	-0.5675
331	Clay products for building	0.3791
332	Glass and glass products	0.6390
333	Earthenware, china and porcelain	-0.9642
334	Cement (hydraulic) production	0.0899
339	Processing of non-metal bearing ores not classified elsewhere	0.0932
341	Basic iron and steel industries	0.8657
342	Basic non-ferrous metal industries	-0.7791
350	Metal products other than machinery and transport equipment	-
360	Construction of machinery other than primary machinery and motors except electrical material	2.6090
370	Construction of electrical machinery, apparatus, accessories and articles	49.8297

(Continued)

Table 2. X. (Cont.)

DEVELOPMENT OF INDUSTRIAL PRODUCTION

PERIOD 1968-1971

(Indices of relative growth)

CRITERION: DYNAMISM OF PRODUCTIVE CAPACITY

CIIU Code Revision I	ACTIVITY	Index of relative growth
381	Shipbuilding and ship repair	-0.9427
382	Production of railway material	-
383	Manufacture of motor vehicles	0.1240
384	Repair of motor vehicles	-
385	Manufacture of motor cycles and bicycles	0.9219
386	Aircraft production	0.1915
389	Production of transport material not classified elsewhere	-
391	Manufacture of professional scientific instruments for measuring and control	-9.0722
392	Manufacture of photographic apparatus and optical instruments	-0.3390
393	Watch and clock-making	-
394	Manufacture of jewellery and allied articles	2,2275
395	Manufacture of musical instruments	-
399	Manufacturing industries not classified elsewhere.	-

SOURCE: Prepared taking as a base Table 2.1. and "América en Cifras 1972".

Table 2. XI.

YIELD FROM INDUSTRIAL INVESTMENT IN GUATEMALA

(Investment/Production Value Ratio. Year 1971)

CRITERION: INVESTMENT REQUIREMENTS

CIIU Code Revision I.	ACTIVITY	Investment / Value of production
201	Slaughtering of livestock, processing and preservation of meat	0.0124
202	Dairy products operations	0.0366
203	Packing and preservation of fruit and vegetables	0. 1221
204	Packing and preservation of fish and other seafood products	-
205	Flour milling operations	0.0137
206	Bakery operations	0.0205
207	Processing and refining of sugar	0.0805
208	Cocoa, chocolate and confectionery production	0.0267
209	Miscellaneous industries	0.0239
211	Distilling, processing and mixing of spirits	0.1214
212	Wine production	0.0307
213	Brewing of beer ana production of malt	0.1097
214	Production of non-alcoholic drinks and carbonated waters	0.0485
220	Tobacco industry	0.0180
231	Spinning, weaving and finishing of textiles	0.0427
232	Manufacture of knitted fabrics	0.0596
233	Manufacture of string, cord and rope	0.01611
239	Manufacture of textiles not classified elsewhere	0.0349

(Continued)

Table 2. XI. (Cont.)

YIELD FROM INDUSTRIAL INVESTMENT IN GUATEMALA

(Investment/Production Value Ratio. Year 1971)

CRITERION: INVESTMENT REQUIREMENTS

CIIU Code Revision I	ACTIVITY	Investment / Value of production
241	Footwear manufacture	0.0569
242	Shoe repairing	-
243	Manufacture of apparel other than footwear	0.0305
244	Articles other than clothing made from textiles	0.0094
251	Sawmills, workshops for finishing and other woodwork operations	0.0141
252	Packing cases of wood and cane and small cane articles	0.1025
259	Manufacture of cork and wood products not classified elsewhere	0.2205
260	Manufacture of furniture and accessories	0.0330
271	Manufacture of wood pulp, paper and cardboard	0.0873
272	Manufacture of articles made from wood pulp, paper and cardboard	-
280	Printing, publishing and allied industries	0.0363
291	Tanning and finishing workshops	0.0203
292	Manufacture of leather goods except items of clothing	-
293	Manufacture of leather goods except footwear and other items of clothing	-
300	Manufacture of rubber products	0.0809
311	Basic industrial chemical products including fertilizers	1,1289

(Continued)

Table 2. XI. (Cont.)

YIELD FROM INDUSTRIAL INVESTMENT IN GUATEMALA

(Investment/Production Value Ratio. Year 1971

CRITERION: INVESTMENT REQUIREMENTS

CIIU Code Revision I	ACTIVITY	Investment / Value of production
312	Vegetable and animal oils and greases	0.0052
313	Production of paints, varnishes and lacquers	0.0242
319	Production of miscellaneous chemicals	0.0316
321	Oil refineries	0.0169
329	Miscellaneous oil and coal based products	0.1614
331	Clay products for building	0.0019
332	Glass and glass products	0.0903
333	Earthenware, china and porcelain	0.0364
334	Cement (hydraulic) production	0.0601
339	Processing of non-metal bearing ores not classified elsewhere	0.0888
341	Basic iron and steel industries	0.1911
342	Basic non-ferrous metal industries	0.0347
350	Metal products other than machinery and transport equipment	-
360	Construction of machinery other than primary machinery and motors except electrical material	0.2150
370	Construction of electrical machinery, apparatus, accessories and articles	0.0209

(Continued)

Table 2.XI. (Cont.)

YIELD FROM INDUSTRIAL INVESTMENT IN GUATEMALA

(Investment/Production Value Ratio. Year 1971

CRITERION: INVESTMENT REQUIREMENTS

CIIU Code Revision I	ACTIVITY	Investment / Value of Production
381	Shipbuilding and ship repair	90.2000
382	Production of railway equipment	-
383	Manufacture of motor vehicles	0.0322
384	Repair of motor vehicles	-
385	Manufacture of motor cycles and bicycles	0.0226
386	Aircraft construction	0.0013
389	Production of transport material not classified elsewhere	-
391	Manufacture of professional scientific instruments for measuring and control	0.0348
392	Manufacture of photographic apparatus and optical instruments	0.1256
393	Watch and clock-making	-
394	Manufacture of jewellery and allied articles	0.0353
395	Manufacture of musical instruments	-
399	Manufacturing industries not classified elsewhere	-

SOURCE: Prepared taking as a base Tables 2.I. and 2.IV.

Table 2.XII.

TOTAL MAN/HOURS/GROSS VALUE ADDED

RATIO IN THE INDUSTRY OF GUATEMALA, YEAR 1971

CRITERION: CAPACITY TO ABSORB LABOUR

CIIU Code Revision I.	ACTIVITY	Total man/hours / Gross value added (In quetzales)
201	Slaughtering of livestock, processing and preservation of meat	0.123
202	Dairy products operations	0.922
203	Packing and preservation of fruit and vegetables	0.296
204	Packing and preservation of fish and other seafood products	0.953
205	Flour milling operations	0.971
206	Bakery operations	1.674
207	Processing and refining of suger	1.301
208	Cocoa, chocolate and confectionery production	0.525.
209	Miscellaneous industries	0.819
211	Distilling, processing and mixing of spirits	0.244
212	Wine production	1.008
213	Brewing of beer and production of malt	0.197
214	Production of non-alcoholic drinks and carbonated waters	0.491
220	Tobacco industry	0.249
231	Spinning, weaving and finishing of textiles	0.726
232	Manufacture of knitted fabrics	1.054
233	Manufacture of string, cord and rope	0.543
239	Manufacture of textiles not classified elsewhere	1.137

(Continued)

Table 2.XII. (Cont.)

TOTAL MAN/HOURS/GROSS VALUE ADDED

RATIO IN THE INDUSTRY OF GUATEMALA, YEAR 1971

CRITERION: CAPACITY TO ABSORB LABOUR

CIIU Code Revision I	ACTIVITY	Total man/hours / Gross value added (in Quetzales)
241	Footwear manufacture	5.846
242	Shoe repairing	-
243	Manufacture of apparel other than footwear	0.980
244	Articles other than clothing made from textiles	1.399
251	Sawmills, workshops for finishing and other woodwork operations	0.400
252	Packing cases of wood and cane and small cane articles	1.030
259	Manufacture of cork and wood products not classified elsewhere	1.801
260	Manufacture of furniture and accessories	3,655
271	Manufacture of wood pulp, paper and cardboard	0.910
272	Manufacture of articles made from wood pulp, paper and cardboard	-
280	Printing, publishing and allied industries	0.770
291	Tanning and finishing workshops	1,034
292	Manufacture of leather goods except items of clothing	-
293	Manufacture of leather goods except footwear and other items of clothing	-
300	Manufacture of rubber products	0.290
311	Basic industrial chemical products including fertilizers	0.433

(Continued)

Table 2. XII. (Cont.)

TOTAL MAN/HOURS/GROSS VALUE ADDED RATIO IN THE INDUSTRY OF GUATEMALA, YEAR 1971 CRITERION: CAPACITY TO ABSORB LABOUR

CIIU Code Revision I	ACTIVITY	Total man/hours / Gross value added (In Quetzales)
312	Vegetable and animal oils and greases	0.421
313	Production of paints, varnishes and lacquers	0.430
319	Production of miscellaneous chemicals	0.304
321	Oil refineries	0.142
329	Miscellaneous oil and coal based products	0.570
331	Clay products for building	0.404
332	Glass and glass products	0.142
333	Earthenware, china and porcelain	5,092
334	Cement (hydraulic)production	0.050
339	Processing of non-metal bearing ores not classified elsewhere	0.060
341	Basic iron and steel industries	0.290
342	Basic non-ferrous metal industries	1.505
350	Metal products other than machinery and transport equipment	-
360	Construction of machinery other than primary machinery and motors except electrical material	0.003
370	Construction of electrical machinery, apparatus, accessories and articles	0.320

(Continued)

Table 2.XII (Cont.)

TOTAL MAN/HOURS /GROSS VALUE ADDED

RATIO IN THE INDUSTRY OF GUATEMALA. YEAR 1971

CRITERION: CAPACITY TO ABSORB LABOUR

CIIU Code Revision I	ACTIVITY	Total Man/hours / Gross value added (in quetzales)
381	Shipbuilding and ship repair	0.004
382	Production of railway equipment	-
383	Manufacture of motor vehicles	0.157
384	Repair of motor vehicles	-
385	Manufacture of motor cycles and bicycles	0.190
386	Aircraft construction	20.491
389 materi	Production of transport material not classified elsewhere	-
391	Manufacture of professional scientific instruments for measuring and control	1.873
392	Manufacture of photographic apparatus and optical instruments	0.738
393	Watch and clock-making	-
394	Manufacture of jewellery and allied articles	0.350
395	Manufacture of musical instruments	-
399	Manufacturing industries not classified elsewhere	-

SOURCE: Prepared taking as a base Tables 2.III. and 2.V

Table 2.XIII.

DEVELOPMENT OF CONSUMPTION OF INDUSTRIAL GOODS IN GUATEMALA, PERIOD 1960-1971

(Indices of relative growth)

CRITERION: DYNAMISM OF DOMESTIC CONSUMPTION

CIIU Code Revision I.	ACTIVITY	Index of Relative growth
201	Slaughtering of livestock, processing and preservation of meat	-0.3111
202	Dairy products operations	0.1299
203	Packing and preservation of fruit and vegetables	-0.2624
204	Packing and preservation of fish and other seafood products	-
205	Flour milling operations	1.4672
206	Bakery operations	0.3083
207	Processing and refining of sugar	-0.0728
208	Cocoa, chocolate and confectionery production	0.8880
209	Miscellaneous industries	1.0422
211	Distilling, processing and mixing of spirits	-0.2550
212	Wine production	-0.3067
213	Brewing of beer and production of malt	0.2630
214	Production of non-alcoholic drinks and carbonated waters	0.0535
220	Tobacco industry	-0.1507
231	Spinning, weaving and finishing of textiles	-0.0141
232	Manufacture of knitted fabrics	0.3485
233	Manufacture of string, cord and rope	-0.3431
239	Manufacture of textiles not classified elsewhere	-0.8422

(Continued)

Table 2.XIII (Cont.)

DEVELOPMENT OF CONSUMPTION OF INDUSTRIAL GOODS IN GUATEMALA. PERIOD 1968-1971

(indices of relative growth)

CRITERION: DYNAMISM OF DOMESTIC CONSUMPTION

CIIU Code Revision I	ACTIVITY	Index of Relative growth
241	Footwear manufacture	0.7331
242	Shoe repairing	-
243	Manufacture of apparel other than footwear	0.6638
244	Articles other than clothing made from textiles	0.3505
'51	Sawmills, workshops for finishing and other woodwork operations	0.1385
252	Packing cases of wood and cane and small cane articles	2.0008
259	Manufacture of cork and wood products not classified elsewhere	1.1697
260	Manufacture of furniture and accessories	0.1925
271	Manufacture of wood pulp, paper and cardboard	0.0779
272	Manufacture of articles made from wood pulp, paper and cardboard	-0.2756
280	Printing, publishing and allied industries	-0.0616
291	Tanning and finishing workshops	0.3312
292	Manufacture of leather goods except items of clothing	-
293	Manufacture of leather goods except footwear and other items of clothing	0.1472
300	Manufacture of rubber products	-0.1233
311	Basic industrial chemical products including fertilizers	0.1363

(Continued)

Table 2.XIII. (Cont.)

DEVELOPMENT OF CONSUMPTION OF INDUSTRIAL GOODS IN GUATEMALA. PERIOD 1968-1971

(Indices of relative growth)

CRITERION: DYNAMISM OF DOMESTIC CONSUMPTION

CIIU Code Revision I	ACTIVITY	Index of Relative growth
312	Vegetable and animal oils and greases	0.1977
313	Production of paints, varnishes and lacquers	-0.0543
319	Production of miscellaneous chemicals	0.3092
321	Oil refineries	0.2154
329	Miscellaneous oil and coal based products	-0.5740
331	Clay products for building	0.0065
332	Glass and glass products	0.1535
333	Earthenware, china and porcelain	-0.2400
334	Cement (hydraulic) production	0.0600
339	Processing of non-metal bearing ores not classified elsewhere	0.3014
341	Basic iron and steel industries	5,3702
342	Basic non-ferrous metal industries	3.1981
350	Metal products other than machinery and transport equipment	-0.0670
360	Construction of machinery other than primary machinery and motors except electrical material	-0.2092
370	Construction of electrical machinery apparatus, accessories and articles	-

(Continued)

Table 2.XIII. (Cont.)

DEVELOPMENT OF CONSUMPTION OF INDUSTRIAL GOODS IN GUATEMALA. PERIOD 1960-1971

(Indices of relative growth)

CRITERION: DYNAMISM OF DOMESTIC CONSUMPTION

CIIU Code Revision I	ACTIVITY	Index of relative growth
381	Shipbuilding and ship repair	0.7025
382	Production of railway equipment	1.2552
383	Manufacture of motor vehicles	0.0061
384	Repair of motor vehicles'	-
385	Manufacture of motor cycles and bicycles	-0.3510
386	Aircraft construction	-0.7827
389	Production of transport material not classified elsewhere	-0.6150
391	Manufacture of professional scientific instruments for measuring and control	0.3236
392	Manufacture of photographic apparatus and optical instruments	0.1841
393	Watch and clock-making	0.0949
394	Manufacture of jewellery and allied articles	-0.0343
395	Manufacture of musical instruments	-0.0424
399	Manufacturing industries not classified elsewhere	0.2121

SOURCE: Prepared taking as a base Table 2.XVII.

Table 2.XIV

COVERAGE OF SUPPLY OF INDUSTRIAL RAW MATERIALS

(% raw materials coming from Guatemala in relation to total)

CRITERION: FEASIBILITY OF PROVIDING SUPPLIES IN GUATEMALA

CIIU Code Revision I	ACTIVITY	Percentage
201	Slaughtering of livestock, processing and preservation of meat	86.1
202	Dairy products operations	96.0
203	Packing and preservation of fruit and vegetables	55.4
204	Packing and preservation of fish and other seafood products	67.1
205	Flour milling operations	59.9
206	Bakery operations	76.6
207	Processing and refining of sugar	99.8
208	Cocoa, chocolate and confectionery production	75.2
209	Miscellaneous industries	76.5
211	Distilling, processing and mixing of spirits	99.7
212	Wine production	79.3
213	Brewing of beer and production of malt	22.5
214	Production of non-alcoholic drinks and carbonated water	53.5
220	Tobacco industry	93.0
231	Spinning, weaving and finishing of textiles	45.6
232	Manufacture of knitted fabrics	57.7
233	Manufacture of string, cord and rope	69.6
239	Manufacture of textiles not classified elsewhere	50.0

(Continued)

Table 2.XIV (Cont.)

