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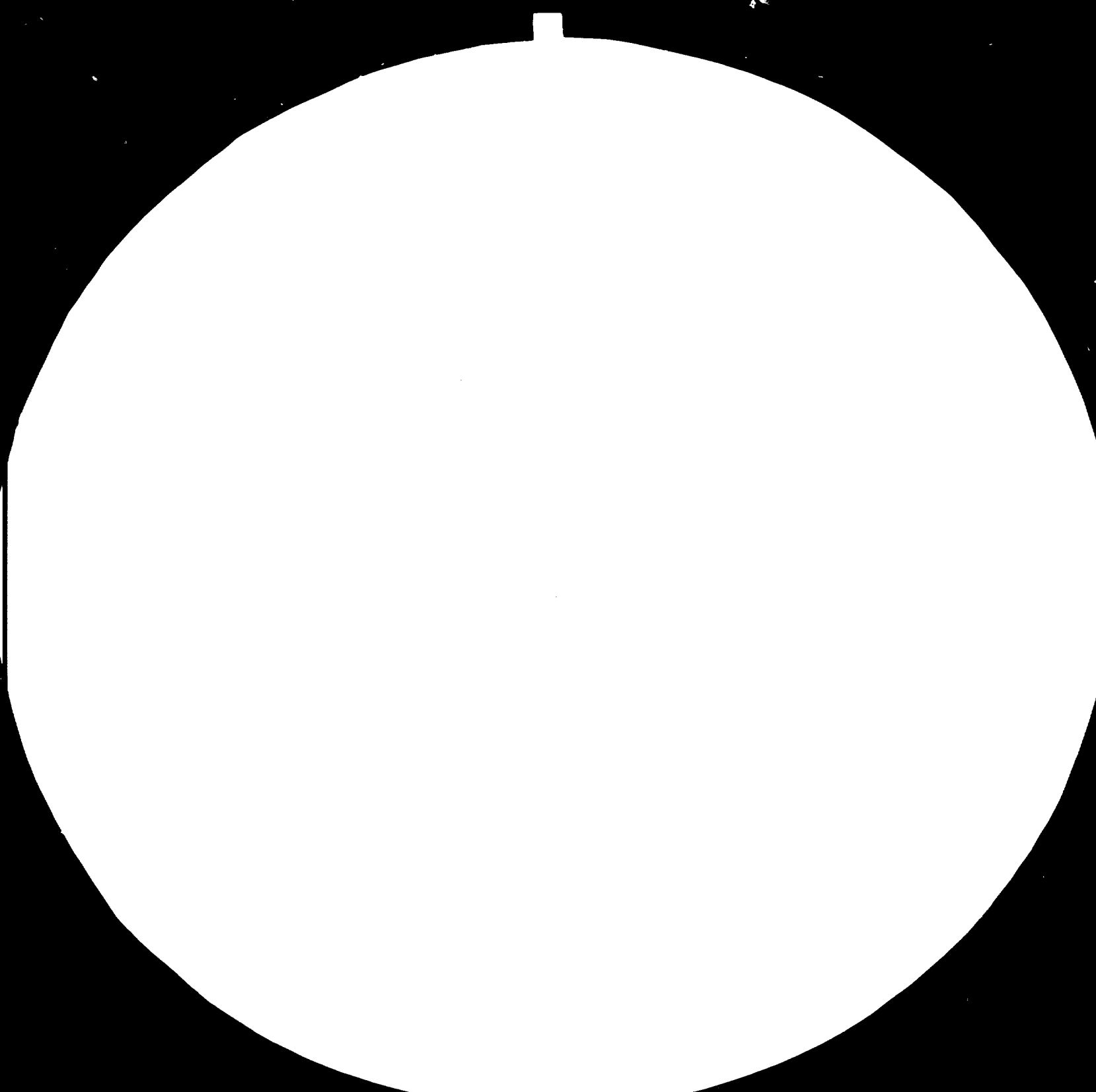

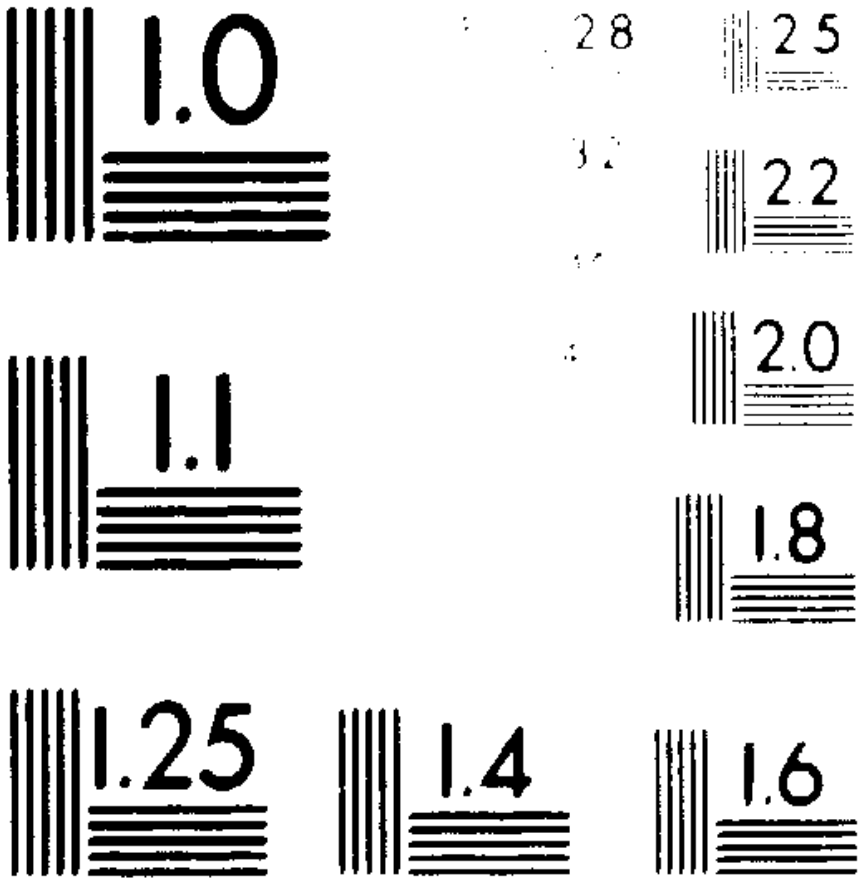

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11 December 1981

Mexico.

ACCELERATED INDUSTRIAL INVESTMENT IN THE STATE OF GUANAJUATO

TF/MEX/81/007

MEXICO

Terminal Report

Prepared for the Government
of the State of Guanajuato, Mexico
by the United Nations Industrial Development Organisation
acting as executing agency for the United Nations Development Programme

Based on the work of Ian Matthews
Senior Industrial Economist/Project Director
and
W.H. Oettinger, Senior Industrial Engineer

United Nations Industrial Development Organisation

Vienna

ACKNOWLEDGEMENT

It would be difficult to express the personal appreciation of the Project Team to all who have been of such assistance; their names are listed in the Annex to the report, and without their collaboration this report could not have been produced. However, it seems right and proper that certain persons should be singled out for having provided assistance and services well beyond the call of duty.

Ing. Mario Duran Vargas who, as counterpart officer, and through his considerable experience in Government and industry, was able to arrange programmes, open doors, and give wise guidance and counsel.

Lic. Leonel Charnichart Celis, Secretario Particular del Secretario de Programación del Estado, was the Project contact with State Government. His personal interest and encouragement was such as to ensure that every facility required was immediately available on request.

Srta. Dennisse Morven Goerne. The presentation of this report to the high professional standards demanded by the Project is due entirely to the untiring efforts of Srta. Morven, a full-time University student, and part-time self-taught typist, and to whom English is a foreign language.

FOREWORD

During the period that elapsed between the date of Project Approval and commencement of operations, Mexico suffered the worst economic crisis in its history.

Instead of encouraging accelerated investment in the establishment of new industries, the newly elected Federal Government presented a programme of dis-investment in parastatal industries. At the same time, a major financial support programme was introduced to support ailing industries.

Manufacturers in the State of Guanajuato were working at 40% to 20% plant capacity, and workers were being laid off. Firms were borrowing heavily at preferential rates, simply to pay wages and provide working capital.

The Project Director therefore took the decision to rearrange the priorities in relation to the realities, whilst preserving the aims and the spirit of the Project, as follows:

(a) Immediate review of current economic factors affecting local and foreign investment at national and State levels.
(b) Short-term. Examine causes for fall in demand, and identify opportunities to increase plant utilisation.
(c) Medium-term. Outline proposals for a balanced industrial development programme for the State of Guanajuato.
(d) Long-term. Propose strategy for attracting new investors to the Guanajuato Industrial Corridor.

The proposals, as outlined, were put to the State Government and the SIDFA, UNIDO, and were given their full support.

INTRODUCTION

This report recommends industrial development and investment promotion strategies for the State of Guanajuato, in the context of the National Development Plan, 1983-1988, and the present state of the Mexican economy.

Firstly, the report outlines the national policy for industry as presented by the President of the Republic, 1st. September 1983, and reviews the national economic environment. (Chapters One and Two)

Secondly, the report identifies Federal Government investment policies, incentives and financial support programmes which have a direct bearing on future industrial development in the State of Guanajuato. (Chapters Three to Five)

Thirdly, the report reviews the current industrial status and economic trends in the State of Guanajuato, identifies problems, recommends objectives, and presents three strategic scenarios for their attainment, as follows:

- STRATEGIC INDUSTRIAL DEVELOPMENT PLAN
- STRATEGIC EXPORT PROMOTION PLAN
- STRATEGIC INVESTMENT PROMOTION PLAN

In addition, the report includes 12 new investment opportunities, 2 research proposals, and 9 technical assistance proposals.

The report and recommendations of the Senior Industrial Engineer are presented in their original form, in order to preserve their integrity and technical accuracy.