COVERAGE OF SUPPLY OF INDUSTRIAL RAW MATERIALS

(% of raw materials coming from Guatemala in relation to total)

CRITERION: FEASIBILITY OF PROVIDING SUPPLIES IN GUATEMALA

CIIU Code Revision I	ACTIVITY	Percentage
241	Footwear manufacture	77.3
242	Shoe repairing	-
243	Manufacture of apparel other than footwear	55.7
244	Articles other than clothing made from textiles	81.6
251	Sawmills, workshops for finishing and other woodwork operations	96.1
252	Packing cases of wood and cane and small cane articles	-
259	Manufacture of cork and wood products not classified elsewhere	61.4
260	Manufacture of furniture and accessories	89.7
271	Manufacture of wood pulp, paper and cardboard	15.6
272	Manufacture of articles made from wood pulp, paper and cardboard	-
280	Printing, publishing and allied industries	55.9
291	Tanning and finishing workshops	72.2
292	Manufacture of leather goods except items of clothing	-
293	Manufacture of leather goods except footwear and other items of clothing	-
300	Manufacture of rubber products	35.6
311	Basic industrial chemical products including fertilizers	91.0

(Continued)

Table 2.XIV. (Cont.)

COVERAGE OF SUPPLY OF INDUSTRIAL RAW MATERIALS

(% raw materials coming from Guatemala in relation to total)

CRITERION: FEASIBILITY OF PROVIDING SUPPLIES IN GUATEMALA

CIIU Code Revision I	ACTIVITY	Percentage
312	Vegetable and animal oils and greases	91.5
313	Production of paints, varnishes and lacquers	11.6
319	Production of miscellaneous chemicals	33.3
321	Oil refineries	0.002
329	Miscellaneous oil and coal based products	33.1
331	Clay products for building	-
332	Glass and glass products	0.02
333	Earthenware, china and porcelain	-
334	Cement (hydraulic) production	83.7
339	Processing of non-metal bearing ores not classified elsewhere	82.9
341	Basic iron and steel industries	3.9
342	Basic non-ferrous metal industries	-
350	Metal products other than machinery and transport equipment	-
360	Construction of machinery other than primary machinery and motors except electrical material	51.9
370	Construction of electrical machinery, apparatus, accessories and articles	25.8

(Continued)

Table 2.XIV. (Cont.)

COVERAGE OF SUPPLY OF INDUSTRIAL RAW MATERIALS

(% raw materials coming from Guatemala in relation to total)

CRITERION: FEASIBILITY OF PROVIDING SUPPLIES IN GUATEMALA

CIIU Code Revision I	ACTIVITY	Percentage
381	Shipbuilding and ship repair	15.0
382	Production of railway equipment	-
383	Manufacture of motor vehicles	11.8
384	Repair of motor vehicles	-
385	Manufacture of motor cycles and bicycles	-
386	Aircraft construction	93.9
389	Production of transport material not classified elsewhere	96.5
391	Manufacture of professional scientific instruments for measuring and control	49.8
392	Manufacture of photographic apparatus and optical instruments	-
393	Watch and clock-making	-
394	Manufacture of jewellery and allied articles	37.7
395	Manufacture of musical instruments	-
399	Manufacturing industries not classified elsewhere	-

SOURCE: Prepared taking as a base table 2.VIII.

MATR

CRITERIA \ Nº ACTIVITY		201	202	203	204	205	206	207	208	209	211
EXPORT POSSIBILITIES	$\bar{x}$ =6,99 s =13,59	1,576	•0,163	0,055	-0,363	2,605	-0,162	1,351	-0,024	0,510	•0,248
SUPPLY POSSIBILITIES IN GUATEMALA	$\bar{x}$ = 1,27 s = 0,734	1,598	•1,126	1,598	0,235	-1,126	0,235	0,235	1,598	-	0,235
LABOUR ABSORPTION CAPACITY	$\bar{x}$ =0,1762 s =1,661	•0,0229	•0,0776	•0,2021	2,9936	0,7212	0,0612	-0,0691	0,0480	0,26[illegible]	•0,417[illegible]
INVESTMENT REQUIREMENTS	$\bar{x}$ =0,0727 s =0,16	•0,359	•0,215	0,294	-	-6,352	-0,311	0,00[illegible]	-0,274	-0,24[illegible]	0,290
SHARE IN INDUSTRIAL PRODUCT	$\bar{x}$ = 0,[illegible] s = 1,27	•0,769	0,050	0,441	0,075	0,089	0,640	0,410	-0,261	-0,040	•0,40[illegible]
PRODUCTION ACTIVITY TRENDS	$\bar{x}$ =0,2 7[illegible] s =0,[illegible]3	•0,6377	•0,1652	•0,5550	-	1,2555	0,1066	-0,3840	0,0388	0,00[illegible]	•0,377
INTERNAL CONSUMPTION TRENDS	$\bar{x}$ =59,0 s =24,[illegible]	0,909	1,241	•0,120	0,271	0,030	0,590	1,388	0,543	0,587	1,36[illegible]

• NONTIPICAL
( ) DATA NOT AVAILABLE

SECTION 1

SOURCE: Prepared directly taking [illegible]

TABLE - 2.XV

MATRIX OF TYPIFIED VARIABLES OF HIERARCHICAL ORDER. - INDU[illegible]

[illegible]	[illegible]	211	212	213	214	220	2[illegible]1	232	233	239	241	243	244	251	252	259	260	[illegible]
[illegible]	[illegible]	+0,348	-0,481	0,061	+0,082	0,255	2,227	0,35[illegible]	-0,330	-0,636	-0,145	-0,017	-0,541	+0,150	-0,601	+0,593	-0,4[illegible]	[illegible]
[illegible]	-	0,235	-1,126	+1,126	+1,126	-1,126	1,[illegible]	1,[illegible]	0,23[illegible]	1,598	1,59[illegible]	1,59[illegible]	0,23[illegible]	1,59[illegible]	-1,126	0,235	1,5[illegible]	-[illegible]
[illegible]	[illegible]	+0,4175	+0,4[illegible]90	0,0224	*	-0,21[illegible]	0,0383	0,03[illegible]	-0,14[illegible]4	-	0,3403	0,3785	-0,0445	0,1090	0,0784	1,9[illegible]46	-0,2[illegible]1	[illegible]
[illegible],274	-[illegible],290	0,290	-0,250	+0,220	+0,144	-0,32[illegible]	-0,17[illegible]	-0,07[illegible]	-0,33[illegible]	-0,213	-0,094	-0,251	-0,37[illegible]	+0,349	0,177	0,[illegible]79	-0,2[illegible]	[illegible]
[illegible]	-0,0[illegible]	+0,481	0,1[illegible]0	+0,51[illegible]	+0,288	-0,47	-0,104	0,1[illegible]	-0,247	0,21[illegible]	3,912	0,09[illegible]	0,424	+0,290	0,13[illegible]	0,802	2,1[illegible]	[illegible]
[illegible]	[illegible]	+[illegible]77[illegible]	0,71[illegible]1	0,73[illegible]	+0,249[illegible]	-0,4[illegible]	-[illegible],521[illegible]	0,06[illegible]	-[illegible]717	-1,2031	0,473[illegible]	0,4001	0,0666	+0,15[illegible]0	1,8235	0,93[illegible]7	-0,10[illegible]	[illegible]
[illegible]	[illegible]567	1,36[illegible]	0,647	+1,224	+0,1[illegible]	1,140	-0,44[illegible]	-0,04[illegible]	0,355	-0,302	0,614	-0,110	0,75[illegible]	1,244	-	0,[illegible]0	1,0[illegible]	[illegible]

[illegible] taking [illegible] through 2.XIV as a basis

SECTION 2

INDUSTRY AS A WHOLE

260	271	280	291	300	311	312	313	319	321	329	331	332	333	334	339	341	342
-0,433	-0,341	0,103	-0,409	0,262	-0,596	0,328	0,374	2,044	0,905	-0,630	-0,[illegible]	-0,09[illegible]	[illegible]	[illegible]	-0,[illegible]	[illegible],222	[illegible]
1,598	-1,126	-1,126	-1,126	0,235	-1,126	0,235	1,126	0,235	+1,126	-1,126	-1,126	1,59[illegible]	0,235	0,235	+1,126	+1,126	+1,126
-0,1831	0,0478	0,0017	-0,012[illegible]	-0,2260	-0,2751	-0,1462	0,0114	0,4980	0,0237	-0,4477	0,1221	0,2786	-0,[illegible]	0,0[illegible]	+0,065[illegible]	[illegible],41[illegible]	0,[illegible]2
-0,23[illegible]	0,087	-0,217	-0,311	0,049	[illegible],2[illegible]7	-0,402	0,289	0,245	0,332	0,528	-0,001	0,105	0,216	0,079	[illegible],096	+[illegible],1[illegible]0	+[illegible],22[illegible]
2,196	0,041	-0,063	0,138	-0,445	-0,333	-0,343	-0,329	0,435	0,562	-0,220	-0,006	-0,562	3,69[illegible]	0,[illegible]33	+0,002	+0,43[illegible]	[illegible]
-0,1019	-0,2239	-0,2720	0,0460	-0,1752	-0,1613	-0,0960	-0,3643	0,3008	0,0771	-0,9179	-0,2995	-0,14[illegible]	0,5705	0,2338	[illegible],0149	5,410[illegible]	[illegible]2
1,030	-1,456	-0,104	0,442	-[illegible],7[illegible]	1,073	1,090	-1,590	0,862	1,979	-0,869	-	1,960	-	0,[illegible]28	0,602	1,046	-

SECTION 3

342	[illegible]	370	383	385	381	391	392	394	3[illegible]	3[illegible]6	293	272	350	382	393	395	396
+0,035	+0,6[illegible]1	0,1[illegible]9	-0,486	-0,57[illegible]	-0,630	-0,624	-0,631	-0,600	-0,637	-0,631	-	-	-	-	-	-	-
+1,126	1,5[illegible]	1,59[illegible]	-1,126	0,235	-1,126	1,598	1,59[illegible]	0,235	-1,126	-1,126	0,235	-	+1,126	-	-	1,59[illegible]	-
0,3629	1,44[illegible]	•	-0,0314	0,4489	-0,0736	-0,5679	0,3106	1,2349	-	[illegible],0092	-	-	-	-	-	-	-
+0,220	0,142	+0,30[illegible]	0,241	-0,29[illegible]	•	0,22[illegible]	[illegible],315	-0,117	•	-	-	-	-	-	-	-	-
[illegible],570	+0,60[illegible]	+0,41[illegible]	-0,[illegible]49	-0,[illegible]24	•	0,796	-0,094	-0,39[illegible]	•	-	-	-	-	-	-	-	-
[illegible]	+0,[illegible]2[illegible]2	-	0,300	-0,6[illegible]01	1,0544	-0,03[illegible]0	-0,110[illegible]	-0,3430	-0,9612	-1,1397	-0,1497	+0,[illegible]999	+0,5778	1,029[illegible]	+0,2054	-0,3[illegible]	-0,3[illegible]
-	+0,23	-0,114	1,476	-	-1,563	-0,30[illegible]	-	-0,734	1,258	1,171	-	-	-	-	-	-	-

SECTION 4

sharp distortions in the characteristics of the distributions and, in consequence, in the final arrangement, as a result of the peculiarities of the few establishments which these activities encompass. One may mention, by way of example, the noticeable deviation presented by the man/hours/gross value added ratio in the case of the "aircraft construction" industry, the production value of which, also, is very low, indicating almost insignificant development of the activity, and one with very peculiar features. For this reason, it has been thought desirable, and at the same time more in keeping with the objectives of the study which is referred to the existing industry, to prepare a second classification by priority, omitting all those activities with a participation in the Industrial Product of less than 1%; as a result of this screening, the second arrangement refers only to a reduced industrial scene including 27 industries providing 86.35% of the production value. The matrix of corresponding standardized variables is given in table 2.XVI.

With the calculation of the two matrices mentioned it is only necessary to determine the relative weight of each of the criteria considered in order to be able to establish the order of priority of the activities. This determination was effected by means of two round tables, attended by representatives of various institutions in Guatemala. As a result, and in accordance with the methodology presented in Section 2.1. the following weight factors were obtained:

. Criterion: Possibilities of exportation

. Weight factor: $f_1 = 1.0$

. *Criterion:* Feasibility of supply within Guatemala

. *Weight factor*: $f_2 = 0.9$

. *Criterion:* Capacity for absorption of labour

. *Weight factor*: $f_3 = 1.0$

. *Criterion*: Investment requirements

. *Weight factor*: $f_4 = -0.4$ (the minus sign is a result of the fact that the criterion is applied in a decreasing sense to the variable).

. *Criterion*: Participation in total Industrial Product.

. *Weight factor*: $f_6 = 0.8$

. *Criterion*: Domestic consumption trends

. *Weight factor*: $f_7 = 0.9$

3.3.3. - Classification of activities by order of importance

The classification of activities by order of importance results, in accordance with the previously explained method of approach in classification in a decreasing order of the indices of hierarchical arrangement. These, in turn, are calculated for each activity as the total of the standardised variables and weighting variables in accordance with the corresponding factors.

TABLE - 2

CALCULATION OF THE HIERARCHICAL ARRANGEMENT IND[illegible]

CRITERIA / Nº ACTIVITY		201	202	20[illegible]	20[illegible]	[illegible]	[illegible]	2[illegible]	20	211	[illegible]	[illegible]
EXPORT POSSIBILITIES	$\bar{x}$ =14,[illegible] s =10,742	1,420	+0,7[illegible]2	+0,[illegible]	[illegible],72	-0,7[illegible]1	[illegible]	[illegible]	0,450	[illegible]	[illegible]	[illegible]
SUPPLY POSSIBILITIES WITHIN GUATEMALA	$\bar{x}$ = 2,000 s = [illegible]	2,12[illegible]	+2,[illegible]	2,12[illegible]	2,12[illegible]	0		2,12[illegible]	[illegible]		+[illegible]	[illegible]
LABOUR ABSORPTION CAPACITY	$\bar{x}$ = [illegible] s = [illegible],302	0,412	+0,[illegible]	+1,2[illegible]	[illegible]	-0,00[illegible]	[illegible]	[illegible]0072	[illegible]	+2,222	[illegible]	
INVESTMENT REQUIREMENTS	$\bar{x}$ =0,050[illegible] s =0,03[illegible]	1,224	+0,7[illegible]	1,701	-1,[illegible]	-1,00	[illegible]2	[illegible],42	[illegible]	[illegible]	[illegible]	[illegible]
SHARE IN THE INDUSTRIAL PRODUCT	$\bar{x}$ =[illegible] s =[illegible]	0,[illegible]2	[illegible]	+0,3[illegible]	[illegible],22[illegible]	[illegible]	[illegible]02	[illegible],172	[illegible],000	+0,[illegible]24	[illegible]	[illegible]
PRODUCTION ACTIVITY TRENDS	$\bar{x}$ =0,43[illegible] s = 1,00[illegible]	0,702	+0,2[illegible]	+0,[illegible]	[illegible],962	+0,04[illegible]	[illegible]	[illegible],41	+0,[illegible]64	[illegible]	+0,[illegible]	[illegible]
INTERNAL CONSUMPTION TRENDS	$\bar{x}$ =60,711 s =3[illegible]	0,[illegible]	1,1[illegible]	+0,173	+0,08[illegible]	0,[illegible]	1,2[illegible]	[illegible],47[illegible]	[illegible]	1,2[illegible]	+1,[illegible]	[illegible]

* NON [illegible]
DATA NOT AVAILABLE

SECTION 1

[illegible]

E - 2 XVI

T INDICES. REDUCED INDUSTRIAL FIELD

[illegible]	[illegible]	220	231	2?2	241	243	2?1	[illegible]	400	?12	41?	421	3?2	334	339	441	
[illegible]	+?,?70	+0,2?2	2,244	+?,124	+0,7?0	-0,?37	-0,?6?	-?,444	-?,242	-0,172	2,012	0,?70	-0,680	-0,?7?	+0,??1	-0,1?	[illegible]
[illegible]	+2,12?	+2,12?	2,12?	2,12?	2,12?	2,12?	2,12?	-2,12?		[illegible]	-2,123		2,123	2,12?	+2,12?	-2,12	[illegible]
[illegible]	[illegible]	+1,24?	+0,130	+0,4?2	1,2?4	1,489	?,1??	-0,2?	-1,?4?	-0,?7?	1,?76	+0,41?	0,?71	+0,?45	+0,??	1,??	[illegible]
[illegible]	+0,2?1	+1,0??	+0,4?6	?,044	?,037	-0,741	-1,17?	-0,?	?,?02	-1,416	-0,712	+1,104	0,??	?,04?	?,0??	?,?1?	
[illegible]	+?,20?	+0,41?	0,007	-0,?00	?,?	?,023?	-0,20?	0,0??	-0,??2	-0,2??	+0,?70	+0,?1?	-0,?15	+0,??	?,12?	-?,?7	-?,?
+0,???	+0,?01	+0,?52	+0,404	-0,0??	0,?74	0,210	-0,2?1	-0,46?	-0,?26	-0,22?	-0,122	+0,209	-0,267	+0,347	+0,12?	+?,?1?	-
+?,?2	+0,2??	1,0?6	0,444	0,09?	0,?4?	-0,163	1,15?	-0,1?7	-0,?21	1,007	-0,?97	-1,???	-1,??	?,7?2	?,72?	-1,?	?,1?2

Table 2.XVII presents the calculation of the indices of hierarchical arrangement referred to the total of industrial activities; their order leads to the arrangement by order of priority shown in table a.XVI I the reliability of which is very questionable, taking into consideration the reasons expressed previously.

In the same way, table 2.XIX shows the calculation of the indices for the reduced industrial scene as a whole; the arrangement of these activities by order of priority is presented in table 2.XX.

N° ACTIVITY / CRITERIA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EXPORT POSSIBILITIES	1,	-1,1[illegible]	[illegible]	[illegible]	[illegible]	,2[illegible]	[illegible]	[illegible]	
SUPPLY POSSIBILITIES WITHIN GUATEMALA	[illegible]	,11[illegible]	- ,10	[illegible]	,02[illegible]	[illegible]	1,24	[illegible]	[illegible]
LABOUR ABSORPTION CAPACITY	-0,769	,050	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
INVESTMENT REQUIREMENTS	[illegible]	[illegible]	,11[illegible]	-	,14	,124	-0,002	[illegible]	[illegible]
SHARE IN THE INDUSTRIAL PRODUCT	1,[illegible]	[illegible]	,04	-0,2[illegible]	[illegible]	,14	,21	-0,22	
PRODUCTION ACTIVITY TRENDS	-0,[illegible]	[illegible]	-0,161	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
INTERNAL CONSUMPTION TRENDS	-0,[illegible]	-0,1[illegible]	-0,[illegible]	-	1,12	,0[illegible]	[illegible]	[illegible]	[illegible]
INDICES OF HIERARCHICAL ORDER	[illegible]	[illegible]	1,40[illegible]	[illegible],21	,1[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

SECTION 1

CALCULATION OF THE HIERARCHIC.

	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	232	[illegible]	[illegible]	241	243	244	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-1,126	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0,404	[illegible]	[illegible]	-0,271	[illegible]	[illegible]	[illegible]	1,119	-	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0,104	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0,290	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0,071	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0,015	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	-0,121	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0,630	[illegible]	6,667	[illegible]	[illegible]	[illegible]	0,102	[illegible]

SECTION 2

TABLE 2 XVII

...ICAL ARRANGEMENT INDICES. INDUSTRY AS A WHOLE

	[illegible]	[illegible]	272	[illegible]	291	[illegible]	300	311	312	313	319	321	329	331	32
[illegible]	[illegible]	-1,126	-	-1,126	-1,126	[illegible]	0,235	-1,126	0,235	-1,126	[illegible]	-1,126	-1,126	-1,126	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0,397	-	[illegible]	[illegible]	[illegible]	-1,431	[illegible]	1,781	[illegible]	-	1,782
	[illegible]	[illegible]	-	-0,063	[illegible]	-	[illegible]	[illegible]	[illegible]	-0,329	[illegible]	-0,562	-0,220	-0,008	[illegible]
[illegible]	[illegible]	-0,034	-	0,056	0,124	-	-0,019	-2,514	0,160	0,115	[illegible]	0,132	-0,211	[illegible]	[illegible]
[illegible]	[illegible]	-0,306	-	-0,032	-0,366	-	[illegible]	[illegible]	0,266	-0,336	[illegible]	[illegible]	[illegible]	[illegible]	-0,031
[illegible]	[illegible]	[illegible]	-	0,001	[illegible]	-	-0,150	-0,220	-0,116	-0,009	[illegible]	-0,018	-0,358	[illegible]	0,222
[illegible]	[illegible]	[illegible]	[illegible]	-0,334	0,042	-0,134	[illegible]	[illegible]	-0,066	[illegible]	0,270	[illegible]	[illegible]	-0,269	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0,804	0,101	-0,997	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

SECTION 3

32	[illegible]	334	342	350	370	[illegible]	[illegible]	383	[illegible]	[illegible]	[illegible]	391	392	393	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	-	[illegible]	-1.126	-	[illegible]	[illegible]	[illegible]	-1,126	[illegible]	[illegible]	-	[illegible]
1,7?2	-	[illegible]	-	-	-1.002	[illegible]	-	[illegible]	-	[illegible]	1.132	[illegible]	-	-	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	-	-0.41?	*	-	[illegible]	-0,624	-	-	[illegible]	-0,044	-	[illegible]
-0,042	[illegible]	[illegible]	[illegible]	-	[illegible]	-	-	-0,096	[illegible]	-	*	-0,090	-0.126	-	[illegible]
-0,031	[illegible]	[illegible]	[illegible]	-	0.170	[illegible]	-	-0,439	-0,615	[illegible]	-0,573	-0.561	[illegible]	-	[illegible]
[illegible]	[illegible]	-0.041	0.290	-	*	[illegible]	-	[illegible]	[illegible]	0,007	-	-4,459	0,248	-	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0,034	-0,099	-0,184	[illegible]
[illegible]	[illegible]	[illegible]	2.041	[illegible]	[illegible]	[illegible]	0,926	[illegible]	0,713	[illegible]	-1,492	-3,022	0,960	-0,184	[illegible]

SECTION 4

[illegible]	371	372	383	385	386	389	391	392	393	934	395	399	339	341
[illegible]	-1.126	-	-1,126	0,235	-1,126	-1,126	1,598	1,598	-	0,235	-	-	-1,126	-1,126
[illegible].002	-[illegible].424	-	1.328	-	1,053	1.132	-0,277	-	-	-0,642	-	-	0.721	1,669
-[illegible]1[illegible]	*	-	-0,[illegible]	-0,524	-	-	0,796	-0,094	-	-0,3[illegible]	-	-	-0,002	-0,439
[illegible].123	-	-	-0,090	0,119	-	*	-0,090	-0,126	-	0,046	-	-	-0,098	1,276
[illegible].170	-0,[illegible]74	-	-0,439	-0,515	-0,567	-0,573	-0,561	-0,567	-	-0,540	-	-	-0,074	0,289
*	-0,638	-	-0,025	0,359	0,007	-	-4,459	0,248	-	0,987	-	-	-0.044	0,332
-	[illegible].94[illegible]	0,326	[illegible].270	-0,612	-1,025	-0,865	-0,034	-0,099	-0,184	-0,306	-0,316	-0,072	0,012	4,869
[illegible]	2,[illegible]14	0,326	-0,0[illegible]9	0,713	-1,656	-1,492	-3,022	0,960	-0,184	-0,620	-0,316	-0,672	-0,551	6,864

SECTION 5

Table 2.XVIII.

CLASSIFICATION OF INDUSTRIAL ACTIVITIES
BY ORDER OF IMPORTANCE

(Total industry)

Order	CIIU Code Revision I	ACTIVITY
1	341	Basic iron and steel industries'
2	241	Footwear manufacture
3	271	Manufacture of wood pulp, paper and cardboard
4	260	Manufacture of furniture and accessories
5	205	Flour milling operations
6	231	Spinning, weaving and finishing of textiles
7	332	Manufacture of knitted fabrics
8	207	Processing and refining of sugar
9	201	Slaughtering of livestock, processing and preservation of meat
10	208	Cocoa, chocolate and confectionery production
11	259	Manufacture of cork and wood products not classified elsewhere
12	251	Sawmills, workshops for finishing and other woodwork operations
13	243	Manufacture of apparel other than footwear
14	244	Articles other than clothing made from textiles
15	213	Brewing of beer and production of malt
16	212	Wine production
17	319	Production of miscellaneous chemicals
18	206	Bakery operations
19	280	Printing, publishing and allied industries
20	203	Packing and preservation of fruit and vegetables
21	312	Vegetable and animal oils and greases

(Continued)

Table 2.XVIII (cont.)

CLASSIFICATION OF INDUSTRIAL ACTIVITIES BY ORDER OF IMPORTANCE

(Total industry)

Order	CIIU Code Revision I	ACTIVITY
22	321	Oil refining
23	233	Manufacture of string, cord and rope
24	334	Manufacture of cement (hydraulic)
25	383	Manufacture of motor vehicles
26	211	Distilling, processing and mixing of spirits
27	202	Dairy products operations
28	394	Manufacture of jewellery and allied articles
29	291	Tanning and finishing workshops
30	220	Tobacco industry
31	300	Manufacture of rubber products
32	391	Manufacture of professional scientific instruments for measuring and control
33	311	Basic industrial chemical products including fertilizers
34	313	Production of paints, varnishes and lacquers
35	329	Miscellaneous oil and coal based products

NOTE: Those activities for which basic statistical information is incomplete have not been classified

SOURCE: Prepared as for Table 2.XVII.

CALCULATION OF THE HIERARCHICAL ARRAN

CRITERIA / Nº ACTIVITY		201	202	203	205	2[illegible]	207	20[illegible]	2
EXPORT POSSIBILITIES	F_1 = 1,0	2,123	-2,123	2,123	-2,123	0	0	2,123	
SUPPLY POSSIBILITIES IN GUATEMALA	F_2 = 0,9	0,747	1,03[illegible]	-0,155	-0,[illegible]	0,46[illegible]	1,1[illegible]1	0.48[illegible]	
LABOUR ABSORPTION CAPACITY	F_3 = 1,0	-0,532	0,1[illegible]2	-0,777	0,[illegible]	[illegible]	0,[illegible]2	-0,1[illegible]2	[illegible]
INVESTMENT REQUIREMENTS	F_4 = -0,4	0,4[illegible]	0,231	-0,[illegible]0	0,[illegible]75	[illegible].403	-0.2[illegible]	0[illegible]	
SHARE IN INDUSTRIAL PRODUCT	F_5 = 0,4	1,27[illegible]	-0,703	-0,4[illegible]	[illegible],452	[illegible]	1,024	-0,[illegible]	
PRODUCTION ACTIVITY TRENDS	F_6 = 0,[illegible]	-0,[illegible]	-0,600	-0,[illegible]7	[illegible]	[illegible],00[illegible]	-0,4[illegible]9	-0,0[illegible]	
INTERNAL CONSUMPTION TRENDS	F_7 = 0,9	-0,631	-0,260	-0,391	0,865	-0,042	-0,431	[illegible]	[illegible]
INDICES		3,145	-2.235	-0,[illegible]1	4,999	0,977	1,59[illegible]	[illegible]	2

(*) NON-TYPICAL
(-) DATA NOT AVAILABLE

SECTION 1

SOURCE: Directly prepared following Table N[illegible]

TABLE - 2.X.X

CAL ARRANGEMENT INDICES.- REDUCED INDUSTRIAL FIELD

	[illegible]	[illegible]	211	[illegible]	214	220	[illegible]		241	243	251	[illegible]	300	[illegible]	[illegible]
	2.123	-	0	-2.123	-2.124	-2.123	2.123	2.123	2.123	2,123	2.123	-2.123	[illegible]	0	-2.12
1	[illegible]	[illegible]	[illegible]	[illegible]	-0,212	0,950	0,444	[illegible]	[illegible]	-0,146	1,042	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	-0,424	-0,466	-0,209	-0,419	0,087	0,300	[illegible]	0,234	-0,209	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	-0,672	[illegible]	0,104	0,429	[illegible]	-0,013	-0,014	0,244	[illegible]	0,234	-0,240	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0,226	2,019	-0,111	[illegible]	[illegible]	[illegible]	[illegible]	-0,817	-0,164	[illegible]
[illegible]	[illegible]	0,744	[illegible]	[illegible]		[illegible]	-0,104	[illegible]	1,009	1,143	0,164	[illegible]	-1,074	[illegible]	[illegible]
1	[illegible]	0,607	[illegible]	[illegible]	[illegible]	-0,496	[illegible]	-0,076	[illegible]	0,189	-0,858	[illegible]	-0,473	-0,209	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4,274	1,750	7,747	[illegible]	2,646	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

REDUCED INDUSTRIAL FIELD

[illegible]		241	[illegible]	[illegible]	[illegible]	300	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	2.123	2.12	2.123	2.123	-2.123	[illegible]	0	-2.123		2.123	2.123	-2.123	-2.12	[illegible]
[illegible]	-0,0[illegible]	[illegible]	-0,146	1,048	-0,[illegible]41	-0,73[illegible]	[illegible]	-0,[illegible]	-1,[illegible]	-1,[illegible]	[illegible]	[illegible]	-1,[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	0,234	-0,208	[illegible]	[illegible]	-0,2[illegible]	-0,3[illegible]	-0,[illegible]15	-0,[illegible]	-0,5[illegible]	[illegible],12[illegible]	[illegible]	-
[illegible]	-0,013	-0,014	0,24[illegible]	[illegible]	0,234	-0,240	[illegible]	[illegible]	0,441	-0,[illegible]	-0,01[illegible]	-0,037	[illegible]	
[illegible]	-0,111	[illegible]	[illegible]	[illegible]	-0,399	-0,017	-0,164	1,10	0,[illegible]	-0,[illegible]	-0,607	-0,[illegible]12	-0,14	[illegible]
[illegible]	-0,30[illegible]	1,003	1,143	[illegible]	-0,13[illegible]	-1,074	-0,7[illegible]2	1,500	-0,[illegible]32	0,27[illegible]	-0,4[illegible]	-0,4[illegible]0	1,277	
-0,[illegible]1	-0,076	0,[illegible]	0,189	-0,[illegible]58	-0,4[illegible]	-0,473	-0,203	-0,109	-0,1[illegible]	-0,240	-0,312	-0,116	[illegible]	-
[illegible]	1,750	[illegible]	[illegible]	2,64[illegible]	-3,02[illegible]	-0,124	[illegible]06	0,26[illegible]	-1,[illegible]	-0,[illegible]	[illegible]	-2,4[illegible]	-0,30[illegible]	[illegible]

Table 2. XX.

CLASSIFICATION OF INDUSTRIAL ACTIVITIES

BY ORDER OF IMPORTANCE

(Total small industries)

Order	CIIU Code Revision I	ACTIVITY
1	241	Footwear manufacture
2	231	Spinning, weaving and finishing of textiles
3	205	Flour milling operations
4	243	Manufacture of apparel other than footwear
5	201	Slaughtering of livestock, processing and preservation of meat
6	251	Sawmills, workshops for finishing and other woodwork operations
7	208	Cocoa, chocolate and confectionery production
8	232	Manufacture of knitted fabrics
9	207	Processing and refining of sugar
10	206	Bakery operations
11	334	Manufacture of cement
12	211	Distilling, processing and mixing of spirits
13	319	Production of miscellaneous chemicals

(Continued)

Table 2. XX. (Cont.)