The Project was of six months duration, June to December 1983. Fieldwork was carried out by the Project Director/Senior Industrial Economist (6-months), and the Senior Industrial Engineer (2-months) in accordance with UNIDO Job Descriptions. (Annexes 11 and 12)

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TWO-TIER CURRENCY EXCHANGE RATES 1983 1/

Pesos per US Dollar

	Market Rate		Controlled Rate	
Month	Total	Average Monthly	Total	Average Monthly
January	148.65	148.85	100.51	98.56
February	148.65	148.65	104.15	102.39
March	148.65	148.65	108.18	106.23
April	148.65	148.65	112.08	110.19
May	148.65	148.65	116.11	114.16

1/ Refer Annex 1

LIST OF ABBREVIATIONS

ADACI	Academia de Arbitraje y Comercio Internacional
BANAMEX	Banco Nacional de Mexico
CANACINTRA	Cámara Nacional de la Industria de Transformacion
CEESP	Centro de Estudios Económicos del Sector Privado
CENAPRO	Centro de Estudios de Productividad de Mexico
CIATEG	Centro de Investigaciones y Asistencia Tecnológical del Estado de Guanajuato
CONACYT	Consejo Nacional de Ciencia u Tecnología
FAO	Food and Agricultural Organisation
FIDEIN	Fideicomiso de Conjuntos, Parques, Ciudades Industriales y Centros Comerciales
FOGAIN	Fondo Nacional de Garantía y Fomento a la Industria Mediana y Pequeña
FOMEX	Fondo Mexicano de Fomento de Exportaciones
FOMIN	Fondo Nacional de Fomento Industrial
FONEP	Fondo Nacional de Estudios y Proyectos
GDP	Gross Domestic Product
GIC	Guanajuato Industrial Corridor
IMCE	Instituto Mexicano de Comercio Exterior
IMMECA	Instituto Mexicano de Control de Calidad
IMIT	Instituto de Apoyo Tecnico para el Financiamiento a la Industria
INFOTEC	Fideicomiso de Información Técnica del Consejo Nacional de Ciencia y Tecnología
NAFINSA	Nacional Financiera SA
PAI	Programa de Apoyo Integral a la Industria Pequeña y Mediana
PND	Plan Nacional de Desarrollo
PROFIDE	Programa de Financiamiento en Divisas para Wxportación
SARH	Secretaría de Agricultura y Recursos Hidráulicos
SECOFI	Secretaría de Comercio y Fomento Industrial
SEPAFIN	Secretaría de Patrimonio y Fomento Industrial
SFES	Secretaría de Fomento Económico y Social
SPP	Secretaría de Programación y Presupuesto

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

1. SUMMARY

1.01 The fieldwork of the UIDO Project in the State of Guanajuato was carried out during the first year of the new Federal Government taking office, at a time when Mexico was faced with the gravest economic crisis in its history. A programme for the Immediate Reordering of the Economy was already being enforced to deal with the crisis in line with the strategy set out in the National Development Plan for Mexico, 1983-1988.

1.02 Consequently, it was important that strategies for the promotion of industrial development and investment in the State of Guanajuato should be designed to contribute to achieving the national objectives, whilst providing a model which could well serve to assist the other Federal States in Mexico.

1.03 The industrial structure of the State of Guanajuato is dominated by three largely unrelated manufacturing categories - the Shoe industry, the Processed Food industry, and the Intermediate Manufacturing industry. Over 90% production is destined for the domestic market and, with the exception of the processed food industry, manufacturers have shown little interest in export markets. Consequently, the economic crisis found manufacturers ill-equipped, in terms both of products and experience, to take prompt and effective counter-measures to compensate for the drastic falls in domestic demand.

1.04 Investment in existing industry has virtually ceased, the banks and financial institutions report that investment borrowing is well below expectations, and the situation could remain this way just so long as an attractive and effortless alternative is available from Term Deposits in the order of 50%p.a.

1.05 Manufacturers in the Guanajuato Industrial Corridor are, for the most part, not interested securing foreign investment at this time.

Involvement with foreign investors, especially in the intermediate manufacturing industry, is considered feasible only in so far as foreign companies are able to provide an established selling organisation in international markets, or able to ensure continual sub-contract work.

1.06 Conversely, the attitude of potential foreign investors is that Mexico's foreign investment laws are too restrictive, offering little incentive to enter into partnership with local firms. Constantly changing interpretations of Mexican foreign investment law abroad, and the nationalisation of the banks, have combined to make Mexico - and thus Guanajuato - less attractive for investment than other countries in the world.

1.07 However, there is encouraging evidence of awareness by industry that the present economic situation also provides opportunities, even though born of necessity, to seek competitive advantages in domestic and export markets. Applications for financial and technical assistance in setting up new businesses are increasing. NAFINSA/PAI report that, during the first eight months of 1983, fifty-one new industrial programmes have been initiated in Guanajuato, nearly half being in the Shoe industry.

1.08 Yet the rate of industrial growth in the Guanajuato Industrial Corridor falls far short of the 682 new companies set up in 1980/81, and a supreme effort will be required to create the 146,000 new jobs needed in the manufacturing industry by the year 2000. This is the equivalent to seven new factories coming on-stream each month from January 1984, each providing an average 100 new jobs. Industrial training facilities will be required for 87,000 persons to perform skilled, technical, or managerial jobs. On the basis of an average 4-year training cycle, this represents a minimum 10,000 persons in training at any time between 1983 and 2000.

2. Conclusion and Recommended Strategy for the State of Guanajuato

2.01 The conclusions to be drawn from the report, and their impact upon Guanajuato's future industrial prospects and strategies, are as follows:

2.02 Short Term

Existing Plant is seriously under-utilised, and increased local market demand is not to be expected during the next three years, 1984-1987. Morecver, higher output levels in manufacturing will be required to obtain the increased employment opportunities necessary to absorb the growing labour force.

A Strategy is required for motivating and assisting manufacturers to actively seek new export markets, as a matter of urgency and even survival.

2.03 RECOMMENDATIONS: EXPORT PROMOTION

It is recommended that 1984 (or appropriate year) should be proclaimed as Guanajuato's export promotion year PRO-EXPO '84, backed up by a sustained programme of events, and supported by a well-planned publicity campaign throughout the year.

It is recommended that a "Governor's Award for Export" should be presented to industrialists for achievements in export, according to aggred criteria, at the conclusion of PRO-EXPO '84. Governor's Awards would take the form of flags or penants to be erected over the factory, and displayed prominently inside the working area and main office. Governor's Awards would be an annual event thereafter.

2.04 Medium Term

Future Industrial development should be related to the heavy demands upon employment which will result from a population increase well above the national average.

A Strategy is required for setting out clearly defined guidelines for the identification of the new manufacturing opportunities and their feasibility by type of industry, appropriate location, employment needs, and training requirements.

2.05 RECOMMENDATIONS: INDUSTRIAL DEVELOPMENT

It is recommended that a Directorate of Investment Promotion and Industrial Development for the State of Guanajuato (PROMIDI) [1/] should be created as soon as possible. Responsibilities would include, inter alia

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1/ Direccion para la Promoción de Inversiones y Desarrollo Industrial (PROMIDI)

the following:

(a) Definition of the current structure and status of industry in Guanajuato.

(b) The current socio-economic situation, projected trends, and the favourable and unfavourable factors that are likely to affect industry over the next 10-years.

(c) The form and structure of future industrial development and investment programmes appropriate to dealing with the situation (b)

(d) The motivating and regulatory role of State Government.

Detailed proposals are set out in Scenario II.

2.06 Long Term

Radical Changes in the national investment climate mean that competition to attract new investors will be stronger and more aggressive than at any time before.

A Strategy is required for a well-planned investment promotion programme to sell the Guanajuato Industrial Corridor as the ideal location above all others in Mexico for the establishment of export industry, whilst at the same time providing fast and easy access to the vital domestic market centres.

2.07 RECOMMENDATIONS: INVESTMENT PROMOTION

The concept visualisation and execution should be assigned to a professional Advertising or Public Relations Agency, with a proven track-record in industrial investment promotion at corporation, if not State level. The agency should have established international connections and an outstanding record in creative communications

A shortlist of agencies should be invited to make presentations to the State Government on the basis of defined objectives and a specific brief.

3. RECOMMENDATIONS OF THE SENIOR INDUSTRIAL ENGINEER

Specific products and technical subject areas are recommended for opportunity studies, feasibility studies, and economic justification analysis, as follows:

3.01 New Investment Opportunities

(a) Agricultural tractors for Mexican conditions

(b) Capital Goods as already recommended by NAFINSA/UNIDO

(c) "Environmentally difficult" type industries

(d) Gears for replacement, and short production nins

(e) Kaolin-coated board for high-quality packaging

(f) Polypropylene film for food packaging

(g) Replacement and spare parts for mechanical units operating beyond "normal" life-usage, due to current economic constraints, reduced purchasing power, etc.

(h) Scientific eduactional materials

(i) Short-run speciality items for import substitution

(j) Soap Fancy soaps based on coconut oil

(k) Steek sfes: Security against fire and theft

(l) Submersible pumps. Deepwell and borehole.

3.02 Raw Materials for import substitution

(a) Leather soles: Research into alternative training materials to replace wattle-bark currently imported

(b) Shoe lasts: Research into Mexican petroleum based derivates to replace imports of plastic waste.

3.03 Technical Assistance

(a) Foundries: Improvement in quality and finish of non-castings from local foundries.

(b) Leather: Improvement in quality of locally produced leather

(c) Training workshops: Establishment of sual-purpose workshops for training and urgent repair parts.

3.04 Administration: It is recommended that implementation of the above proposals shoul be coordinated through PROMIDI (Para 2.04)

CHAPTER ONE

NATIONAL ECONOMIC PRIORITIES

1.01 The promotion of investment in the industrial development of the State of Guanajuato calls for the formulation of an effective strategy which at the same time conforms to the National Development Plan for Mexico 1983-1988 and actively contributes to its realisation. The timing of the field work of the UNIDO Project in Guanajuato enabled work to commence within the first year of the new Federal Goverment taking office for the constitutional period 1983-1988.

1.02 At the time of the election in July 1982, the country was faced with the gravest economic and financial crisis in its history. GDP growth had virtually ceased, investment had declined substantially, and foreign exchange earnings were seriously diluted. The basic reasons are attributed to macro-economic objectives having been defined on the basis of optimistic economic assumptions which were not modified when the industrial nations, the main consumers of energy, moved into deep recession. The assumptions were threefold, namely:

(a) That the growing demand for Mexico's petroleum and related products in world markets would continue to expand from its already high level, and that high prices would be maintained,

(b) That heavy borrowing from foreign banks, based on the assumption in (a), would provide unlimited incremental funds for the financing of extensive socio-economic and industrial development programmes,

(c) That, as a result of (b) and (c) coupled with availability of local resources, domestic consumers' purchasing power and demand would rapidly increase.

1.03 In the event, partly as a result of substantial reductions in energy consumption and the accumulation of extensive petroleum stocks, and partly due to the worldwide recession, external demand fell drastically. In the meantime domestic inflation had risen to levels considerably higher than external inflation. These factors, compounded with the rapidly growing deficit in the public sector, resulting from uncontrolled expansionist policies, contributed to the present crisis.

Moreover the presentation of the first "State of the Nation" report by the new President of México, Lic. Miguel de la Madrid Hurtado, on the 2nd September 1983, and the report of the Governor of the State of Guanajuato on 7th August 1983, combine to set the parameters for economic and industrial development at National and Guanjuato State level respectively across the next five years.

In the light of these unprecedented developments, it was judged right and proper that the strategy for attaining the UNIDO project's declared objectives should be conceived in the context of the Goverment's new economic policies as stated in the report of the President of the Republic. Extracts are summarised as follows:

1.04 Extract No. 1 Economic Programme.- "Economic policy was confronted with a challenge whose magnitude and complexity is unprecedented in the country's history. Demographic and social pressures were accompanied by disarray of the material bases for generating opportunities for growth, employment and income sources. The crisis must be confronted so as to use the economic adjustment as an opportunity to correct the economy's structural defects. The strategy spelled out in the 1983-1988 National Development Plan is being put into practice in an effective, diciplined and decisive way. The program for the Immediate Reordering of the Economy is designed to deal with the crisis and establish the minimum conditions needed for the economy to function normally. The measures contained in the program are aimed at fighting inflation and foreign exchange instability; protecting employment, basic consumption, and the productive plant; maintaining job opportunities, and preventing the

destruction of what has been created with such effort."

1.05 Extract No. 2 Scien e and Technology Transfer.-"A policy of scientific and technological development will be promoted to permit greater mastery over material resources and improve capacity to absorb useful knowledge from abroad. The integration of research for the solution of the problems facing the productive apparatus will be improved. For this purpose, a survey was begun of the human, financial and material resources devoted to research. A new focus has been given to the training of human resources, establishing certain priority areas and favoring national research institutions. Domestic demand will be channelled toward a greater use of national technologies; 27 technological packages have been prepared for transfer to the productive sector. A number of measures have been taken to provide industry with technical assistance in solving the problems that impede the substitution of imports".

1.06 Extract No. 3 Industry and Foreign Trade.-"The priorities for industrial development and foreign trade are to promote production for mass consumption, support self-sustaining economic growth, foster exports, contribute to geographic decentralization and ecourage the consolidation of a dynamic, efficient Mexican business community. Progress is being made in this direction. The highest priorities are being given to key categories such as basic goods, capital goods chemical and petrochemical products, and exports."

1.07 Import Substitution.-"To assist in the recovery of capital goods industries, mixed advisory committees on supply have been established or strengthened in the principal public enterprises, with responsibility for planning machinery and equipment purchases, so as to favor Mexican products. For example, procurement program for PEMEX worth 265 billion pesos has been signed with representatives of national industries.

Almost 70 percent of this will be spent within the country."

1.08 Export.-"Industrial development is closely related to the

volume and structure of trade with other countries. Consequently, the policy of effective protection is aimed at creating efficient ties to the international economy through the promotion of exports, particulary non-petroleum exports In addition to maintaining a realistic rate of exchange, a package of immediate benefits to support export has been set in motion Under this program, the requirement of prior export licences has been eliminated in 94 percent of all cases; procedures for importing in-bond processing material have been simplified, and only 186 items still require permits. A series of immediate support measures for exports has been implemented to improve the foreign trade situation Efforts have been made to simplify and expedite the procedures required and to strengthen financial and loan support to this sector. Today, increasing exports is our highest priority task."

1.09 Extract No. 4 Public Exterprises.-"Parastatal industries will continue to be developed to the degree required by the country's economy, but on the basis of highly selective criteria. The National Development Plan assigns priority to capital goods and their components, strategic inputs and branches of primordial interest for maintaining the wellbeing of lower-income groups. Parastatal enterprises engaged in activities not covered by the aforementioned priorities are being reviewed These include small and medium sized parastatals that have little impact on the performance of their respective industrial sectors. Mexicans will be given priority in their acquisition, in order to ensure the continuing existence of their productive plant and employment.

In order to attain the objectives set for public enterprises experienced professional and technicians have been appointed to management positions, thereby avoiding the improvisation that has been a heavy burden on the Mexican People."

1.10 Extract No. 5 Decentralization.-"The strengthening of States and Municipalities accompanied by programs to combat centralization will make a decisive contribution to qualitative change. The

development strategy of the National Plan establishes various courses to be taken by the structural changes in the economy and society. These are, inter-alia, more efficiency and productivity in the productivity plant; less dependence on foreign trade, finance, science and technology; a more competitive position for the country's exports; a realistic exchange rate that simulates the growth of the economy and fosters balance in the external sector."

CHAPTER TWO

NATIONAL INDUSTRIAL ENVIRONMENT

2.01 With a population of 73 millions, a land mass of a wealth of material resources including energy, mining and agriculture, Mexico's human and material resources at once provide a major source of supply and a large domestic market for local manufacturers.

To this may be added the fact that Mexico is uniquely placed geographically to derive considerable economic benefits from her two "continental" neighbours to the North and the South.

To the North direct land communications across a 1600 mile border provide immediate and easy access by road and rail to the major and rapidly growing USA markets of California, Florida and the border States, together with the hinterland of North America as far as Canada and the Arctic circle. Total population exceeding 220 millions.

To the South lies the vast continent of South America which together with Central American States, has a total population exceeding 300 millions, having a common language, derived from a common colonial history, sharing many common cultural and religious traditions, and with vast and still untapped natural resources.

2.02 The country's evident geographic and economic advantages are often offset by deep-rooted traditional and cultural attitudes which reinforce Mexico's tendency to be conservative whilst preserving a strong sense of history, and long memory of external interference.

These factors in agregate have a direct affect on the form and style of Mexico's industrial development up to the present time and future growth potential in respect to manufactured products.

Industrial Development History

2.02 The most spectacular growth in the manufacturing industry took place during the period 1976-1981, in line with the national

trend resulting from the upsurge in foreign exchange earnings from petroleum sales and the ready availability of external loan facilities. These immense external resources enabled the Federal Goverment to underwrite an extensive programme designed primarily to accelerate new employment opportunities. This programme included import liberalisation, export promotion incentives, industrial development at State and Regional level, incentives for private investment in manufacturing, and the expansion of small industries. Additional benefits included specially discounted energy prices and subsidized agricultural inputs.

2.04 During the bonanza that followed, industrial output increased by average 8% annually between 1978 and 1981 At the same time the 1976 devaluation of the Peso was followed by substantial increases in export of manufactured goods until 1978, when exports began to diminish as the price advantage arising from devaluation became diluted.

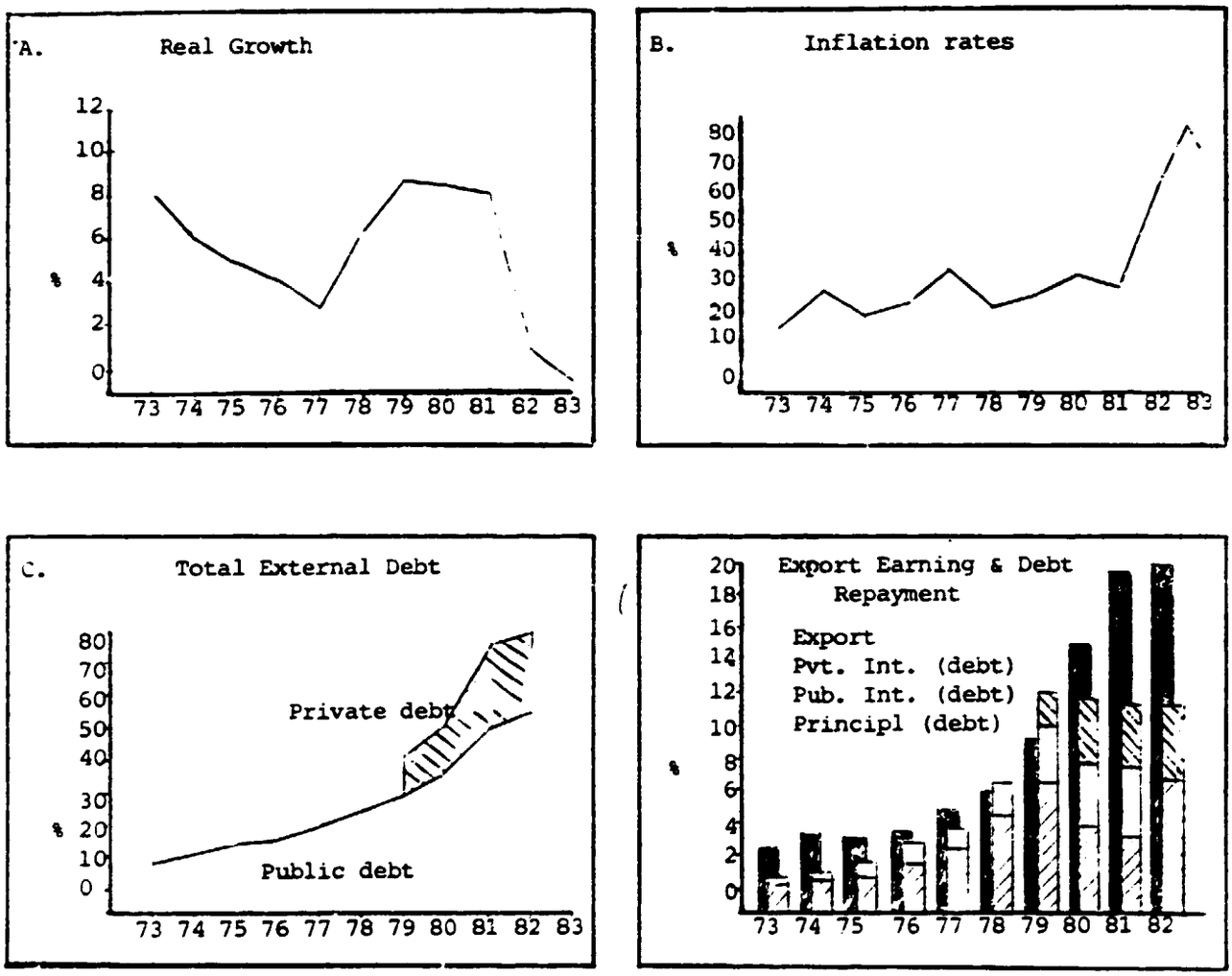
2.05 Against the background of a GDP standing at over 9% the 1979 National Development Plan was conceived with objectives designed to stimulate accelerated employment and individual earnings through increased industrial development, with emphasis on exports, at regional level in accordance with a new system of Regional Priority Zones and incentives (Refer Para 3.04).