CLASSIFICATION OF INDUSTRIAL ACTIVITIES

BY ORDER OF IMPORTANCE

(Total small industries)

Order	CIIU Code Revision I	ACTIVITY
14	312	Vegetable and animal oils and greases
15	341	Basic iron and steel industries
16	203	Packing and preservation of fruit and vegetables
17	332	Manufacture of glass and glass products
18	321	Oil refining
19	202	Dairy products operations
20	339	Processing of non-metal bearing ores not classified elsewhere
21	220	Tobacco industry
22	280	Printing, publishing and allied industries
23	300	Manufacture of rubber products
24	213	Brewing of beer and production of malt

NOTE: Those activities for which basic statistical information is incomplete have not been classified

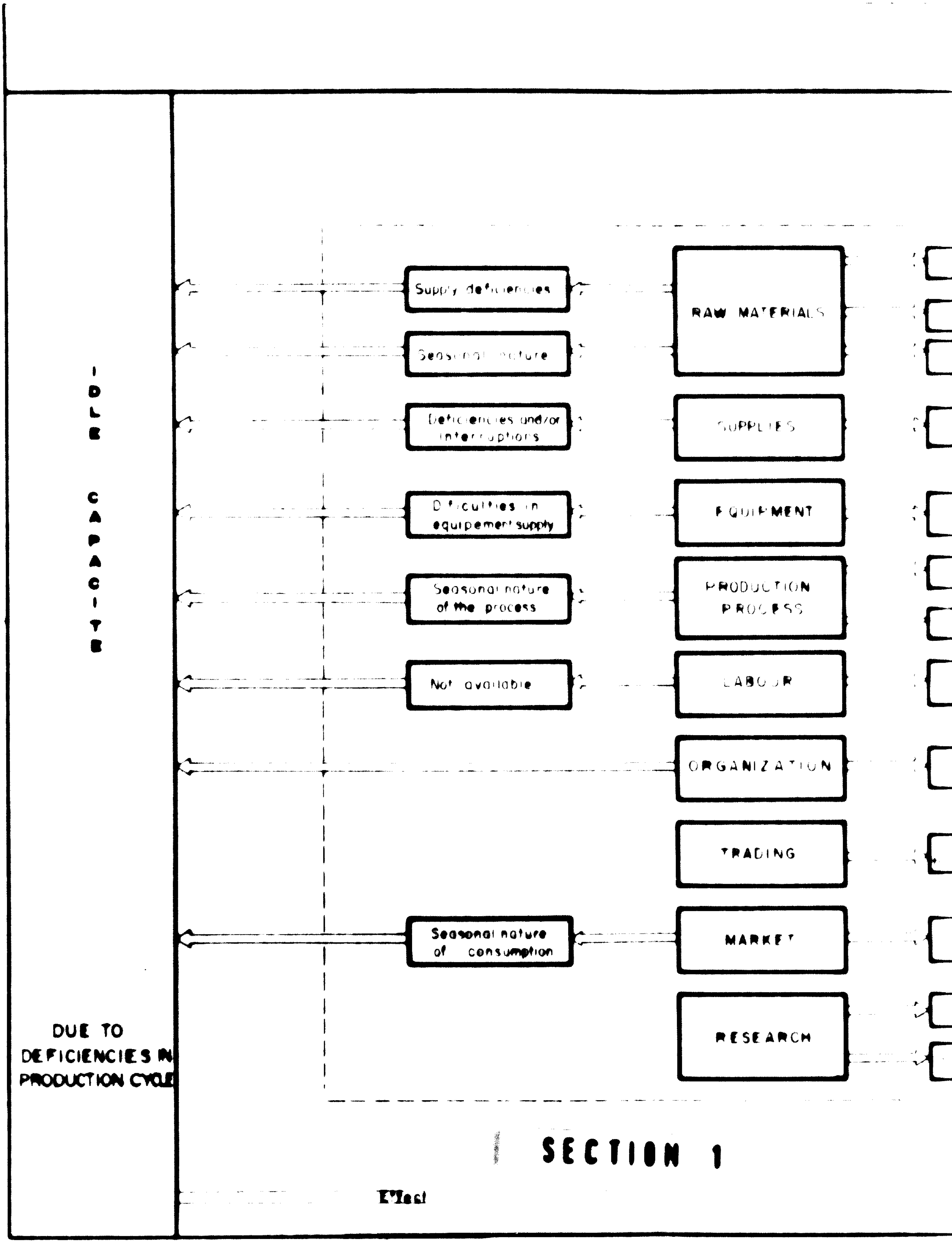
SOURCE: Prepared as for Table 2.XVIII

3. - INDUSTRIAL DIAGNOSIS

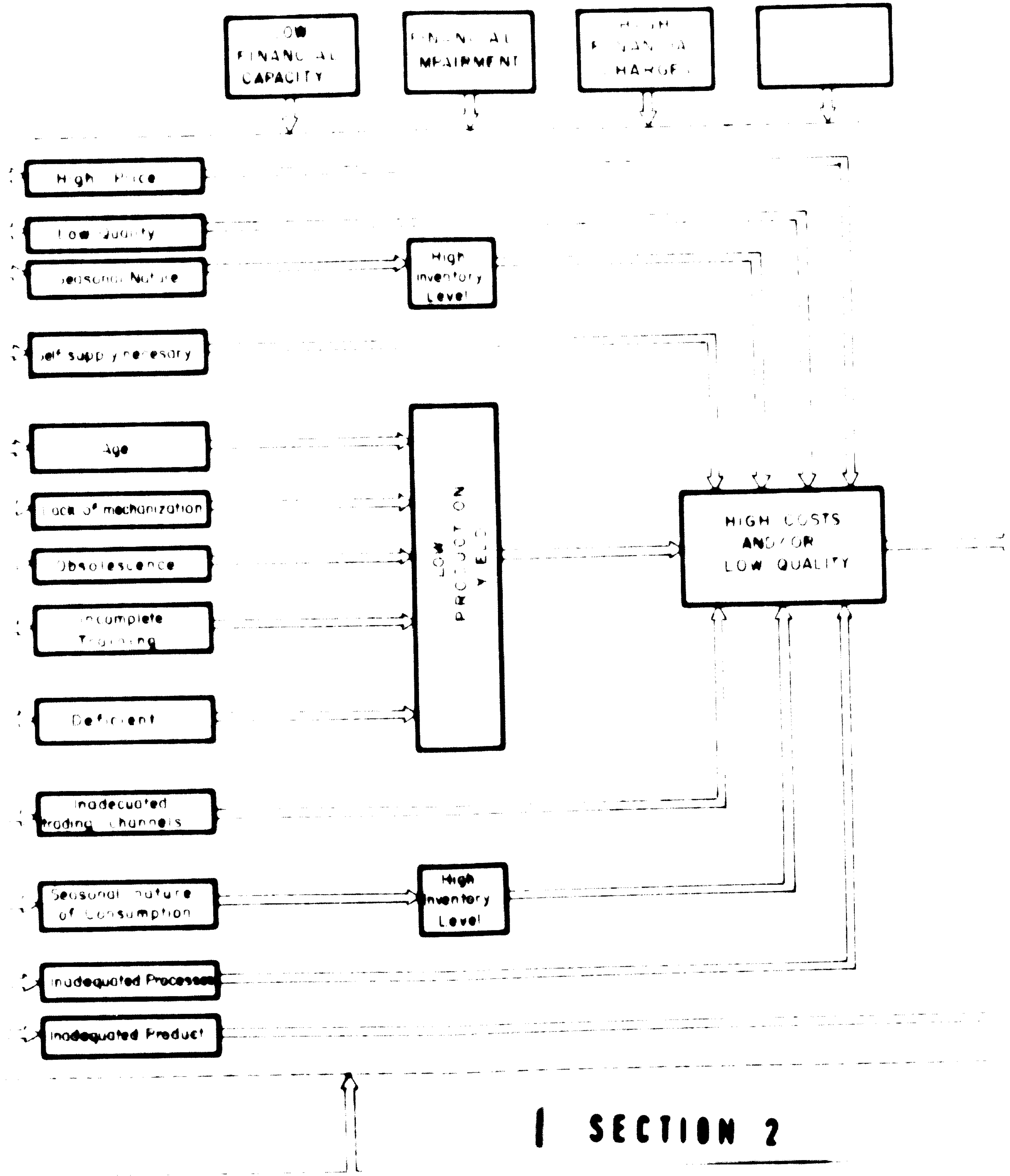
To be able to define the actions which should be initiated in order to increase the indices of utilization of installed capacity in Guatemala, it is clearly necessary to determine the factors which tend to reduce these indices.

The reasons for the idle capacity in the secondary sector may well be extremely complex, and, basically, they are found to be related to the overall industrial problem. This statement is illustrated in Figure G.3.1 in which the present effects and interrelations between aspects of the problem and the idle capacity are shown.

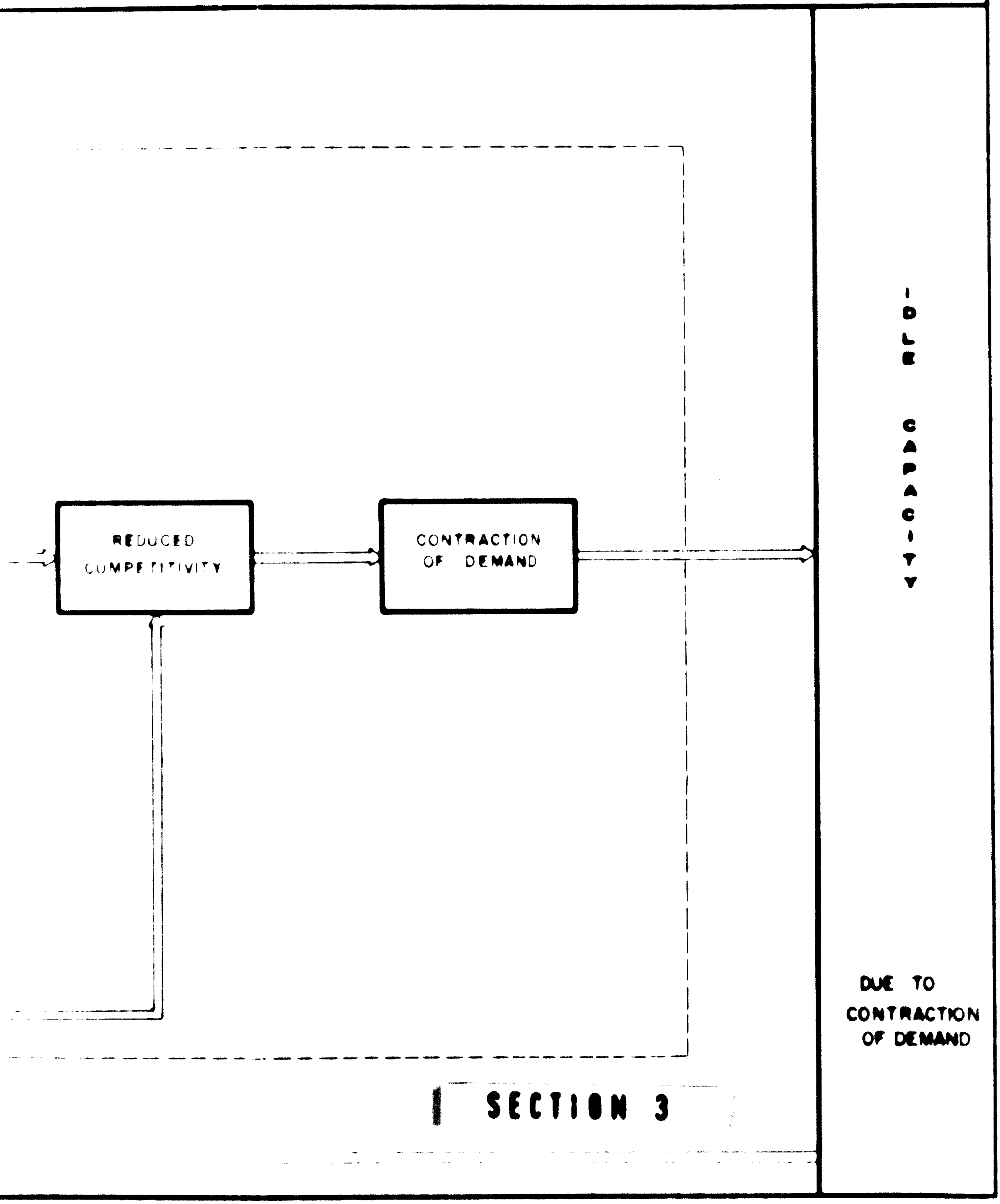
In short, what is necessary is to establish an industrial diagnosis which allow the aforementioned aspects of the problem and their specific peculiarities in the secondary sector of Guatemala to be clearly shown.


IDLE CAPACITE
DUE TO DEFICIENCIES IN PRODUCTION CYCLE
Supply deficiencies
Seasonal nature
Deficiencies and/or interruptions
Difficulties in equipement supply
Seasonal nature of the process
Not available
Seasonal nature of consumption
RAW MATERIALS
SUPPLIES
EQUIPMENT
PRODUCTION PROCESS
LABOUR
ORGANIZATION
TRADING
MARKET
RESEARCH
SECTION 1

INDUSTRIAL PROBLEMS - IDLE CAPACITY RATIO



SECTION 2


REDUCED COMPETITIVITY
CONTRACTION OF DEMAND
IDLE CAPACITY
DUE TO CONTRACTION OF DEMAND
SECTION 3

3.1. - METHOD OF APPROACH

The methodology planned to detect the problems which affect the industry of Guatemala is based fundamentally on the following points:

- Open interviews with industrial managerial personnel. In order to systematize these interviews, a guide was prepared in advance, which is presented in Annexe I, containing the subjects on which the conversation should be focussed.

- Interviews with experts with positions in the various organizations which are concerned with the economy and industry of the country.

- Compilation of a list of existing publications with particular attention to the libraries of these aforementioned organizations.

However, before beginning the collection of data it is necessary, as has been indicated previously, to define the main field of research, that is, the industrial branches to which the greatest attention should be given.

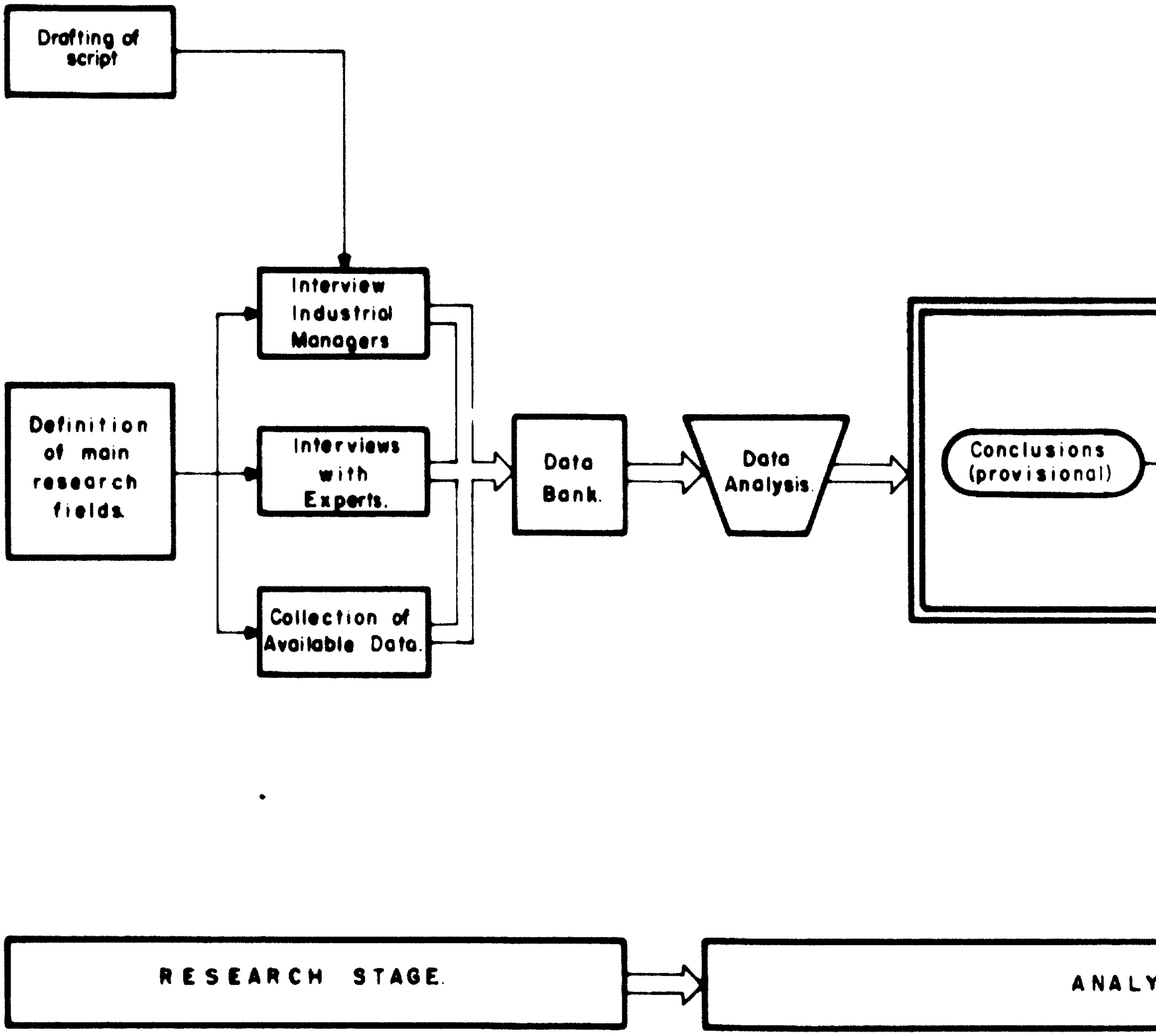
The total of the information collected is equal to a data bank, the analysis of which allows the first conclusions to be drawn, both those of a general nature and specific conclusions for the various branches which make up the main field of research.