2.06 By 1980, imports exceeded exports. As a result of rising domestic prices, it was cheaper to buy imported manufactured goods than those made by local manufacturers. At the same time exports began to fall, partly because of increased domestic demand. Between 1978 and 1981 manufactured exports fell from 33% to 11% of total exports.

2.07 In mid-1981, the demand for petroleum on the world markets fell sharply, further assisted by the building up of large reserve stocks by the major importing countries, resulting in succesive reductions in oil export earnings. As a result, economic growth

fell from an annual rate of 8% in 1981 to -5% at the present time, and is considered unlikely to stage a recovery until 1986 (Chart IA).

CHART I MEXICO: ECONOMIC PERFORMANCE 1973-1983



Economic Performance

2.08 By December 1981 reduction in foreign exchange earnings, the declining value of the Peso and rising interest rates resulted in high prices for imported goods. The price acceleration quickly spread to domestic products resulting in a very high inflation rate of 58% across the year 1982 and rising close to 100% at year end. (Chart IB). As the result of Goverment's tough economic programme

introduced in January 1983 inflation seems to be under control, and the target of 70% by 1983 year-end will probably be achieved.

2.09 During the ten-year period 1972-1982 heavy foreign borrowing by the public and private sector led to a twelvefold increase in Mexico's foreign debt: from US$ 4,000 million to US$ 52,000 million. By 1982, Mexico had the largest external debt in the world and the debt escalation continued to rise to US$ 85,000 million by the end of the year (Chart IC).

2.10 During 1982 a series of currency devaluations led to a dramatic fall in the Peso's market value from 28 to 150 Pesos per US dollar. As a result interest payments alone required more than 50% of Mexico's foreign exchange earnings and no repayment of principal was made (Chart 1D and Annex 1).

2.11 The sudden change from financial prosperity to technical bankruptcy has, inter alia, resulted in industrial output being cut back to 50-20 % with little prospect of domestic demand increasing significantly during the next five years. With inflation vacillating between 75% and 80% p.a., investment funds have become scarce as potential investors see a safer and better return on capital earning 58% on fixed term bank deposits.

2.12 To compound the problem, Mexico's historic reluctance to pioneer and develop export markets has meant that the fall in demand in the home market could not be offset by increased promotional activity in the external markets for products which were largely unknown. This quite apart from the fact that all markets have been affected by continuing world economic recession; and many in Latin America will continue that way for same time to come.

The Present National Economic Situation.

Prospects for Recovery.

2.13 It is generally believed in goverment and industry that the country is off the danger list although still in need of intensive care. Goverment statements are cautiosly optimistic but emphasise that the road to recovery will take time. Industry, encouraged by signs of growing confidence in the management of the economy, is becoming more positive about the medium term prospect.

Analyses of the trends of the first six months as synthesised from official sources point to a period which has been the most important as well as the most difficult in recent years, characterised by drastically reduced demand, production and investment, against a background of unprecedented levels of inflation.

2.14 The immediate implementation of the Programa Inmediato de Reordinación Economica has resulted in inflation being brought under control, at least in respect to retail prices. For example, average monthly prices at the end of the first quarter 1983 had risen by 7.6% compared to 4.9% a year ago. By the end of the second quarter, price increases had been reduced to 5.6% with further reductions in July and August to 4.9% and 3.9% respectively. These figures are influenced by goods subject to price controls and consequently reflect the best situation. For example, the rate of inflation of goods not subject to goverment price controls during Jan-June 1983 was nearly double that of controlled goods during the same period, namely 50% compared to 23%. The figure is even higher in the case of Footwear and Clothing, which could have serious effects on export prospects.

Based on cumulative figures to date the inflation rate for Jan-Dec 1983 would be 87.7% (exponential projections) 1/

Gross Domestic Product

2.15 Per capita GDP, which had staged spectacular annual growth rates averaging 5.4% between 1978 and 1981, reversed in 1982 with negative growth of -2.7%, and currently stands at -5% with some prospect of improvement around 1985. The problem is further compounded in the context of a population which has grown by 34% from 54.6 million.

1/ NOTE: November 1983 trend points to decreasing inflation in 1984

in the past ten years, and which is increasing annually by 2.4% (Table 2.1)

TABLE 2.1 GDP TOTAL AND PER CAPITA 1978-1981

Item	('000 persons 1970 Pesos, Millions) 1978	1979	1980	1981	1982
GDP	711982	777163	841854	908765	907306
Annual Growth rate	8.2%	9.2%	8.3%	7.9%	-0.2%
Population	65658	67517	63392	71249	73122
GDP Per Capita	10844	11511	12132	12755	12408
Annual Growth rate	5.2%	6.1%	5.4%	5.1%	-2.7%

Source: CONAPO-SPP-CELADE

2.16 Between 1978 and 1981 three sectors displayed average annual real GDP growth rates well in excess of 8.4%: Mining (Includes petroleum extraction), Trasport and Communications, and Construction. Two other sector had growth rates marginally above everage: Commerce and Manufacturing. (Table 2.2)

Employment

2.17 The number of unemployed and underemployed persons has risen to 12 million out of an economically active population of 20 million. It is estimated that an additional 800 000 young persons will join the economically active sector in 1983. Despite an expected upturn in employment between 1986-1988, it is considered unlikely that opportunities will be sufficient to absorb available manpower; this could lead to a difficult social situation, and possible modification to the Immediate Economic Reorganisation Programme [1/].

1/ Source: Wharton Econometric Institute. Mexico Oct 1983

TABLE 2.2 GDP GROWTH RATE by Sectors, 1978-1982 at 1970 prices

Sector	1978	1979	1980	1981	1982	Average 1978/81	% Total GDP1982
Agriculture %	5.8	-8.3	7.0	9.3	0.5	3.4	8.7
Mining %	11.7	14.3	22.2	15.3	9.5	15.8	3.5
Manufacturing %	9.8	10.6	7.2	6.9	-2.4	8.6	24.0
Construction %	12.4	13.0	12.3	11.7	-4.2	12.3	5.3
Electricity %	7.8	10.3	6.4	8.3	6.8	8.2	1.6
Commerce %	7.9	11.7	8.1	8.4	-1.6	9.0	25.2
Transport and Communications %	12.4	15.5	14.0	9.8	-1.5	12.9	7.4
Financial Services%	4.4	5.2	4.5	4.8	2.8	4.7	9.6
Other services %	6.7	7.8	7.5	7.6	4.6	7.4	4.7
Total GDP	8.2	9.1	8.3	7.9	-2.7	8.4	100.0

Source: Banco de México and Mission estimates

2.18 However of particular importance, not only to the country but also to the State of Guanajuato, is the steady slowing down in the rate of growth in the Manufacturing and Agricultural sectors culminating in a diminishing contribution to GDP in 1982 (Table 2.2) This is the more serous when it is noted that Manufacturing and Agriculture account for nearly 50% total employment [1/].

Importance of Manufactured Products in GDP

2.19 Three sectors account for 60% total Manufactured Products exports, namely: Engineering; Food, Beverages and Tobacco; and Textiles Clothing and Leather. Indeed, a systematic programme for penetrating export markets could reverse the present under-utilisation of installed capacity. Yet in all three sectors, the proportion of aggregate production directed to export markets has been reduced by average 20% annually. Moreover, marginal annual increases in the contribution of the Engineering sector to Manufactured Products GDP, is offset by decreases in contribution by the other two sectors. (Table 2.3)

1/ Source: Comisión Consultativa del Empleo

TABLE 2.3 ENGINEERING, FOOD AND TEXTILE SECTORAL AND EXPORTS CONTRIBUTION TO MANUFACTURES GDP 1978-1981
(Millions Pesos at Currency values)

	1978	1979	1980	1981
GDP Engineering	105447	144753	204992	281963
Exports %	14.6	11.9	10.5	7.7
Sectoral % GDP Manufacturers	19.1	20.3	20.8	21.5
GDP. Food, Beverages, Tobacco	155412	178439	237220	313329
Exports %	10.7	10.2	7.4	5.3
Sectoral % GDP Manufacturers	28.2	25.0	24.1	23.9
GDP. Textiles,Clothing, Leather	73029	96740	129085	167289
Exports %	5.8	4.9	3.5	2.6
Sectoral % GDP Manufacturers	13.3	13.5	13.1	12.7

2.20 The Public Sector deficit was reduced by 24% during Jan-June compared to the same period in 1982, representing 26% of the forecast figure for 1983. In the Private Sector, output in 42 selected manufacturers [1/] representing a cross-section of industry was down by 19.8% for tinplate, 20% for beer and 89.4% for trailer-trucks compared to the same period 1982. National industrial production levels dropped by 9.6% during the first five months, with over 30% of manufacturers working below 60% capacity.