However, it has been thought advisable that these conclusions be compared, and for this purpose a round table was arranged with the participation of a number of industrial managerial personnel, for the verification of the conclusions. Following the discussions and reasoning which were brought out in the course of the conference, one would be in a position to establish pertinent corrections for the primary conclusions, thus proceeding to the final conclusions.

The method of approach presented is shown in Chart G.3.II.

GHART G. 3.I

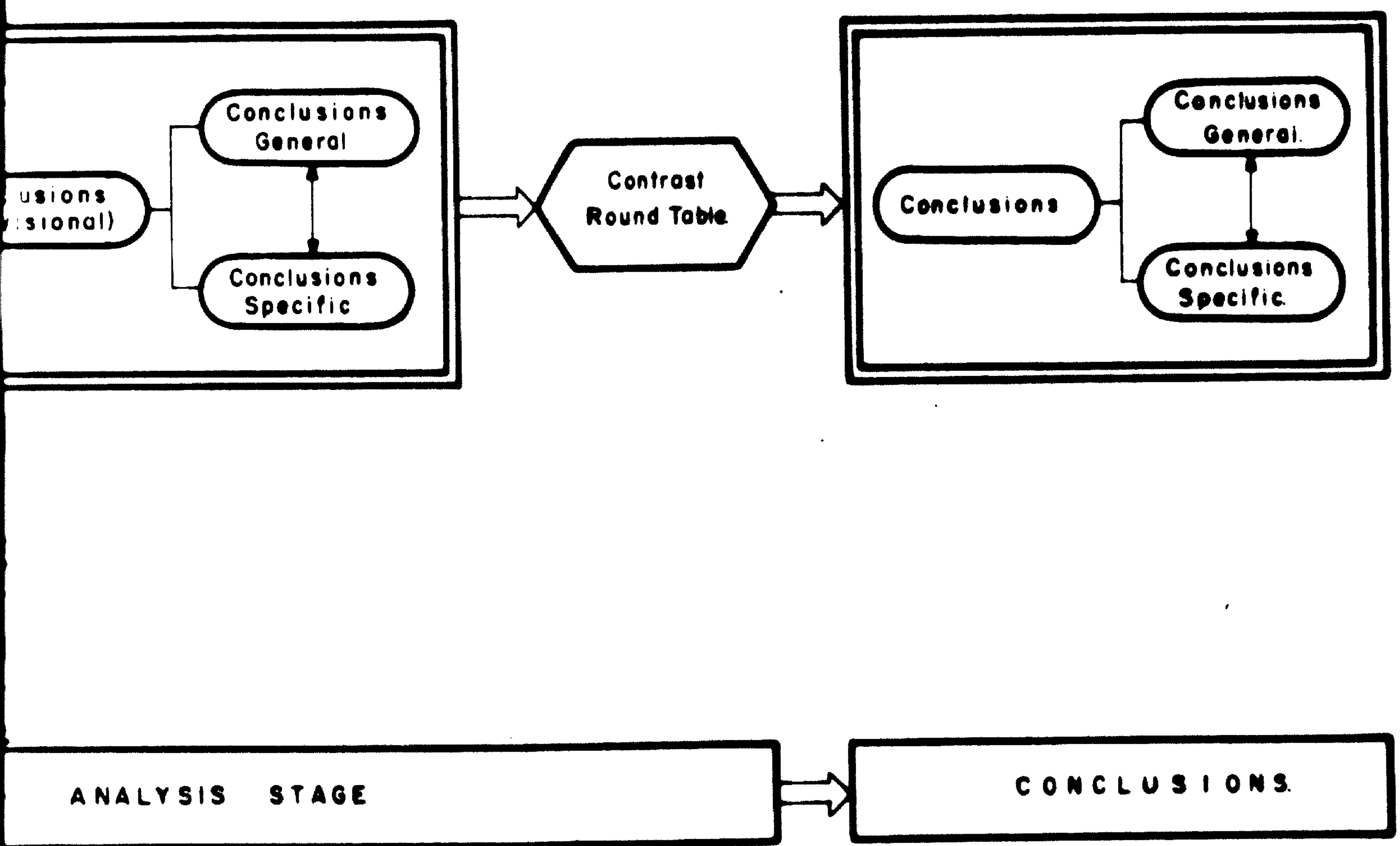
METHOD OF APPROACH INDUSTR



SECTION 1

G. 3.1

NDUSTRIAL DIAGNOSIS



SECTION 2

3.2. - THE INDUSTRIAL PROBLEM

Detection of the overall industrial problem, to which repeated reference has been made, was effected by means of the methodological procedure previously explained.

The only differences to be met in the strict application of this methodology developed from the lack of a prior selection of industrial activities which would have facilitated the definition of the main field of research. In addition to this problem, it was impossible to utilize, in this sense, the arrangement by order of priority established in Section 2 of this study, since its preparation turned out to be so complex and extensive. As a result, the determination of the fields of activities arranged by order of priority was not completed until the end of the projected period of execution.

As a result, and bearing in mind that this phase of research had to be initiated at the beginning of this period of execution, a selection of industrial branches was made, using the following criteria as a basis:

- Stage of development achieved by the branch in Guatemala

- Utilization of resources of the primary sector.

- Possibilities of exportation

- Capacity for absorption of labour.

According to the data of the "Estudio Económico y Memoria de Labores" (Economic Study and Labour Report) of 1971, of the Banco de Guatemala, the three branches with the highest share in the Industrial Product of the country are:

- Food and drink (43.2%)
- Footwear and clothing manufacture (12.0%)
- Textiles (11.2%)

The first has a very high capacity for the absorption of labour of a seasonal nature (in the seasons of maximum production) and the second of a permanent character; finally, the second and third produce articles which have good export possibilities.

It was decided to add to these three industrial branches the sector "Wood, including furniture", on the basis of the following considerations:

. Consumes primary resources

. Has a high capacity for absorption of labour

. There is considerable uncertainty in the country with reference to this sector, reflected in a project for execution of an extensive study of its possibilities.

In sum, the main field of research was composed of the following industrial sectors:

. Food and drink
. Textiles
. Clothing
. Footwear
. Wood

It must be noted that the investigation by means of interviews with industrial personnel was centered, particularly with reference to the "Food and drink" sector, on activities which had more than a local market potential, that is, those which had more chance of penetrating markets abroad.

3.2.1. - General problems

The general problem affecting the Guatemalan industry has its origin, in part, in the dimensional structure of the country's factories, which is shown in table 3.1. As will be noted, there is a strong predominance of small and medium size firms, as a result of which the average industrial size works out to approximately 33 operators per factory. Bearing in mind that the source utilized (Encuesta Industrial de la Dirección General de Estadística) for this figure does not include establishments at the level of handwork, that is 1 to 4 employees, it may well be considered a low figure.

Table 3.1.

DIMENSIONAL STRUCTURE OF INDUSTRY IN GUATEMALA

YEAR 1971

Occupational level	Firms		Employment	
		%		%
5 - 9	891	50.49	5,453	9.64
10 - 19	399	22.60	11,136	19.70
20 - 50	311	17.62	19,472	34.46
More than 50	164	9.29	20,453	36.20
TOTAL	1,765	100.00	56,514	100.00

SOURCE: Prepared on the basis of the Industrial Survey for 1971 of the Department of Statistics.

In addition, the limitations or deficiences characterizing the medium size and the small business in particular may be summed up in the following:

- Low capability with regard to management and sales negotiations.
- Limited capacity for financing.
- Low level of organization.
- Lack of means to apply to foreign consultants
- High charges of the commercial structure.
- Functional Organization Chart centered in the figure of the General Manager, usually self-taught and without adequate training in business techniques.
- Absence of medium and long range provisions.
- Lack of research work in all fields.

The fact must be emphasized that the industrial concern in Guatemala is oriented toward the future on a short term basis, and it is necessary to bear in mind that the establishment of certain business provisions and a marketing policy on a short term basis involve an inevitable dependence on the overall economic scene.

However, the survival of the various industries on a long range basis is more a function of the technological scene, in an expanded sense; that is, factories whose development does not parallel technological development will not have much chance of survival on a long range basis.

To summarize, it may be stated that, in general, industry in Guatemala is oriented toward the present, turning its back on the future, an attitude which, joined to other characteristics which have already been defined, creates a decided uncertainty with respect to the possibilities of development for the businesses of the country on a long range basis.

In the following, a description is provided of the main deficiencies afflicting the industry of Guatemala in the fields that are considered, on the basis of the investigation which has been made, to be most relevant in relation to these deficiencies.

A. - Supply

The small amount of raw materials used by Guatemalan firms in general, in view of their small size, results in their ability to negotiate purchases being very restricted.

The situation is of great importance when the raw materials come from overseas or when it is a question of commodities produced in the country which are in great demand in foreign countries.

As a consequence of the phenomenon referred to, basically, in the two examples indicated in the foregoing paragraph, firms sometimes obtain excessively long delivery terms and high prices.

B. - Training of personnel

In the matter of training of personnel the following levels should be distinguished:

. Worker level

In Guatemala there is an ample supply of unskilled labour as has already been pointed out. The greatest difficulty concerning labour is the lack of basic education, since a sizeable proportion is almost unable to read or write and/or has not learned the elementary rules of arithmetic.

Skilled labour, on the other hand, is either very scarce or non-existent in the country in nearly all the industrial branches.

. Intermediate level

The lack of education of the medium level personnel is a very serious problem faced by Guatemalan industry, as a result of which a bottleneck is caused in the functional structure of the firms. This acts as a brake on the achievement of improvements in technical and organizational aspects of the factories.

. Management level

At the level of management two clearly differentiated sub-levels must be distinguished: that of the manager and that of those who comprise the rest of the management staff of the firm.

The second sub-level is formed, in some cases, in the large firms by graduates who are being trained in growing numbers at the University of Guatemala. However, in the remaining cases it can be said that this sub-level hardly exists as such since it is included in the management group which takes over all the management responsibilities.

The cause of this situation is linked directly to the small size of most of the firms whose amount of business does not allow them to engage personnel who must be paid high salaries.

The management sub-level generally consists of the owner-manager, who is self-taught as far as his professional training is concerned, and generally lacking an entrepreneurial mind although, on the other hand, endowed with a certain commercial sense. In many instances one could speak of "merchants who own industrial businesses."

C. - Finance

The problem of finance in industry has three aspects:

- Access of the small firm to the sources of financing.
- Difficulties of financing the working capital.
- Financial failure.

The access of small firms to Bank financing is often made difficult by the scarce means of the firms for supplying the guarantees for which they are asked. In this way a vicious circle is produced which is very common, according to which the limited capacity of the industries creates for them, on the one hand, the need for borrowed money and, on the other hand, makes it difficult for them to have access to sources granting the said financing.

A large number of firms state that they have difficulties in obtaining financing for their working capital. However, in many cases the needs for financing this capital are exceedingly high due to the fact that the commercial structure of the firms is not suitable. As a result, the cycle of recovery of money is lengthened which gives rise to an important increase in the working capital requirements. This subject will be considered further on in the section on marketing.

Financial failure through non-payment is extremely frequent in Guatemala. On the other hand, there is a certain fear on the part of many manufacturers of protesting unpaid bills which is not very generalized, and "could lead to the loss of the customer". The amount involved in such failures is difficult to calculate but, in any case, it is important because of its negative repercussions on the domestic firms.

With respect to the foreign market, the lack of reliability in payments, in many cases hypothetical, had led to a situation where manufacturers of capital goods and other goods in different countries, refuse to finance the purchases made by Guatemalan industries.

However, it must be pointed out that this image held overseas is usually associated, fairly or unfairly, with "Latin American countries" a fact that does not stop it from being directly damaging to Guatemala as long as the country does not break away from this image.

D. - Marketing

The most outstanding deficiencies in the field of marketing of industrial goods in Guatemala can be summarized under two points:

- Lack of aggressiveness in the foreign markets on the part of entrepreneurs.

- Inadequate marketing channels.

The lack of aggressiveness of Guatemalan industries in foreign markets originated, in part, in the protectionism with which they counted in the "comfortable" home market for the products they manufactured. Consequently, and in view of the absence of incentives which tended toward the promotion of exports, the firms showed a certain inertia which induced them to compete only in the domestic market, or at the most, in that of Central America.

The industry of the country put a brake on its development by way of the inhibition of the industrialists faced with the supposed strong competition in foreign markets, and in which penetration could only be achieved on a basis of well defined products supported by very well balanced quality and price factors.

The unsuitability referred to above of the marketing channels used by Guatemalan industry basically originated in the tendency of the production centres to lengthen their cycle up to the point of bringing their products directly to the consumer, that is to say, very often the manufacturers sell their goods in their own commercial premises directly at retail, moreover giving credit to the buyer. The lack of flexibility of the system is evident and, further, it increases very greatly the amount of the firm's requirements for working capital at the same time that it gives rise to large investment needs when the firm wishes to expand while keeping the same operational scheme.

E. - Organization

The organizational structure of Guatemalan industry is, generally, extremely defective. By way of example and centering attention on some aspects most closely related to the production field, the following features may be cited:

. Organization plan

The organization plan, also called functional organization, of the Guatemalan firm shows an organization chart which is very much centred on the management, whose role is generally performed by the owner or chief partner with a very wide field of responsibility and authority.

The organization chart and delimitation of responsibilities are not planned through a preliminary study which establishes the bases for adopting an organizational plan, but are improvised more or less intuitively.

On the other hand, it must not be forgotten that the setting up of an organization plan has to be done counting with the personnel available in the firm to fill the different posts; therefore, it is necessary to emphasize the repercussions which the above-mentioned training deficiencies unavoidably have on the organization plans in force in the industry of Guatemala.

. Operations methods

For the present it can be stated that the industry of the country has no system for planning operational methods to be applied to production operations. This gives rise to the following:

- Deficient processes with excessive setback points.
- Excessive maintenance and transport costs.
- Inadequate plant layout.
- Deficient working methods for each job, based on intuition or on the initiative of the workers rather than on rational analysis.

The consequence is a productivity level lower than that which could be expected from a rationalized use of the available production facilities. This represents the existence of a "concealed idle capacity".

. Time

In general, the Guatemalan firms do not carry out time studies concerning production operations, or when they are carried out it is in a defective way, independent of the techniques of collection of data by timing or by sampling.

As a result of the non-existence of timing standards it is impossible to establish:

- Standard costs for products.
- Work control systems.
- Work loads by job or section.
- Wage incentive systems.
- Planning of work, etc.

It is not necessary to continue enumerating the organizational failures of the Guatemalan industry in planning, buying, management, etc. It is only necessary to emphasize the great importance of the concealed idle capacity which is originated by the said failures which in turn finally result in a decrease of productivity.

F. - Research

One cannot speak of the existence of research work in the Guatemalan industry. The absence of research is found both on the side of product design and definition and on that of process technology.

The origin of this situation is again found, partially, in the structure of the industry, the atomization of which makes it impossible for individual firms to carry out a research programme. In any case, joint ventures in this sense are also practically nil.

G. - Central American Common Market

The present situation of the Central American Common Market is featured by instability and lack of coordination among the industrial development policies followed by the five member countries.

The causes which gave rise to the present state of affairs are diverse and complex, although some of them are of specific concern for the present study, for which reason it is of interest to describe them.

Guatemala and El Salvador hold clearly predominating positions in the Central American Common Market as is shown by the fact that they are the only countries whose Balance of Payments in relation to the said Market are significantly positive. The trade balance trends within the M.C.C.A. (C.A.C.M.) are shown for the five countries in Table 3.II.

Table 3.III shows the development of the share of each of the member countries in the industrial production of the area. This again shows the predominance of Guatemala and El Salvador.

The countries showing deficit balances offered on their markets Central American products which were of a proportionally inferior quality to that of goods coming from other foreign countries.

Moreover, the negative balance recorded by some countries in the region has persuaded them to adopt local protectionist measures and to set up plants to produce goods otherwise imported from Central America. Protectionism has given rise to the creation of specific taxes which increase the price of manufactured goods coming from the region and,

Table 3.11

TRENDS OF TRADE WITH THE COUNTRIES IN THE CENTRAL AMERICAN COMMON MARKET

(Current prices in millions of $ C. A.)

Country \ Year	1960	1962	1964	1966	1968	1970
Guatemala	-0.3	2.2	3.6	21.3	28.1	41.4
El Salvador	-0.8	-3.6	-4.0	5.5	19.7	14.5
Honduras	2.1	4.9	0.3	-12.6	-17.4	-35.8
Nicaragua	0.6	-2.1	-7.4	-16.8	-19.3	0.2
Costa Rica	-1.6	-1.4	7.5	2.6	-11.1	-20.3
Central America	0.0	0.0	0.0	0.0	0.0	0.0

SOURCE: Permanent Secretariat of the General Treaty of Central American Economic Integration (S.I.E.C.A.).

Table 3.III

TRENDS OF THE SHARE OF MEMBER COUNTRIES IN THE VALUE ADDED OF THE MANUFACTURING SECTOR

(Percentages)

Country \ Year	1960	1962	1964	1966	1968	1970
Guatemala	30.6	34.0	33.5	33.0	33.0	33.0
El Salvador	22.4	23.3	23.5	24.3	23.4	21.6
Honduras	11.6	11.4	9.5	9.5	9.4	9.0
Nicaragua	11.7	13.1	15.3	15.2	15.6	16.7
Costa Rica	18.3	17.4	18.2	18.0	18.6	18.9
Central America	100.0	100.0	100.0	100.0	100.0	100.0

SOURCE: Permanent Secretariat of the General Treaty of Central American Economic Integration (S.I.E.C.A.).

in some cases, as happened in Honduras, has even entailed the total elimination of any kind of privilege for Central American products.

H. - Arts and crafts

The arts and crafts sector is very important in Guatemala. According to the Development Plan, the number of persons engaged in arts and crafts production in the tableland region exceeds 40,000.

The most outstanding arts and crafts products are the following:

- Textiles
- Clothing
- Pottery
- Furniture

Arts and crafts production follows very primitive patterns based on the individual work of the craftsman which covers the total production cycle, that is to say from the purchase of raw materials to the sale of the finished product.

Only as an exception are there arts and crafts cooperatives which are limited to the marketing field; and these have a very small volume and their means are scanty.

The cost of arts and crafts products would be extremely high if it were not for the fact that labour is very greatly undervalued.

On the other hand, it is necessary to stress the fact that a countless number of articles having a definitely conventional demand are produced by craftsmen following elementary techniques, along with other genuine arts and crafts products of a notably indigenous nature.

In brief, as the most outstanding deficiencies which characterize this sector, the following may be indicated:

- A plan of operations which follows very primitive patterns.
- Production of some articles which should rather be manufactured in the industrial sector.

3.2.2.- Specific problems

The problems which specifically affect the industrial branches which were the subject of direct research, (food, textiles, ready-made clothing, footwear and wood) are closely related to the general aspects described in section 3.2.1. on the analysis of which it is not necessary to insist.

However, the branches studied present other individual problems to which it is of interest to pay attention.

A. - Food

The problems that incide most on the food industries of the country are the following:

- The seasonal nature of the production of raw materials which directly gives rise to a high rate of idleness.

- The structure of the primary sector, due to which the prices of agriculture and livestock products are increased and a sufficient quality is not always achieved.

In addition to the aspects indicated, it is interesting to emphasize some points related to the specific activities analysed.

Slaughtering of livestock

The seasonal nature of meat production has special significance due to its influence on the level of utilization of the slaughtering capacity of the corresponding industry.

The seasonal cycle of the said production is directly related to the rainfall on which, in turn, the abundance or lack of pasturage depends. Consequently, the meat industry experiences falls in production of up to 50% in the months from February to June.

Another point which must be emphasized is that there is a tendency in the country towards the breeding of mixed meat/milk cattle from which the average yields are lower than those obtained from specialized breeds.

Dairy industry

The problems of the dairy industry are very similar to those cited in the preceding paragraph.

The annual milk production is around 700,000 litres and the daily yield per head is 2.9 litres, a very low rate.

On the other hand, the seasonal character of this production is very pronounced, causing the level of manufacture of dairy products to decrease by 75% in the dry periods.

Taking into account that pasteurization is the predominant method of milk processing and that the product obtained can only be kept for a maximum of two days, one can deduce the repercussions of the above-mentioned seasonal variation on the level of consumption according to the different times of the year.

Fruit and vegetable canning industry

The seasonal production of the raw materials and their high price and mixed quality are the most serious problems which the fruit and vegetable canning industry runs into.

By way of example, one may cite the case of tomatoes, of which the cost is very high due to the fact that growing operations are extremely small and are worked with unsuitable methods, obtaining extremely low average yields.

Spirits industry

Guatemala produces various kinds of alcoholic beverages of which common rum has the highest consumption.

On principle, the product of major interest is the high quality bottled rum produced by some firms in the country, which has at present a very low rate of utilization, which must be blamed on the lack of penetration into foreign markets in which, with adequate commercial aggressiveness it should be possible to succeed in introducing this product.

In any case, it must be said that at least certain firms plan to launch their products on the foreign markets.

B. - Textiles

The most outstanding deficiencies observed in the textile industry, as in the clothing and footwear industries which are dealt with later on, fall within the general problems described throughout paragraph 3.2.1. Consequently, these are not going to be unnecessarily repealed.

In the specific sphere of the textile industry, the following are outstanding:

- Little diversification of production which restricts the marketing possibilities of the goods on the domestic market.

- Lack of originality in design which, in general, is based on copying.

- Absence of an organization which generates or channels fashion trends to the industry.

C. - Clothing

In the clothing sector, as in that of textiles, the lack of creativity in regard to design is conspicuous.

The excessive number of very small firms and the idle capacity concealed due to lack of rationalization are remarkable in this sector.

Also, in some cases, a lack of effectiveness of incentive systems can be observed as far as increased productivity is concerned.

As in the textile industry, the absence of a system for making fashion trends available to the industry is conspicuous.

Finally, the lack of coordination between the textile industry and the clothing industry is outstanding.

D. - Footwear

The problems affecting the footwear industry are similar to those mentioned in the foregoing section as regards lack of rationalization, style, and absence of co-ordination, in this case with the tanning industry.

It is necessary to point out, in addition, the particular tendency in the footwear manufacturing industry towards marketing in shops owned by the manufacturer.

The possibilities of producing defined qualities are limited by the conditions in the tanning industry which does not produce different kinds of leather.

E. - Timber and wood

In the first place, it is necessary to emphasize the fact that, as an exception, in view of the interest and the projects existing in the country, the industrial branch of the wood sector has been considered to a depth that exceeds the limits of the present study, because it was sufficiently interesting to justify this treatment.

The activities which were analysed basically, within the wood sector were sawmills, carpentry, veneer manufacture and furniture.

The factor common to the activities of sawmilling, carpentry and furniture making is the use of very rudimentary working methods, with an important craftsmanship component and the absence of rational organizational plans and a great lack of utilization of industrial waste.

Practically all the firms in the wood sector, except sawmills, have access to a limited market that does not exceed national scope and very often only that of the province.

The most relevant aspects that may be mentioned in relation to the activities analysed are the following:

- Sawmilling

The first and most important circumstance that has to be kept in mind in considering sawmilling is its character as a consumer of forest products. The development of the sawmilling industry is, therefore, restricted by the said resources.

In Guatemala there are three distinct areas related to the kind of tree produced and the richness of the forest product:

- The "Costa Sur" on the Pacific and the so-called "Costa Reina" that extends from Izabal to the north of Huehuetenango with a predominance of leafy trees.

- The Central Region and Plateau which are rich in conifers.

- Petén, where leafy trees in a great variety of species predominate.

The first two areas are under the control of the Department of Replaceable Natural Resources, and Petén is under the "FYDEP" (Growth and Development of the Department of Petén).

The two organizations mentioned operate independently. The standards governing the forestry operations are, consequently, different for Petén and for the rest of the country.

A remarkable fact is that there is no forestry inventory for Guatemala.

It is also necessary to emphasize that in the year 1973 there is no budget assigned for re-afforestation.

Up to the present time, the exploitation of the forest resources has been carried out in an anarchic manner, independently of any planning, which has given rise, in the beginning, to the extinction of certain species in some areas.

It is necessary to stress the large number of species that exists in the country. This fact is especially remarkably in the Department of Petén in which, however, chiefly mahogany, cedar and some pine is cut and hardly any attention is paid to the so-called "secondary woods".

Another aspect that it is important to stress, caused by the lack of planning in the exploitation of forest resources, is the loss of a certain amount of wood because the felling does not take place when the trees are of a suitable age.

With regard to the use of the wood produced in the country, it can be stated that the uses for which the species, especially those known as "precious" or "semi-precious" are destined are often unsuitable, especially if it is taken into account that the world demand for these woods has not been satisfied.

Exports are carried out freely and are generally in the form of dimensional wood, that is to say in the form of goods with very little value added. The volume of exports in 1972 reached 17 million board feet, or approximately 40,116 cubic metres.

All the foregoing considerations tend to point out the dependence, already noted, of the development of saw-milling activities and likewise of the whole wood sector on the forestry sector.

Finally, it must be pointed out that the final draft of the "Master Plan for Replaceable Natural Resources", still in the blue-print stage, is expected in the month of November 1973, so that it has not been possible even to take it into sccount.

- <u>Wood carpentry</u>

The most relevent aspects of the wood carpentry activity are the following:

. The use of rudimentary working procedures and low rationalizstion rates.

. The use of specific species of wood for purposes that could be supplied with less valuable materials.

- <u>Wood veneers</u>

The kind of wood veneer most widely used in Guatemala is that known as plywood, or panels of three layers, for which there sre some manufacturing plants in the region.

In Guatemals, on the other hand, there is a factory producing panels made of wood particles which has a maximum production capacity with three shifts, of 7,800 cubic metres per annum which at present is under-utilized. If it is taken into account that plants with an annual production capacity of 150,000 and 200,000 cubic metres are relatively frequently found in the world, and that a production capacity of less then 20,000 cubic metres is rarely found, the degree to which the plant existing in the country is under-sized is easily assessed.

The reasons why the growth rate of demand is practically nil for this kind of board can be attributed to consumption habits in the activities having demand potential (building, decoration, furniture, etc.) which as has been pointed out, use other materials.

- Wood furniture

Wood furniture manufacturing is very limited and the firms are of a very marked local nature.

This activity shows particularly the tendency of manufacturers to lengthen the production cycle to include retail sales in their own outlets and granting credit to the purchaser.

The problem of lack of management techniques is also of special importance.

The "apparent idle capacity" is very high and if to this is added the idle capacity concealed under lack of rationalization, an extraordinarily high rate of actual infra-utilization of the production capacity results.

4. - RECOMMENDATIONS

The recommendations that are going to be presented in the present chapter, as has already been pointed out, are directed towards correction of the deficiencies that affect the different industrial sectors. This, in turn will permit the improvement of the degree of utilization of the existing production capacity.

In the first place, a series of recommendations of a general nature are established conducive to counteracting the deficiencies having a general character, which are to a greater or lesser degree common to the different industrial branches.

In the second place, measures have been defined which it will be necessary to adopt in order to correct the specific problems of the activities analysed during the direct research carried out.

The final, and at the same time the most important purpose of the measures which it is advised to adopt, is none other than the provision to the industry of the country of the instruments necessary to facilitiate its future development.

Finally, the action advised is analysed in the light of the classification by order of importance of the activities established.

4.1. - GENERAL RECOMMENDATIONS

Reference has already been made to the atomization that characterizes the industry of Guatemala and to its consequences.

Even if, as the result of an adverse combination of situations, small and medium-sized firms disappear, it has to be considered that, at the same time, other new firms would be created so that the balance of under-sized establishments will continue to represent a large volume.

Consequently, it is necessary to take into account that the existence in Guatemala of a very high percentage of small and medium-sized firms is an unquestionable fact and will be in the future. Therefore, the recommendations that are being presented should not be directed only to the correction of the deficiencies that afflict the currently atomized industry of Guatemala; neither is it a question of giving a series of guidelines leading to the elimination of the above-mentioned under size of firms, in many cases inevitable. What is necessary, even admitting the advisability of achieving improvements in the size structure of the industry, is to assure the continuity in the market of the small and medium-sized firms on competitive conditions. It is a question of providing to the said firms the necessary means for increasing their stability for a long period of time and for improving their profitability by correcting their chief deficiencies and by achieving the maximum use of the installed capacity of their facilities.

The recommendations presented in accordance with the purpose described are centred basically, on the aspects dealt with in Section 3.2.1.

However, most of these recommendations are addressed to the small and medium-sized firms which at present represent a large portion of Guatemalan industry, but they are not, strictly speaking, applicable to the arts and crafts sector, which is of particular importance in Guatemala. For this reason the general recommendations are completed by listing a series of measures which it is advisable to adopt with the purpose of promoting and channelling the development of the said sector in the country.

A. - Supply

The poor position of the firms in negotiating purchases, which is especially important for firms which import their raw materials, has a possible solution by means of the association of manufacturers in PURCHASING CENTRES having the mission to develop the management of supplies, which should be planned and negotiated through the "Centre" which would be in a far better bargaining position than the individual firm.

B. - Training of personnel

The question of training of personnel for the industry of Guatemala is of great importance.

Training needs, as said above, extend to almost all levels outside the field of professional training from elementary education to management training.

Therefore, intensification of effort in this area is necessary.

The training of medium level personnel for industry is of great importance.

It is not possible in the present study to define the particular industrial branches on which educational action should be centred since such delimitation can only be carried out on the basis of a far-reaching programme of industrial development that establishes the lines along which the development of the secondary sector should be channelled.

C. - Financing

Action in the field of industrial financing should have two basic aims:

- To facilitate the access of small firms to financing.
- To reduce to the minimum possible the action of banks against small firms due to payment failures.

The achievement of the first aim can be reached by means of establishing CREDIT COOPERATIVES which would allow firms to have access to Bank loans.

The second aim can be achieved by means of legal action which tends to hold the final bearer responsible for the value of the draft. In this way, when the said bearer is a banking institution and the latter cannot make the drawer responsible for the draft a protest will be made automatically which should be executed according to the most flexible procedure possible.

D. - MARKETING

The problem of marketing seems to be linked in one way or another to the "resistance" of the industrialists to an opening towards foreign markets. It is very probable that if such an "opening" should occur, it would be very beneficial, even for marketing within the country, through the change of outlook that entrepreneurs would undergo.