2.21 Drastic reduction in demand, increased costs and reduced profit margins during Jan-March resulted in share prices on the Bolsa de Valores falling by 54.4%. However, growing confidence in the Mexican

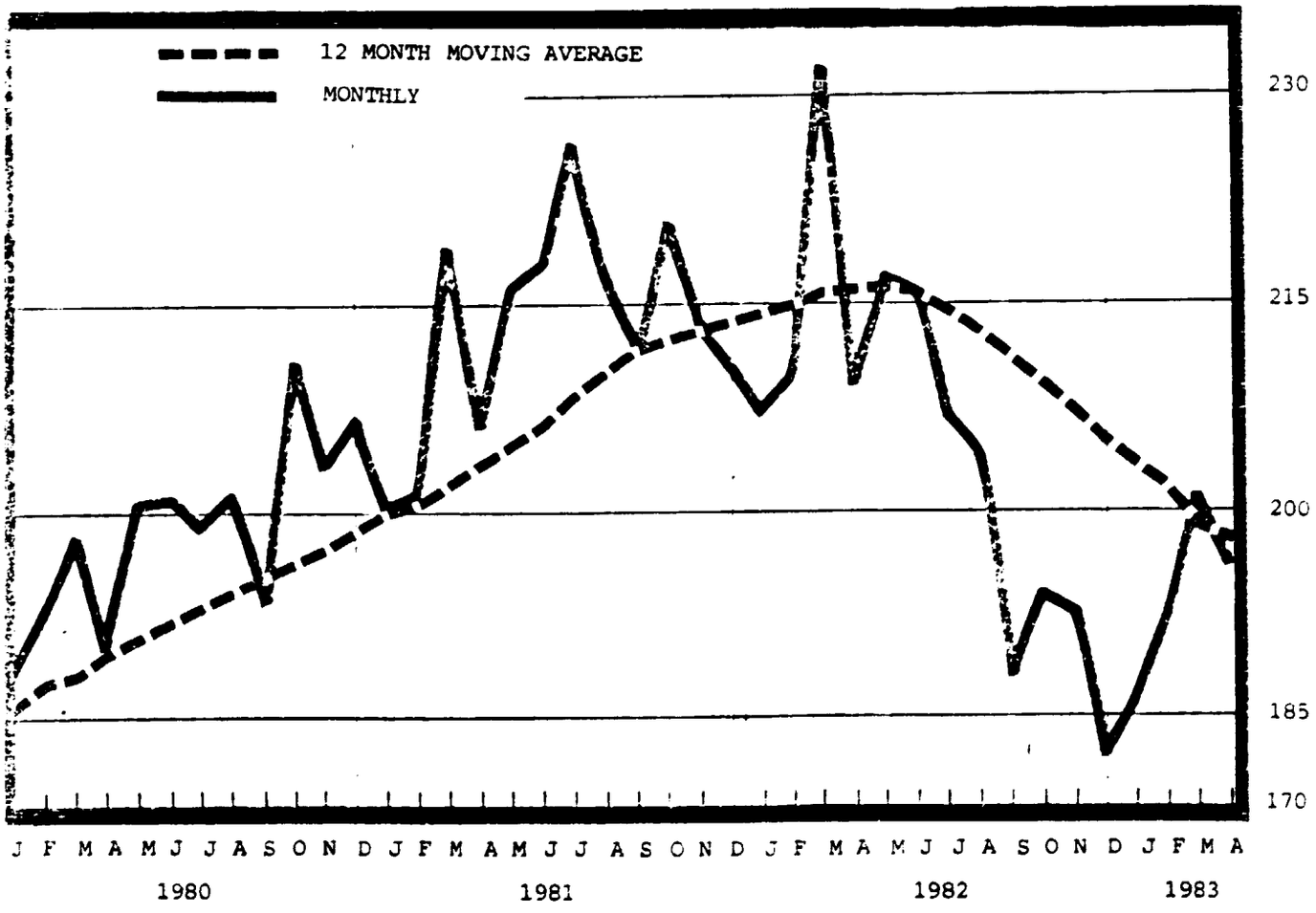
1/ CEESP

economy [3] is reflected in significant improvements in share prices from April 1983 ownwards.

Performance of the Manufacturing Industry

2.22 Information on industrial production during the first six months of 1982 is not adequate to provide a basis of comparison for the same period in 1983. Improvements in certain sectors (Ref Annex 2) have prompted financial analysts to suggest that the recession may have bottomed out in the third quarter of 1982, leading to the first signs of recovery in the first quarter 1983. For the purpose of this report a more sanguine view is taken namely that, although industrial performance during Jan-April 1983 was better than in 1982 but less than might have been expected under the present austerity programme, the manufacturing sector has been serously affected. (Chart II)

CHART II PRODUCTION OF MANUFACTURED GOODS 1980 - 1983 BASE 1970 = 100



3/ Secretary for Finance, Jesus Silva Herzog

In fact, falls in production have been so sharp that investment in plant, machinery and equipment has virtually dried up.

2.23 The manufacturing industry is supporting, as far as possible, Goverment's official policy of maintaining employment as a key priority. In absolute terms, based on a sample of 1233 selected manufacturers [1/] employing an average monthly total of 594,000 in January to April 1982, the same period in 1983 shows a drop of 47,200 to 546,800 or -8%. The increasing trend in unemployment continues, albeit marginally.

Foreign Trade

2.24 An encouraging sign during the first four months has been the improving trend in the external sector (Table 2.4). For the first time in over 80 years Mexico has achieved a surplus on balance of trade amounting to US$ 6,520 million, as compared to a deficit of $US 1,074 million during Jan-April 1982.

TABLE: 2.4 MEXICO: ANNUAL BALANCE OF TRADE 1981-1983
(US$ MILLIONS)

	annual 1981	annual 1982	(%) Change	Jan-April 1981	Jan-April 1982	Jan-April 1983	1982/83 % chage
EXPORTS TOTAL	19419.4	21006.1	+ 8%	7274.2	5747.1	6630.6	+15%
Petroleum	14573.3	16477.2	+13%	5396.0	4196.0	5136.9	+22%
Non-Petrol	4846.3	4529.0	- 7%	1878.1	1551.2	1493.7	- 4%
-Manufactures	2688.2	2794.7	+ 4%	865.2	815.8	869.2	+ 6%
IMPORTS TOTAL (FOB)	23929.6	14421.6		7830.4	6567.7	2143.9	
-Consumer Goods	2812.9	1519.5	-85%	743.5	694.0	190.5	-73%
-Intermediate Goods	13541.3	8399.9	-61%	4648.6	3660.3	1484.0	-59%
-Capital Goods	7575.4	4502.2	-68%	2438.2	2203.4	469.4	-78%
Balance of trade Total	[4510.0]	6584.5		[556.2]	[820.6]	4486.7	

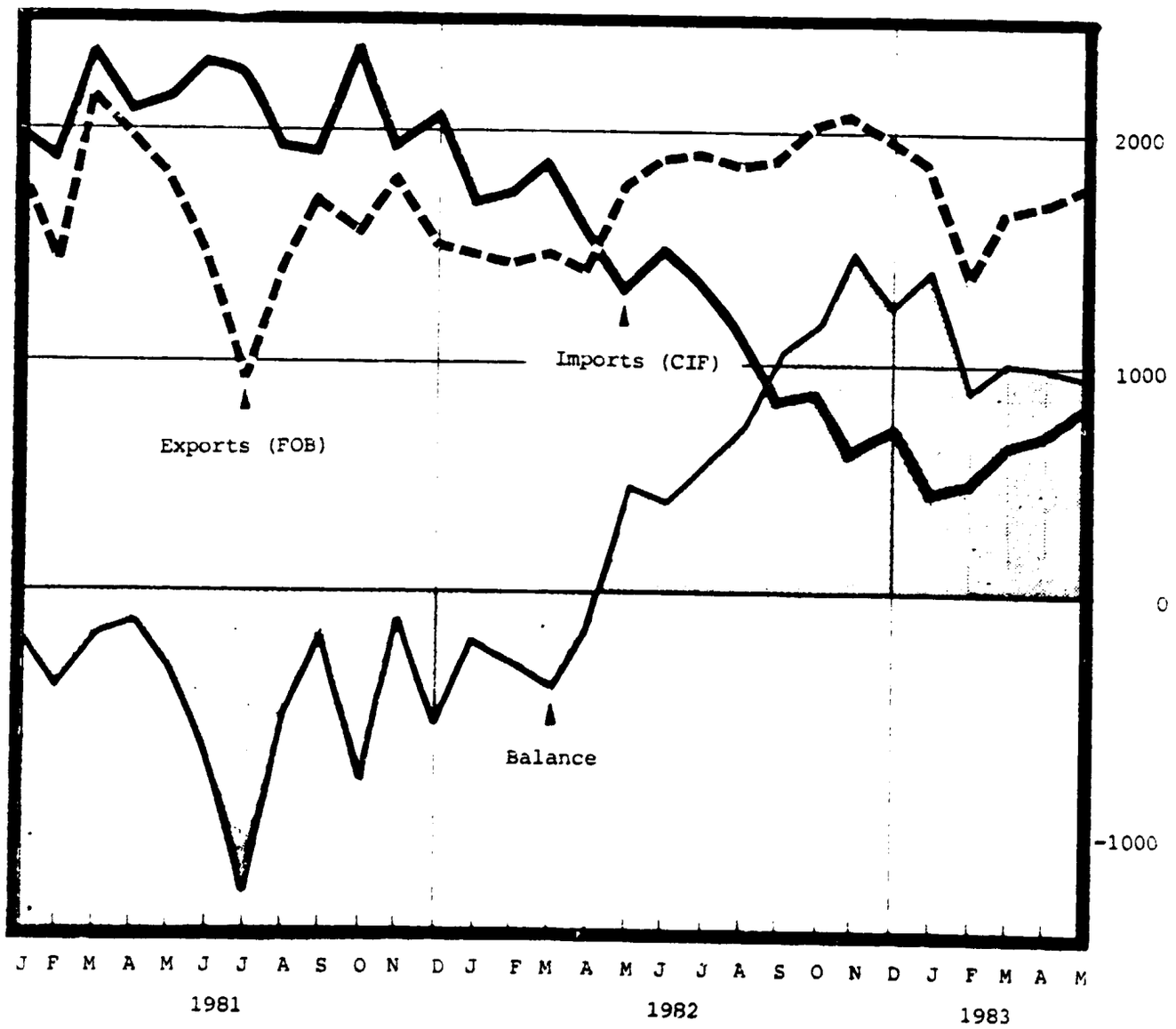
Source: Banco de Mexico

1/ Source; Comisión Administrativa del Empleo

2.25 A favorable trade balance of around US$ 7,000 million is predicted for 1983 compared to US$ 6,500 million in 1982. This will be due to reductions in imports and increased import substitution. Nevertheless, if imports and exports by PEMEX are excluded the balance remains in deficit.

CHART III FOREIGN TRADE 1981 - 1983

(US$ millions)



Imports

2.16 Imports of manufactured goods fell by 72.6% from US$ 5,940 million, Jan-April 1982, to US$ 1,630 millions in 1983, with capital goods accounting for 34% of total reduction (Table 2.5)

TABLE 2.5 IMPORTS BY INDUSTRIAL SECTOR JAN-APRIL 1982/83

(US$ Million)

Sector	1982 Jan-Apr	1982 %Total	1983 Jan-Apr	1983 %Total	1982/83 %Change
Total Imports	6557.7	100	2143.8	100	-67.3
Agriculture	405.0	6.2	478.0	22.3	+18.0
Extractive Industry	117.5	1.8	33.8	1.6	-71.2
Manufacturing	5940.4	90.6	1630.6	76.0	-72.6
-Food, Beverages, Tobacco	187.2	2.8	227.8	10.6	+21.6
-Textiles, Clothing Leather	123.3	1.8	13.5	0.6	-89.0
-Wood Products	21.8	0.3	6.0		-72.4
-Paper, Print, newsprint	189.1	2.8	62.1	2.8	-67.2
-Petroleum Derivates	179.7	2.6	62.4	2.8	-63.7
-Petrochemicals	218.3	3.3	115.3	5.2	-47.2
-Chemicals	541.6	8.0	204.6	9.5	-62.2
-Plastic & Rubber Products	110.1	1.7	23.4	1.0	-78.7
-Non-Metal mineral Products	58.1	0.9	8.1	0.3	-86.1
-Iron & Steel	490.6	7.4	104.2	4.8	-78.8
-Non-ferrous	119.8	1.8	20.7	1.9	-82.7
-Metal Products, Machinery and Equipment	3672.0	56.0	780.0	36.3	-78.8
-Other Industries	36.4	0.5	2.4	0.1	-93.1
Products/Services Unclassified	94.6	1.4	1.2	0.06	-98.7

Source: SPP

2.27 According to a CESP survey carried out among members in the private industrial sector, the main reason for the fall in imports stems from under-utilisation of installed plant and/or consequent shortage of investment funds. Moreover there is a reluctance to expand existing plant, even though industry has confidence in the economic recovery, and believes that the recession will be short lived.

Exports

2.28 Total exports in 1982 amounted to US$ 16,477 million, an increase of 8% on the 1981 total of US$ 14,573 million. However, the increase was attributable to Petroleum exports. Non-petroleum exports actually dropped by -7%, with manufactures as the only redeeming feature.

2.29 During the first four months in 1983, Petroleum exports continued to improve - up 22% on 1982. But the downward trend in the non-petroleum sector continued; in fact non-petroleum exports during January, February and April 1983 fell by -8%, -6.4%, and -8.4% respectively. Cummulative non-petroleum exports for the period were down by -4% on 1982.

2.30 Exports of manufactured goods showed a small increase of 3.7% compared to the -37% drop during Jan-April 1982 (Table 2.6). However there were significant drops in sectors concerned with manufacturing finished products for intermediate and cosumer markets, notably textiles, clothing, leather goods, and engineering products. These sectors of industry have already been seriously affected by falls in domestic demand, and the need to promote demand in export markets could prove vital to the survival of many businesses in the longer term.

No growth is recorded for agriculture and minerals, but the negative growth rate of 1982 has been reduced.

TABLE 2.6 EXPORTS BY INDUSTRIAL SECTOR JAN-APR 1982/83

(US$ Million)

Sector	1982 Jan-Apr	1982 %Total	1983 Jan-Apr	1983 %Total	1982/83 %change
Total Exports (FOB)	5,747.1	100	6,630.6	100	15.4
Agriculture	573.8	8.9	471.2	7.1	-8.3
Extractive Industry	4,227.5	75.3	5,132.2	77.4	+21.4
Manufacturing	948.9	16.5	983.8	14.8	+3.7
-Food,Beverages,Tobacco	227.3	3.9	223.5	3.3	+1.7
-Textiles,Clothing, Leather	54.6	0.9	46.6	0.7	-14.6
-Wood Products	16.1	0.3	18.7	0.3	+15.9
-Paper, Print, Newsprint	25.9	0.4	15.9	0.2	-38.5
-Petroleum derivatives	100.4	1.7	87.1	1.3	-13.3
-Petrochemicals	33.7	0.6	30.2	0.4	-10.4
-Chemicals	119.7	2.0	123.4	1.8	+3.1
-Plastic & Rubber Products	7.0	0.1	11.7	0.2	+67.9
-Non-Metal Minerals Products	37.3	0.6	55.6	0.8	+49.0
-Iron & Steel	12.9	0.2	64.7	1.0	+399.0
-Non-ferrous	19.3	0.3	37.6	0.5	+94.8
-Metal products Machinery & equipment	282.0	5.0	260.2	3.9	-7.7
-Other Industries	12.2	0.2	8.2	0.1	-32.9
Product/Services Unclassified	1.1	0.02	2.8	0.04	+141.4

Source: SPP

CONCLUSIONS:

2.31 a) Fundamental to Mexico's economic recovery is control of inflation, which in turn depends primarily upon control of the money supply and the extent to which the Public Sector deficit can be reduced to the levels required by the Programa Inmediato de Reordenación Económica.

b) Substantial surplus funds from the banking sector are currently being absorbed by the Banco de México, with the result that no reduction of the high interest rates is likely for some time to come.

c) Serious deterioration in economic activity, resulting in substantial reduction in domestic demand and consumer purchasing power.

d) Rate of growth in Manufacturing and Agricultural sectors - accounting for nearly 50% employment - has steadly declined since 1979 resulting in -2.4% reduction in GDP in 1982, and estimated -5% in 1983.

e) Export prospects are improving, and a surplus on the balance of payments for 1983 is expected. But manufactured products have been unsuccessful in penetrating export markets. However, the spectacular fall of -37% in exports which started in 1982 appears to be slowing down.

f) The timing and extent of Mexico's economic recovery will depend not only upon a more favorable demand/price situation, but also on the recovery of her most important trading partner, the USA. At this time the USA is emerging from the most prolonged recession since the 1930's, and only now, in third quarter 1983, are signs emerging that the US economy may be on the road to recovery. Even so, US sources suggest that full recovery will not be evident until 1985.

g) Consequently Mexico's economic growth, currently standing at around -5% p.a., is unlikely to stage a recovery before 1986, and per capita GDP will remain static. Average annual growth in GDP 1980-1985 is unlikely to exceed 3.1% p.a. on basis of actual growth to date. Assuming turn-around in 1985 with annual growth 1% point p.a. until 1989, average annual growth 1985-1999 would be 3% p.a.

CHAPTER THREE

INDUSTRIAL DEVELOPMENT PRIORITIES AND INCENTIVES

3.01 The strategy for the economic development of Mexico during the next five years is set out in the National Development Plan 1983-1988, effective 1 January 1983.

3.02 Chapter 8, sets out Government policy, aims and strategy for industrial development in some detail under twenty-six subject leadings, with specific reference to the manufacture of capital-, intermediate- and consumer goods. The new NIP also incorporates key elements of the former NIP relating to industrial development priorities and incentives, which are covered in the following paragraphs 3.03 to 3.07.

3.03 The principal objectives were to encourage the creation of new industries, the enlargement of existing factories and the development of local technology, in order to generate new employment opportunities on a wide scale, whilst simultaneously increasing real income of the population. These socio-economic objectives were to be attained within the framework of Regional Priority Zones which had been established in order to decentralise and redistribute industry more effectively throughout the country and, in particular, to reduce the phenomenal growth rate in Mexico City with population standing at 13.5 million, and representing 18% total population.

Regional Zoning Priorities.

3.04 Three categories of zones were created. Zone IA includes the main seaports of coatzacoalcos, Lázaro Cárdenas, La Unión, Salinas Cruz and Tampico, and the areas adjoining. Zone IB consists of a number of selected areas listed in the Urban Development Plan, and located in twenty Federal States. Zone II represents areas identified as State priorities. Zone III relates to Mexico City and the surrounding locality, defined as controlled areas for selective investment only.

The Guanajuato Industrial Corridor, Zone IB

3.05 Six important centres in the State of Guanajuato are included in Zone IB: Apaseo el Grande, Celaya, Irapuato, León, Salamanca, Silao and Villagrán all of which are located along 160 Kms. stretch

of the Pan American Highway, in an area designated as the Guanajuato Industrial Corridor, and which is the subject of this Report. (Refer Chapter Six)

3.06 Companies setting up new factories or expanding existing plant in Zone IB are therefore eligible for special assistance and incentives including credit facilities, energy at reduced prices, selective tariff production, financial support etc. (Refer Table 3.1).

To analyse these benefits the manufacturing industry is divided into two categories:

(a) The food industry and manufacturers of supporting machinery and equipment

(b) Manufacturers of basic consumer goods and manufacturers of essential goods for general use.

Manufacturers of products other than those in (a) and (b) are not eligible for benefits unless they generate new employment.

Export Incentives

3.07 In addition to the financial incentives designed to achieve increased production and employment in the Priority Zones, further inducements were introduced to promote exports by manufacturers in these zones as follows:

(a) Manufactures exporting minimum 25% production (by volume). Up to 30% discount on purchase price of electricity, fuel oil and natural gas.

(b) Manufactures exporting products to internationally competitive standards. In June 1981 a further stimulus to exports was introduced, designed to raise the all-round standards of Mexican manufactured products in export markets. Provided export products were up to international standards of quality, price and delivery, and could compete on favorable terms with main competitors, investment and employment incentives were raised from minimum 10% to maximum 10%, and the rebate on purchases of local equipment and components was increased from 5% to 15% subject to certain conditions.

TABLE 3.1 ZONE IB: SUMMARY OF FISCAL INCENTIVES FOR INDUSTRIAL INVETMENT a/

Priority Zone	b/ Small enterprises	c/ Activity Category 1	d/ Activity Category 2	Purchase Local Equip.	Employment Generated
I	25% Investment	20% Investment	15% Investment	5%	20% new employment
	----	20% employment	20% employment	5%	-----

(a) Geographic zones are defined in the decree published in Diario Oficial, February 2, 1979. Fiscal credits can be used for the payment of any Federal tax which is not imposed for a specific use. The percentages shown in the table for investment are applied to the total value of construction and installations, and the purchase of new machinery and equipment directly related to the production process; it is granted at the time of undertaking of the expediture. In the case of employment, the percentage is applied for a period of two years on the new employment valued at the annual minimum wage.