In any case, the advisability of selling products on the foreign market seems undeniable. In order to achieve this objective the following lines of action are proposed:

- To strengthen State activity in prospecting and analysing foreign markets.
- The promotion of MARKETING ASSOCIATIONS for the export of Guatemalan products under trade marks created for the purpose.
- The establishment of export incentives by means of the concession of special loans for this purpose and of tax relief.

E. - Organization

The low management level current in the Guatemalan firm has already been indicated as well as the repercussions of the said low level on productivity and, consequently, on the yield index of the firms and on their competitivity in the market.

It is obvious that the improvement of management in small factories is difficult to approach internally by each individual firm, due to the following circumstances:

- Insufficient training of the management team.
- Shortage of financial means available to obtain advice from overseas.

As a result of these considerations two possible alternatives - which are compatible - are found:

The first is based on the establishment of an INDUSTRIAL ADVICE CENTRE at State level, able to give advice to industry by means of carrying out the following functions:

- The determination of "integrated management models" applicable to firms.
- The implementation of the said models and control of their operations in the plants.
- Training of personnel necessary to the firms for undertaking the management work within the organizational field.

- Maintenance of staff or mobile personnel (methods and time analysts, etc.) for their temporary assistance to manufacturing plants.

It is obvious that there are great difficulties connected with the above-mentioned functions.

The operation of the Centre should be established in accordance with the following guidelines in order to fulfil the aims proposed:

- Initially the work should be limited to a small number of homogeneous activities or sectors. In the long-term it will be necessary to have as many divisions as there are fields of activity to examine (composed of the above-mentioned groups of homogeneous industries).

- In each field of activity standards will be established for the classification of the firms included in it.

- Later on a suitable "integrated management model" will be determined for each of the types of firms established, the implementation of which should be carried out later in the manufacturing plants.

It is important to state that the definition of the model mentioned above should include all kinds of details from the design of the "stock control card" to the "accounting plan" or the "production incentives" system.

The second alternative is defined as a way of association and is put into effect by creating private advisory units promoted for the purpose of assisting homogeneous industrial groups.

It is obvious that it is essential to bring about a connection between the State organization and the private consultative bodies since their work can perfectly well be of a complementary nature and of help to the official Centre.

F. - Research

The absence of research programmes within the Guatemalan industry has been emphasized. However, as pointed out above, there is no doubt that if the sector is to be developed with regularity, autonomy and stability, it will require research support in the following aspects:

- Product design and definition
- Technology

Consequently, it is proposed to intensify research work granting advice to firms in the two aspects noted above, channelling the action precisely with the said purpose, and avoiding useless efforts that result from an excessive dispersion of objectives.

The carrying out of the work recommended must be, thus, dominated by a maximum approach to industry, based on a great dynamism and concern for the problems of the firms.

It is a question of offering a direct service to the plants, lending them know-how in the fields of design and technology, without losing sight of the technological progress in the world.

G. - Central American Common Market

The problems resulting from the instability of the Central American Common Market are actually beyond the national scope and can only be solved through the concensus of the five Central American Governments.

There is no doubt that, on a long-term basis integration would strengthen the economy of all the countries of the area which individually would have to overcome, in theory, greater obstacles to reach the same goals.

H. - Arts and crafts

The need to strengthen the handcrafts sector is beyond any doubt, taking into account the importance of this sector in Guatemala.

The isolated work of the individual craftsman cannot succeed in penetrating into certain markets due to lack of management ability. This, at the same time, causes the cost of the product to be raised considerably, basically because the amount of raw materials used is very small which does not allow economies in purchasing.

The solutions proposed are based on two points:

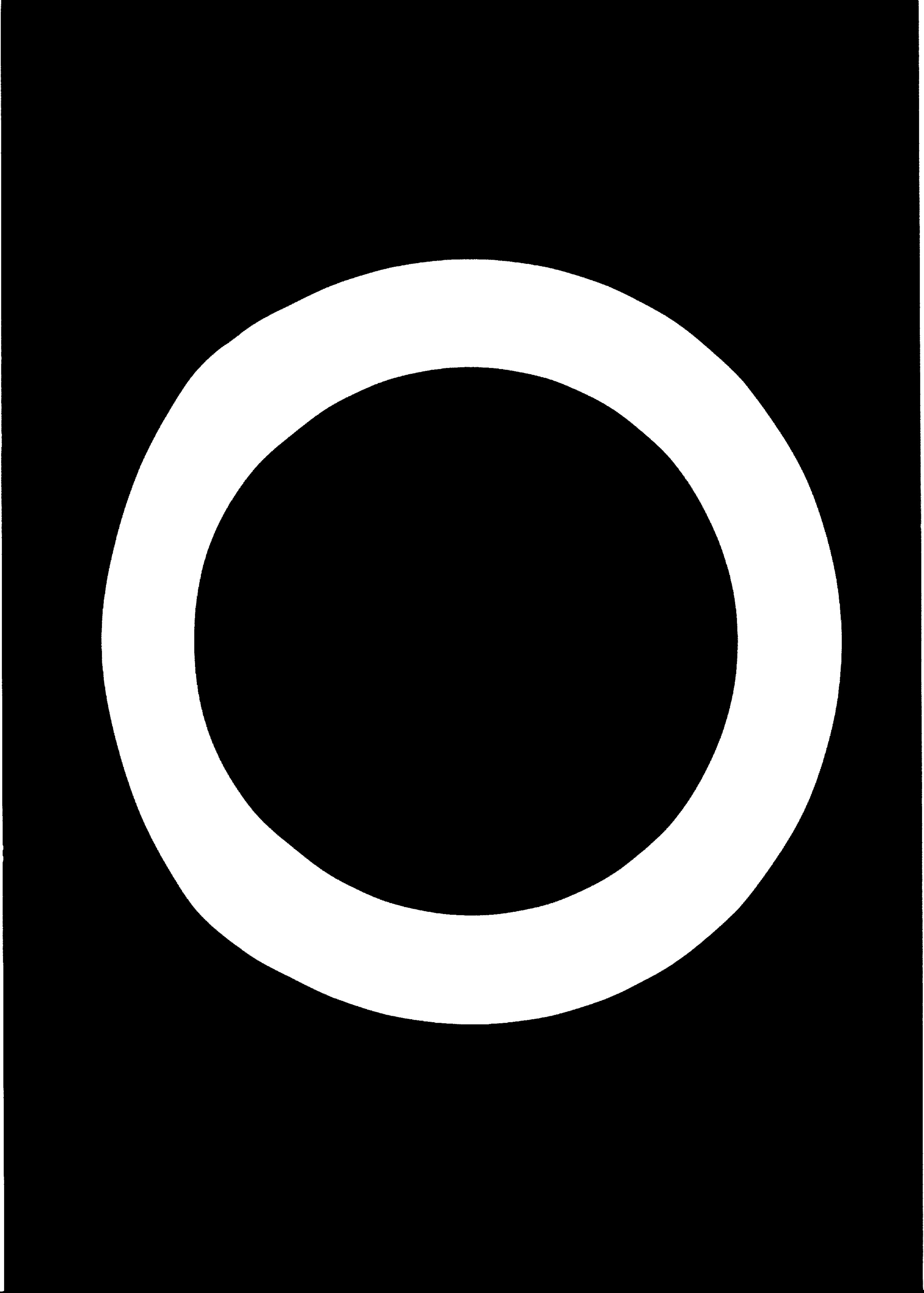
- The establishment of a GUATEMALAN ARTS AND CRAFTS CENTRE having the following main functions:

  - Products design and advice.
  - Marketing of products, giving special attention to the foreign market.
  - Financing assistance to the handcraft type of firm.

- Promotion of craftsmen's associations by favouring the formation of MUNICIPAL ARTS AND CRAFTS COOPERATIVES having the following functions:

  - Planning and purchasing.
  - Distribution of raw materials.
  - Production programming.
  - Marketing, in coordination with the CENTRE.
  - Centralization of the specific operations of the productive process.
  - Coordination with the CENTRE.

Reference was made in Section 3.2.1. to the



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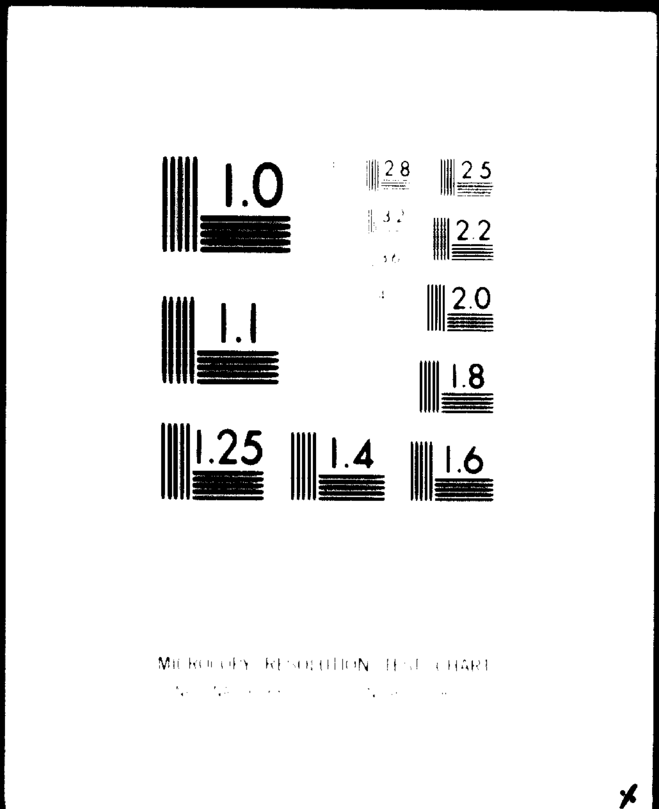

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existence of conventional consumer goods manufactured by craftsmen. The development of this type of handcraft operation can only be achieved, in the long term, by its transformation into an industry. Therefore, in accordance with the proposed scheme, on a long-term basis, it will be necessary to move towards the transformation of part of the handcrafts cooperatives into industrial cooperatives, preserving for the rest of the sector a genuine handcraft character.

4.2. - SPECIFIC RECOMMENDATIONS

The problems that affect the activities composing the main field of research coincide, for the most part, with those of a general nature indicated for industry as a whole. Consequently, the corrective action that should be taken is likewise similar, for which reason it is not necessary to give a lengthy description.

Thus, in order to avoid repetitions, the specific recommendations are limited to problem areas peculiar to the activities analysed.

A. - Food

The most general problems in the food industries are closely linked, in most cases, to the farming sector. Consequently, their solution has to be approached within the said sector by means of improving the following aspects:

- Planning of farm production.
- Restructuring of the farming and livestock sector.
- Rationalization of farming operations.

In connection with the specific activities dealt with in Section 3.2.2.A, the following should be considered:

Slaughtering of livestock

The most important action that should be undertaken with the abbatoir industry is based on the following aspects:

- Structural analysis of the livestock sector for the subsequent correction of the deficiencies found.
- Promotion of specific breeds to increase average meat yield per head.
- Analysis of the possibilities of increasing the proportion of mixed feed represented in the diet fed to livestock with the purpose of reducing the fluctuations of the livestock production curve.
- Analysis of the possibilities of integrating the meat processing industry with that of slaughtering in order to improve the joint productivity of both types of industry and to improve the index of utilization of by-products.

Dairy industry

The recommendations that must be made for the dairy industry practically coincide with those established for the livestock slaughtering industry in regard to the structure of the livestock sector and the promotion of specific breeds and the selection of stock to improve the milk per head yield index.

As far as the range of products is concerned , the fact must be stressed that specific forms of milk processing to reduce perishability rates are not used. For this reason it is recommended that the possibility should be considered of employing processes such as sterilization, that prolong the life of the product up to about six months. In this way it would be possible to regulate the availability of milk on the market to maintain a constant level of production.

Fruit and vegetable canning industry

The action that should be taken to correct the chief deficiencies that affect the fruit and vegetable canning industry are summarized as follows:

- Restructuring of the primary sector.
- Rationalization of the farming operations.
- Analysis of foreign and domestic demand for canned fruit and vegetables in relation to the varieties of fruit and vegetables available in Guatemala. With this basis, it should be possible to determine the composition of the range of goods suitable for production, overlapping production of different seasons and thus regulating the productive cycle.
- Diversification of the canned products, seeking, within the outline indicated in the previous point, to minimize as far as possible the seasonal fluctuations of the productive cycle. This leads to the possibility of complementing the fruit and vegetable range with meat products, prepared meals, etc.

Spirits industry

The measures of a specific nature that should be adopted in the spirits industry are centred on a single objective: promotion of the high quality Guatemalan rums in the overseas market, supported by the establishment of a trade mark that would identify the rum in accordance with its place of origin.

B. - Textiles

The problems of the textile industry fall especially within the range of general problems described for industry as a whole.

It is only necessary to indicate, as a specific action, for the textile industry the need to take care of the creative aspects in relation to design and to establish regular channels by which the firms may follow current styles in a coherent way, and coordinated to those of the requirements of clothing manufacturers.

Both of these requirements can be met by the establishment of a GUATEMALAN FASHION AND DESIGN CENTRE. The most important functions of this organization would, therefore, be the following:

- Definition of fashion by means of incorporating the styles current overseas and by the contribution of original ideas.
- The creation of designs for the industry in accordance with the fashion trends defined.

Finally, the above-mentioned organization should aim - in the short term - to establish a true "Latin American" fashion that, launched from Guatemala may have a wide international acceptance. This would imply a very important step in view of its undoubtable repercussions on the future of the whole clothing industry.

The Centre, defined with the aims explained, would have to include sections assigned to each of the fields which comprise the clothing industry in its most general meaning.

C. - Clothing manufacture

As in the case of the textile industry, the most outstanding specific problems of the clothing industry fall within the sphere of style and design. Therefore, the solutions are those defined in the preceding point.

Consequently, the "Guatemalan Fashion and Design Centre" would have to cover the specific field of the clothing industry through a department created for the purpose. At the same time it would serve to link the clothing and textile industries of the country, thus filling the gap that exists at present.

An aspect which, on another level, has a certain relevance is the lack of growth in productivity on the part of the workers vis-à-vis the establishment of incentives systems. The solution should be approached at base, by means of undertaking a motivational analysis which would permit discovering the reasons for the workers' behaviour in order to take suitable steps in consequence.

D. - Footwear

The similarity of this sector's situation with that of the two preceding sectors is obvious. Therefore, a section will have to be created in the Centre, the establishment of which is highly advisable in order to cover the shoe industry.

Likewise, it will have to pay a certain amount of attention to the tanning industry, always in relation to fashion, co-ordinating both activities in the same way as in the case of the textile-clothing cycle.

Aside from fashion, it is most important to bring up to date and promote the development of the tanning sector in order to support the development of the footwear sector.

E. - Wood

The problems in the wood sector are many and complex. Solutions to the said problems must be, within the frame of defects of a general kind, particularly energetic in each case, especially insofar as they refer to plant rationalization.

Within the specific frame, a scheme of action for the sector is indicated that can be summarized in the following points:

. The granting of a priority character to plans for re-afforestation, giving special attention to the choice of the most suitable species in relation to the market, and avoiding an excessive diversification.

. Reconsideration of the system by which the forestry sector of the country is governed at present, since it is dependent on two organizations.

. The establishment of limitations of size for the establishing of new industries engaged in the preliminary processing of wood.

. The promotion and utilization of industrial by-products and other waste.

. According to the foregoing, to increase the capacity for manufacture of chipboard based on the utilization of:

- Forest waste
- Industrial waste
- Waste sugar cane pulp

. The promotion of the domestic consumption of chipboard for which it will be necessary to establish special levies for products made from certain raw materials.

. As a complementary measure, action to support the export of articles made from the raw materials referred to in the previous point.

. At the same time, to promote exports of products of preliminary processing, subject to intensification of the development of the said industry, tending to sell abroad the more highly processed products such as veneers, plywood panels, etc.

. It is especially emphasized that the preceding points merely constitute an outline of action which will have to be considered in depth to the point of deciding on completely concrete and specific solutions.

4.3.- RECOMMENDATIONS ARISING FROM THE CLASSIFICATION OF ACTIVITIES BY ORDER OF IMPORTANCE

The classification by order of importance with reference to the totality of the industrial activities must be considered, as has already been indicated, with a very limited character and should not be given greater importance than that of a trial, since it includes industrial branches of maximal importance at the present time.