(b) Enterprises with fixed assest not exceeding 200 times the annual minimum salary Federal District.

(c) Includes agroindustries, capital goods producing industries and strategic inputs for the industrial sector (e,g, steel, cement).

(d) Includes non-durable consumer goods, durable consumer goods and intermediate product specified in decree published in Diario Oficial.

Source: Secretaria de Patrimonio y Fomento Industrial. Plan Nacional de Desarrollo Industrial 1979-1982

3.08 Between 1979, when the system was introduced, and 1981 SEPAFIN provided data on the value of investment approved under the incentive law and the expected employment associated with those projects. The approvals represented actual and proposed investment. Data on approvals during the period 1979-1981 are shown in table 3.2

TABLE 3.2 VALUE OF INVESTMENT APPROVED UNDER INVESTMENT INCENTIVE LAWS BY PRIORITY CLASSIFICATION [a/]

1971-1981

	Total Value of Investment			Expected Increases in Employment		Investment Per Job
	Value in Current Prices Million Pesos	Million US$ [b/]	% of Total	Numbers	% of Total	Thousands US$/ Job
Category I	128,539.2	5,488.4	52.5	79,680	43.3	68.9
Agro-industries [c/]	42,657.0	1,821.4	17.4	34,195	18.6	53.3
Capital goods	35,759.0	1,526.9	14.6	39,238	21.3	38.9
Strategic inputs [d/]	50,123.2	2,140.2	20.5	6,247	3.4	342.6
Category II	116,091.4	4,956.9	47.5	104,491	56.7	47.4
Non-durable consumer goods [e/]	32,144.9	1,372.5	13.1	31,326	17.0	43.8
Durable consumer goods [f/]	32,705.9	1,396.5	13.4	58,245	31.6	24.0
Intermediates [g/]	51,240.6	2,187.9	20.9	14,920	8.1	146.6
Grand Total	244,630.5	10,445.4	100.0	184,171	100.0	56.7

Source: SEPAFIN

a/ The classification is given in the decree of March 9, 1979; with minor modifications introduced subsequently.

b/ Converted at 23.42 pesos to the US dollar, the unweighted average exchange rate for years 1979 through 1981.

c/ Includes mainly processed foodstuffs, inputs for the agricultural sector and agricultural products for industrial uses.

d/ Includes basic iron and steel and cement.

e/ Mainly textiles, garments, shoes, and leather and related products.

f/ Includes mainly domestic appliances and automotive parts.

g/ Includes petrochemicals, chemicals, non-ferrous metals and construction materials.

CHAPTER FOUR

FINANCIAL AND TECHNICAL SUPPORT SERVICES

4.01 Nacional Financiera SA. (NAFINSA) is the official goverment agency charged with implementating the promotion and financing on the industrial development policy set out in the National Development Plan. The scope of NAFINSA's involvement includes four main activity areas: Identification and promotion of investment projects; Financial support for the establishment of new industry; Financial support for factory start-up and operations; Assistance in restructuring corporate finances on request.

4.02 To achieve these objectives NAFINSA has access to Mexican and foreign co-investment funds, global credit lines at preferential rates, special funds for working capital and equity reconstruction, and the services of specialised subsidiaries: FONEP (4.17), FOMIN (4.20), FOGAIN (4.24) and FIDEIN (4.27).

4.03 For investment and loan purposes, industry is divided into three categories which are administered by NAFINSA and PAI, a NAFINSA subsidiary (Para 4.16) namely :

(a) Large Industry. Capital: Pesos 50 million and upwards.
Financing agency: NAFINSA

(b) Medium Industry. Capital: Pesos 5 million to Pesos 60 million
Financing agency: PAI

(c) Small Industry. Capital: Pesos 50,000 to Pesos 7 million.
Financing agency: PAI

Financial and Technical Services

4.04 Studies and Projects

Direct credit facilities to cover costs of research and pre-investment studies, and also studies designed to inprove management, operations, productivity, and market potential. All credits are granted through FONEP (Fondo Nacional de Estudios y Proyectos).

4.05 Industrial Credits

Credits are granted through FOGAIN (Fondo de Garantía Fomento a la Industria Mediana y Pequeña) for loans, working capital and industrial mortages. FOGAIN also administers a system of Bank loan guarantees primarily for small industries.

4.06 Provision of Share Capital

Temporary share capital in the form of ordinary shares (common stock) or preference shares, and other financial instruments which can be converted into shares, can be contributed by FOMIN (Fondo Nacional de Fomento Industrial). FOMIN contribution is limited to one third of share capital.

4.07 Industrial Sites

FIDEIN (Fideicomiso de Conjuntos, Parques, Ciudades Industriales y Centros Comerciales) offers land for sale in selected urban areas and in industrial townships, on a rental or option-to-purchase basis, including marketing and service facilities. FIDEIN facilities are in the form of credits for the installation of industries in industrial parks, townships, and service centres.

4.08 Technical Assistance

Direct support falls into four categories: Advice to management on effective use of company resources; Analysis of the problems of established business and those in the formation stages; Management and personnel training; Scientific and Technological information.

Functional agencies are:

(a) INFOTEC-CONACYT (Informacion Técnica del Consejo Nacional de Ciencia y Tecnología.)

(b) CENARO-ARMO (Centro Nacional de Productividad - Adiestramiento Rápido de la Mano de Obra)

(c) IMIT (Instituto de Técnicos para el Financiamiento a la Industria)

NAFINSA Foreign co-investment and technical services.

4.09 Four investment stages are identified as pre-requisite to a

ment; [illegible] establish

Phase I Investment Proje[illegible]

4.10 Technical and financial [illegible] UNEP (Para 4.17) and NAFINSA co-investment funds. Where inte[illegible]ancing is required for large scale industrial undertakings, or [illegible]ere a Mexican corporation is to be set up with up to 49% foreign equity participation within statutory priorities, NAFINSA has established an industrial support mechanism. This enables international finance institutions and the foreign partner to participate in the risk capital by the creation of mixed equity companies

4.11 Ten international co-investment funds have been established up to the present time: BRINMEX (Britain), COFRAMEX (France), FOMECA (Canada), HISPAMEX (Spain), INGERMEX (W. Germany), ISRAMEX (Israel), ITALMEX (Italy), NIPOMEX (Japan), NORMEX (Norway) and SUIZAMEX (Switzerland). In addition , a Mexican fund has been set up jointly by NAFINSA (60%) and Banco del Extranjero (40%) with Banco Internacional as trustee.

4.12 NAFINSA also identifies potential Mexican partners, supplies data on the Mexican market, and provides advice and technical assistance to prospective clients.

FOMIN (Para 4.20) provides temporary risk capital, grants subsidiary credit for the acquisition of convertible stock, and provides unsecured loans at interest rates 5% below market rates according to agreed repayment periods.

Phase II Factory Establishment.

4.13 In the case of co-partnership projects NAFINSA provides temporary equity capital up to 33% co-investment fund, up to 49% of the foreign investment, and from 18% to 100% local investment, depending on availability of funds. NAFINSA also has access to global financing for imports of materials and capital goods from USA and Canada. Funds for purchase of capital goods are limited to 85% total cost, not exceeding US$100 million. Loans are granted at preferential interest rates

with repayment periods from six months to five years.

4.14 Credits for the purchase of plant, equipment, industrial warehousing and transport are made available through FOGAIN within limits and provisos set out in Para 4.24. The development of industrial townships, commercial centres and factory location is financed through FIDEIN (Para 4.27)

Phase III Factory start-up and Operations.

4.15 Complementary credits are obtained for co-investment funding, in addition to FOGAIN facilities.

Unsecured credits for working capital are available in the case of companies executing Federal Goverment and State contracts. Credits in respect of mortgages, plant and equipment are available against colateral at variable preferential rates of interest. Loan repayments from 90 to 360 days.

Global short-term credit lines are also arranged to cover 100% purchase costs of material and parts up to US$ or Canadian $ 100 million, at preferential rates, for 6-months (USA) and 12months (Canada).

Phase IV Capital Restructure.

4.16 NAFINSA will contribute risk capital to businesses needing to restructure their finances. Mortgage facilities for settlement of outstanding debts and for FOGAIN up to Pesos 12 million (Maximum: Pesos 45 million in aggregate. 3 types of credit). Short and long-term credit facilities may not exceed Pesos 60 million, with a maximum repayment period of eight years. Preferential and variable interest rates are offered.

Financial and Technical Support Institutions.

PAI (Programa de Apoyo Integral a la Industria Pequeña y Mediana)

4.17 PAI was established in 1978 as a subsidiary of NAFINSA, in order to provide technical and financial support for small and medium size industry [1/] in line with Government policy. PAI has three key responsibilities:

(a) To supervise the activities of NAFINSA's specialist agencies in providing assistance to medium and small industry.

1/ Definition of Criteria. Refer Para 4.03

(b) To ensure that the most effective use is made of technical, financial and manpower resources

(c) To raise the standards of management through systematic operational and financial control procedures.

(d) To provide technical support to industry in the following activity areas:

Marketing and Market Research

Management, Production and Finance Control

Management Training and Personnel Development

(e) To review Federal Goverment policies for supporting small and medium industry and to recommend additions or modifications as may be appropriate

FONEP (Fondo Nacional de Estudios y Proyectos)

4.18 FONEP grants credits for carrying out pre-investment studies on behalf of businesses in the private and public sector, and finances a wide range of research studies, including:

(a) Pre-feasibility studies related to the establishment of a new business or the expansion of an existing one.

(b) Technical engineering studies and final design work for projects already known to be viable.

(c) Pre-feasibility studies related to regional, geographical, natural and human resources, including aerial photographic research.

(d) Management studies including training, administration, operations, productivity and market research

(e) Direct advice to management at all stages of pre-investment studies including analysis of options.

4.19 Minimum loan is 50,000 Pesos, 3% payable by client. Loan repayment periods are from 2-years to 8-years according to characteristics and scope of research study. Interest rate 10% on balance outstanding.

4.20 FONEP retains consultants on an ad hoc basis selected from an approved register. Clients may retain their own consultants provided they comply with FONEP regulations.

FOMIN (Fondo Nacional de Fomento Industrial)

4.21 FOMIN facilities are available only to medium size companies, and are concerned with providing temporary finance for risk capital and recoverable credits.