Therefore, attention must be centred on the classification in reference to the small industrial unit, the planning of which arises from stricter theoretical schemes.

A study of the results obtained is not going to be undertaken. In any case, these results must be accepted with reservations, since to go into depth would entail an analysis of the reliability of the statistical data utilized and the integration in the proposed aims of the components of the round tables, which allow the definition of the weight of each criterion of classification considered, which is not possible in the present study.

Consequently, it is again stressed that the classification obtained is indicated as a "first step" which should be followed by others tending to perfect the system in order to increase the degree of reliability of the results and to keep them up to date.

On the other hand, the classification established must be considered as an attempt to indicate to the organizations involved in the industrial development of the country a path to be followed in order to combine efforts in the future on a short-term basis. It must be taken into account that, at the presemt time, the operations of the different institutions are of a rather isolated character and lack co-ordination among themselves.

Finally, the partial nature of the present study must not be forgotten, and, therefore, that of the classification made that must be complemented by the definition of industrial sectors that must be re-structured or re-converted, the new lines of industrial development both in the conventional and the strategic sense, and other series of actions of an institutional or entrepreneurial character that would give rise, jointly, to an authentic programme of industrial development.

By limiting the classification under reference to the small industrial unit, it is possible to note the parallel situation that exists between the classification of activities and those which constitute the principal field of research chosen in section 3.2.

The importance of all the actions recommended in the field of "clothing" is emphasized and, in particular, the importance of the GUATEMALAN FASHION AND DESIGN CENTRE. Also outstanding are the recommendations which refer to the primary sector because of their relation to the food and wood industries.

The inclusion of the activity described as "manufactures of mill products" is justified because of the presumably gradual transformation of a large number of arts and crafts concerns into industrial concerns, which has assumed a high degree of dynamism in the sector. On the other hand, the rate of development of this activity in the country continues to be foreseeably high and its importance as a supplier of biscuit products, which have very good export possibilities, is notable.

To conclude, it is necessary to recommend the direction of efforts of all the organizations involved in the industrial development towards the activities at the head of the classification established, and, in particular, towards those which constitute the clothing industries group (textiles, clothing and footwear), the inter-relation of which gives them even greater importance.

ANNEXE I

PROPOSALS FOR NEW PROJECTS

PROPOSALS FOR NEW PROJECTS

1. - Preliminary considerations

It is obvious that in order to attain the proposed objectives, it is necessary to go ahead with the various projects and activities established as being appropriate for this purpose.

With regard to the utilization of excess productive capacity, to which reference was made in the previous Study, the most immediate conclusion reached is that the sub-utilization of installed capacity is appreciable, and is due to a wide variety of causes. It has not been possible to enter into the quantitative aspects of these causes, since it was considered to be of greater priority to establish a well-based methodology in order to determine the industrial sectors that should receive preferential attention.

The diversity of the causes discovered makes it necessary to try to correct each of them by means of specific actions or projects which, although they may seem to be independent of one another, could not give the desired results without previously harmonizing the various programmes and including them within a general plan that carefully establishes the general aims, both short-term and long-term, as well as the most appropriate distribution of the financial and human resources available.

In this sense, both the new projects and the recommendations made in the corresponding chapter can be practically derived from the Study carried out. Several of these projects are outlined in the following pages.

The establishment of a budget for the implementation of each of the said projects has been deliberately made essential in view of the fact that the amount of the budgets depends on the circumstances prevailing and on whether the projects are carried out simultaneously or independently.

We think it necessary to point out, as has already been done many times throughout the Study, the need to carry through a Plan for the Industrial Development and Promotion of Guatemala in a coherent and integrated way, with a criterion of uniformity of aims.

We abstain from suggesting the content of the Study that would lead to the definition and establishment of the said Plan, since that would exceed the limits of the present work and, in addition, we note that this project is already in an advanced stage of study by the competent authorities of Guatemala, the PNUD and the ONUDI.

Many of the data and suggestions contributed in our Study, both in the part corresponding to Decentralization and in that which refers to the utilization of idle capacity, would be useful in the preparation of the General Plan, and it would be advisable to keep them in mind to avoid duplication of efforts.

However, notwithstanding what has been said, we call especial attention to the advisability of establishing the joint actions necessary in order to channel the industrial development of the country, including the exact definition of the role that each of the existing organizations should play in order to achieve the proposed aims.

We should like to make known the excellent impression of unity that exists among the organizations and institutions within the Guatemalan Administration in the wide field of industrial development. We think that, fundamentally, all the aspects have been foreseen and that the appropriate institutional instruments have been created.

There remains only the task of improving the definition and the exact delimitation of the respective competences and contributions, as well as the harmonizing and appropriate coordination of the functions incumbent upon each of the said organizations and institutions, within the general and particular aims established by the Plan.

Finally, the institutions will have to be endowed with the indispensable means and resources in order that they may fulfil the commitments which may be assigned to them and carry them through to the appropriate level of practical and effective completion that may be expected from the excellent technical training and capability of their professional staffs.

2. - Specific projects that derive from the present Study

The foregoing considerations having been made, and an order of relative priorities established, since the measures recommended can only be effective if they complement each other, we would propose the following projects:

- Purchasing Centres
- Industrial Credit Cooperatives
- Commercial Associations
- Industrial Advisory Centre
- Guatemalan Handicraft Centre
- Handicraft Cooperatives
- Sectorial Ordination Plans

2.1. - PURCHASING CENTRES

This deals with the creation and organization, within the different sectors, of purchasing associations which will have the purpose of improving the bargaining capacity in the case of purchasing supplies, on the part of the firms, making the operations more flexible and improving the profitability to the optimum extent. In successive phases, these centres could be dedicated to the joint purchasing of raw materials and basic products necessary for the firms in their respective sectors and subsequently they could extend their function to the purchasing of equipment and spare parts.

On a short-term basis, the creation of such centres could be initiated within some of the most important industrial activities in the country, in accordance with the classification by order of importance which was established in the present Study.

On a long-term basis, the creation of purchasing centres could be extended progressively to the other industrial branches.

These centres would have a basically cooperative character, although membership in them would be of a voluntary nature.

The implementation of the project proposed should encompass the following phases:

a) Selection of the most suitable sector by means of the application of criteria of priority already established, complemented by sectorial surveys in order to determine the needs and the minimum participation envisaged for the firms of the sector in the project.

b) Establishment of the volume of the total needs of the sector, as well as the partial requirements of the firms that have shown, in principle, there interest in participating in the project.

c) Schematic for establishing the associated centres within the institutional and legal framework of the country.

d) Delimitation of the functions that the organizations would have to carry out and the establishment of the corresponding organization chart.

e) Definition of the dimensions and personnel needs of the centre, as well as its possible location.

f) Regulation of the relationship between the centre and the associated firms.

g) Budget and financial organization.

The implementation of the project presents two clearly differentiated phases:

- Initial phase, in which the above-mentioned aspects would be defined.

- Operational phase, in which all that has been initiated and established in the previous phase would be put into practice.

The budget for the implementation of the project should be limited , for obvious reasons, to the first phase, for the implementation of which a term of 6 to 8 months is estimated. This could be carried out by a single expert in organization with sound experience in associated purchasing services. Points a) and b) of the programme presented could be carried out by the counterpart organization prior to the arrival of the expert.

2.2. - INDUSTRIAL CREDIT COOPERATIVES

This project would tend to remedy some of the other causes of sub-utilization of production capacity: insufficient access to means of financing due to the excessive fragmentation of some sectors and to the consequent inadequate size of the firms with insufficient management capacity and inadequate guarantees.

The process of creating these cooperatives would be, essentially, the same as that explained in the previous project.

With regard to the institutional framework, these cooperatives would have to be promoted by and possibly included in CORFINA, or at least they should be in close contact and collaboration with this organization, which would have to act as counterpart in the project.

For the purpose of improved administrative yield, these cooperatives could also be included in the Purchasing Centres proposed in the previous section, since many of the transactions could be carried out by the same personnel, although the organization of the financial structure would have to be independent in view of the different origin of their budgetary resources.

On the same assumption expressed in the previous project, an expert in industrial financing with experience in credit cooperatives would be required for a period of one year, assisted by an expert for the contribution of the appropriate extension services.

2.3. - COMMERCIAL ASSOCIATIONS

These associations, also known by the name of "Commercial Services", would have to undertake the study and action concerned with all the problems that together affect their corresponding sector, including the aspects of standardization, tax matters, marketing and markets, and especially of foreign markets.

For this reason, we suggest that it would be advisable that these Associations should also have a voluntary character, although it could be a requirement, as a preliminary condition to the granting of facilities, that they be promoted by GUATEXPRO, and in all cases they should be created taking into account the need for a good coordination of their activities in relation to the foreign sector, with the said agency of the Administration.

Commercial Associations or Services would constitute the most suitable channel for representing their various sectors before the Administration, and would be valuable collaborators with the latter in the establishment of plans and requirements for the industrial development of the country.

On general lines, the progress to be followed for the implementation of a project of this nature would be similar to that established in section 2.1. and it would suffice to have the services of one expert in industrial promotion with experience in the management of sectorial commercial associations for a period of one year, in collaboration with local counterpart personnel who could be incorporated into the project to the extent that progress is made in its implementation.

2.4. - INDUSTRIAL ADVISORY CENTRE

This Centre would have as its principal function that of advising industrial firms in the field of organization, according to the system described previously in the chapter on recommendations.

The short-term aims of the project would be the following:

- Creation and organic definition of the Centre.
- Preparation of organization models to which reference was made in the recommendations of the present Study, applicable to the firms engaged in an industrial activity of importance in Guatemala.
- Establishment of the said models within the corresponding industrial activity.

In order to achieve this aim, it would be necessary to select a "pilot group" of industries within which the proposed plan would be carried through with a view to extending it subsequently to other groups and sectors.

The experts assigned to the project, including the counterpart personnel should undertake the following activities:

- Make direct contact with the firms selected for the "pilot group", and analyse their respective situations and problems in their organizational aspects, preparing the corresponding reports in conformity with the previously established common scheme.

- Prepare the typified organizational management models, taking into account the results of the previous survey and of the evaluation of the data collected.

- Apply the models to the firms of the group.

Particular attention should be paid, in this case, to the assignment to this project of several Guatemalan technicians who may take an active part in its development under the direction of the experts, in this way acquiring the experience necessary in order to be able to continue the work initiated.

Taking into account the existence of the Advisory Unit of INTECAP, the carrying out of the project would be included in the said department.

For the implementation of the project, the following requirements are estimated:

- An expert in the organization of production.
- An expert in economic and administrative organization.

The minimum stay of the two experts would be 15 months, which implies a contribution of 30 man/months. This period should be complemented with a stay of 1 month by each expert approximately 6 months after the termination of the first phase, for the purpose of revising and evaluating the functioning of the defined project throughout the first year.

Finally, and subject to the criterion of the counterpart authorities, a prior period of intensive professional training in organization techniques would be advisable for various of the technicians who, subsequently would be destined to work on this project. In principle, we think it would be advisable to earmark for this component 4 study tours of 4 to 6 months minimum duration (postgraduate courses), that is to say a total of about 20 man/ months of complementary professional training in international centres of recognized standing.

2.5. - GUATEMALAN HANDICRAFT CENTRE

This project, which we consider to be of great interest in view of the very positive results obtained in other countries, merits a detailed consideration that would exceed the limits of this Study. We limit ourselves, therefore, to presenting its essential features.

The proposed Centre, which could take the form of a firm or company with mixed capital (State and private), would have as functions of primary importance the following:

A) Artistic-Technical: Advice as regards design of products, standardization of products, studies on materials, advice for the promotion of creativity.

B) Commercial: Sales service for the products, paying special attention to foreign markets.

C) Financial: Making financial assistance available to the craftsman firm or to the handicraft cooperatives that are created.

This Centre could be created under the auspices of the Administration and, possibly in close cooperation with GUATEXPRO (although with an independent or autonomous character), carrying out a detailed study of similar organizations already existing in various countries, and seeing the possible differential aspects that would require adaptation to the needs and peculiarities of Guatemala, and proceeding to their establishment once the legal and financial questions were solved.

It would possibly be advisable to have the assistance of consultants on a short-term basis to advise on certain specific problems that arise in the course of the above-mentioned action.

2.6. - HANDICRAFT COOPERATIVES

Simultaneously with or subsequent to the implementation of the foregoing project, the creation of cooperatives could be promoted at the municipal or regional level, in order to improve the efficiency and profitability of the following functions:

- Planning and management of purchases of raw materials and other materials
- Adequate distribution of the same
- Programming of the production in accordance with the market guidelines
- Marketing of products in coordination with the CENTRE described in the previous project.

The implementation of these functionally simple cooperatives could be carried out entirely at the local level, with the assistance of the guidelines and promotional activity of the GUATEMALAN HANDICRAFT CENTRE itself, which could undertake a prior study of the basic structure and regulation of the proposed Cooperatives.

2.7. - SECTORIAL PRIORITY PLANS

The need for such plans is, in our judgement, clearly evident as a consequence of the Study carried out. No doubt, they will be the subject of special attention within the General Plan of Industrial Development and Promotion that will be prepared shortly.

Consequently, we are not going to enter here into a detailed approach to such plans, but we would not wish to finish these proposals without calling attention to the urgent need for such sectorial ordination, some of whose priorities were indicated in the chapters on specific recommendations.

The sub-utilization of industrial capacity has, as one of its most outstanding causes, the existing lack of coordination within certain sectors, between the basic supplies of raw materials, the production programmes, the demand requirements and the existing financial resources, as well as the absence of a clear standard applicable to all the firms of each sector, which would lead to the attainment of certain objectives of common and national interest.

The preparation of such Sectorial Priority Plans should be, therefore, undertaken urgently, always keeping in mind that they should correct situations that could be corrected in a foreseeable period of time (that should be fixed in each case), interfering as little as possible with the freedom of initiative of the firms, but supplying to them the facilities needed for materialization of the plan within a common system.

ANNEXE II

GUIDELINES FOLLOWED FOR THE INTERVIEWS WITH INDUSTRIALISTS

GUIDE FOR CONDUCTING OPEN INTERVIEWS WITH INDUSTRIAL MANAGERIAL PERSONNEL

01. - Company
02. - Person interviewed (Name and position)
03. - City or town
04. - Activity
05. - Number of employees
06. - Range of products
07. - Value of production in 1972
08. - Volume of production in 1972
09. - Production capacity for 1972
10. - Raw materials
    - 10.1 - Source
    - 10.2 - Availability
    - 10.3 - Price
    - 10.4 - Quality
    - 10.5 - Facility of supply
    - 10.6 - Seasonal nature
11. - Other supplies
    - 11.1 - Deficiencies
    - 11.2 - Interruptions in annual supply

12. - Equipment

12.1 - Source

12.1 - Practicality of equipment

12.3 - Age

12.4 - Plans for renewal or renovation

13. - Process

13.1 - Mechanization

13.2 - Obsolescence

13.3 - Distribution throughout plant

13.4 - Bottlenecks

13.5 - Seasonal nature

14. - Cost structure (labour, raw materials, depreciations).

15. - Labour

15.1 - Availability

15.2 - Basic training

15.3 - Professional training

16. - Financing

16.1 - Capacity for financing

16.2 - Sources for financing

17. - Organization

17.1 - Organization chart

17.2 - Duration of working day

17.3 - Management of purchases

17.4 - Control of stocks

17.5 - Working cards

17.6 - Methods and times

17.7 - Remuneration to labour

17.8 - Expenses

17.9 - Maintenance, etc.

18. - Commercial system

18.1 - Distribution system

18.2 - Market studies

18.3 - Advertising

19. - Market

19.1 - Geographical scope

19.2 - Demand in Guatemala

19.3 - Demand in the Central American Common Market

19.4 - Foreign demand

19.5 - Competitiveness

19.5.1. Price

19.5.2. Quality

19.5.3. Adequacy of product

19.6 - Seasonal nature of consumption

19.7 - Trends in consumption

20. - Research

20.1 Private

20.2 Government

21. - Technological sources

22. - Overall problems

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81.09.18