4.22 FOMIN deals directly with enterprises seeking corporate finance and provides up to 49% new equity capital, inclusive of company share holding, by subscribing to ordinary or preference. As a minority shareholder, FOMIN has no directive powers beyond participation at company board meetings, in accordance with current legislation applicable to Commercial Companies. When financial support is no longer required FOMIN shares are put up for sale, giving preference to existing shareholders.

4.23 FOMIN also grants unsecured long-term credits with attractive repayment periods at interest rates 5-percentage point below the prevailing market rate

4.24 Applications for FOMIN financial support must be supported by a comprehensive corporate study setting out the economic, technical and financial justification of the proposed business together with the organisation structure. The costs of such a study may be incorporated into the loan facility.

FOGAIN (Fondo de Garantía y Fomento a la Industria Mediana y Pequeña)

4.25 FOGAIN grants financial support and guarantees to small and medium industrial companies through the commercial banks and recognised credit institutions.

4.26 FOGAIN guarantees (November 1983) are as follows:

(a) Up to 75% of credits covering working capital or equipment and/or spare parts to 1 million Pesos.

(b) Credits up to 8 million Pesos are granted to cover costs of raw materials, other materials and wages. Repayment periods, 18-30 months.

(c) Credits not exceeding 11 million Pesos are also granted for purchase and erection of plant and machinery; also for purchase of real state for industrial use. Repayment periods 3-6 years.

(d) Industrial mortgages up to 9-million Pesos to cover short-term liabilities. Repayment period 4-7 years.

(e) Total credits are restricted to 24-million Pesos

(f) Additional credit facilities are available for small industries.

4.27 Interest rates vary according to industrial priority zones. For Guanajuato (zone IB) interest rates currently applicable are 20% for small industry, 23% for priority medium industry, and 28% non-priority medium industry.

FIDEIN (Fideicomiso de Conjuntos, Parques, Ciudades industriales y Centros Comerciales)

4.28 FIDEIN's role is to assist in the decentralisation of industry through the provision of special installation facilities and support services, on a lease or sale basis. This includes the sale of urban sites provided with full municipal services for industrial, commercial and residential purposes. FIDEIN also arranges leases, with option to purchase, of industrial buildings warehouses etc., as well as the leasing of plant and equipment. On all matters relating to site and location, manufacturers regardless of size may apply to FIDEIN for assistance, provided the industry is not classified as contaminatory.

4.29 Physical installations (eg., plant, equipment, etc.) will only be leased to industries with capital structure minimum 50,000 Pesos and maximum 60 million Pesos, to set up new operations or to expand existing production capacity. Applications must be supported by feasibility studies prepared according to FIDEIN requirements.

4.30 Three months rent in advance is required for standard covered factory buildings (frame structure, cladded walls), and five months for custom built units. Contract periods are for 5-years and 13-years respectively. Construction costs must not exceed 5-million Pesos. Interest rates vary between 22% and 30% on balances outstanding. FIDEIN industrial centres in the Guanajuato Industrial Corridor are located in Leon and Celaya.

CONACYT (Consejo Nacional de Ciencia y Tecnología)

4.31 This prestigious and authoritative body, the National Council of Science and Technology, is the Mexican Goverment's instrument and trustee on all matters related to the advance of science and technology. The head office of CONACYT, centred in Mexico D.F., has direct contract with similar agencies abroad and with other specialised bodies throughout the world, and is computer-linked with the major international data banks covering all aspects of contemporary scientific and technological development . Information is channelled through subsidiary organisations, of which INFOTEC and CIATE are the principal focalpoints for industry and agriculture.

4.32 Specific activities embrace industrial consultancy, technical news service and computer data bank covering scientific and technological information worldwide.

CONACYT operates through 23 technical advisory centres throughout Mexico including Laboratorios Nacionales de Fomento Industrial, one of the most advanced organisations of its kind, specialising research into paper production, packaging-engineering for the food industry, and equipped with pilot plants.

4.33 A recent addition to CONACYT services is the "Programme of Shared Risk" in industrial development, aimed at encouraging and assisting in research and development programmes which would be too costly for an individual manufacturer to underwrite on his own. The programme is the coordinating instrument for important sources of research, technological know-how, skills and expertise which currently exist in universities, research centres, engineering and consultancy firms and frequently within the companies themselves. More often than not, industry is unaware of the existence of these resources.

4.34 The programme deals only with enquires relating to innovation, adaptation or technological development associated with experimental processes, machinery, or new products which are considered to have a reasonable chance of sucess. No assistance is available for investment studies or industrial plant acquisition.

4.35 Financial support from CONACYT is offered on the basis of 25% to 75% total cost of project, depending on priority and socio-economic benefit. Tchnological research carried out will be cost-free if not taken up by the company, in which event CONACYT reserves all rights on use and subsequent development.

INFOTEC (Fondo de Información y Documentacion para la Industria).

4.36 This organisation is a subsidiary of CONACYT, and offers a range of services for raising the standards of production, engineering planning and marketing on a free-paying consultancy basis. INFOTEC services include the following:

(a) Industrial Consultancy.- This is a "Rapid Response" personal telephone/letter enquiry service. Information provided includes physical and chemical properties of materials, location of plant and machinery suppliers, appropiate manufacturing processes, norms, patents, trademarks and production and market statistics.

(b) Technical Notes and News. Monthly bulletin of technical information.

(c) Fast Information Service. Provision of computer systems linked to over 150 data banks providing scientific and technological information.

(d) Technical management training courses, seminars, and other events.

(e) Preparation of feasibility and technology studies

CIATE (Centro de Investigaciones y Asistencia Tecnológica del Estado)

4.37 CIATEs operate at State level under the pricipal sponsorship of CONACYT and State Governments, supported by other statutory bodies or special interest industrial groups. There are six CIATE's throughout Mexico, each majoring in a specific field of industrial technology.

Designation	State	Field of Technology
CIATEG	Guanajuato	Leather Industry
CIATEJ	Jalisco	Animal Feeds
CIATECH	Chihuahua	Agriculture-Arid Areas
CIATEQ	Queretaro	Grain (soya, maíze etc.)
IMEC	San Luis Potosi	Metal Mechanics
CIQA	Saltillo, Coah.	Applied Chemistry

4.38 CIATEG (State of Guanajuato). Located in León, centre of the Tanning and Shoe Industry in Guanajuato, was established in 1977 under the joint sponsorship of CONACYT and the Guanajuato State Goverment and supported by IMCE, Cámara de la Industria del Calzado, and Cámara Nacional de la Industria de Curtiduria.

Until recently CIATEG offered a wide range of technical services applicable to most industries in the Guanajuato Industrial Corridor, but lack of interest, apart from the leather industry, has resulted in CIATEG directing its total research function to the Shoe and Leather Sector. Of the 75 staff, 50 hold doctorates or specialist degrees in engineering and chemistry disciplines related to the leather industry.

IMIT A.C. (Instituto de Apoyo Técnico para el Financiamiento a la Industria

4.39 IMIT services are available on direct request from industrial enterprises, banks and credit agencies seeking assistance in the preparation and evaluation of projects for new industrial undertakings or for proposed expansion of existing plant. Activities are concerned with industrial development including the following:

(a) Systematic examination of the national industrial structure in order to identify opportunities for the establishment of new industries.

(b) Preparation and evaluation of projects relating to new investment and the expansion of existing factories at the request of industry and banking institutions.

(c) Research into the adaptation of raw materials, products and processes to meet specific industrial requirements. For this purpose, laboratories and pilot plants are available, as well as an extensive technical library.

4.40 In line with the programming and promotion activities of NAFINSA, IMIT participates in studies concerned with evaluating alternative technologies, especially in regard to the local manufacture of capital goods and the provision of basic products of national priority. IMIT also offers a special service to small and medium industry covering productivity and the establishment of new plant and equipment.

CENAPRO-ARMO (Centro Nacional de Productividad-Adiestramiento Rápido de la Mano de Obra.

4.41 This organisation specialises in personnel training at supervisory and intermediate management levels. CENAPRO and ARMO operate directly with manufacturers through tailor-made in-house training programmes, specialist seminars and courses. The range of subjects covered by CENAPRO, includes administration organisation and planning at corporate level, engineering and production economy. A video library and film library are available, and films and video tapes include 50 T.V. programmes and 35 training film-strips. CENAPRO also publishes the monthly magazine " Gaceta de Productividad " and a quarterly review "Productividad y Desarrollo".

4.42 ARMO's educational activities are primarily at factory floor and worker level. Special courses are designed for workers with potential for promotion to supervisors in industry, for supervisors having responsibility for education programmes, and on-the-job training of workers in differing categories of occupation. ARMO maintains a reference library of over 10,000 books, 700 magazines and 700 films. All information is freely available on request.

PROFIDE (Programa de Financiamiento en Divisas para Exportación).

4.43 PROFIDE was established in April 1983 to provide financial support in US dollars to bona fide exporters for import of raw materials, replacement parts, components and/or services essential to the production of goods destined for export markets. Exporters requiring foreign exchange for imports are required to provide full details of imported goods together with projected export sales forecast for the next 12 months, and the estimated foreign exchange earnings which will be generated to cover the PROFIDE funding. Formal application supported by the required information, is submitted to PROFIDE by the exporter's bank.

4.44 PROFIDE funding is made available to Mexican exporters through FOMEX deposits granted to the credit institutions in the country from which the goods are supplied, who then settle the supplier's

account in US dollars. PROFIDE credits are granted for a maximum period of 1 year. Interest is payable in US dollars at 6 months acceptance rate on the New York market, plus 3% points p.a. on the principal. The rate of interest charged by the intermediary institution will be 2% points below the above rate. Repayment of PROFIDE foreign exchange credits is made in US dollars, to the account of the local FOMEX branch or agency in the country concerned, through the intermediary credit institution.

CHAPTER FIVE

INDUSTRIAL INVESTMENT AND TRANSFER OF TECHNOLOGY

The Current Industrial Investment Situation

5.01 A recent survey carried out by CESP [1/] among 40% Mexican manufacturers indicated that private sector investment will be down by 20% in 1983, with a further contraction of 30% in demand and substantial reduction in company profits. Moreover, as at October 1983, government funds administered through NAFINSA and subsidiaries PAI, FOGAIN etc, have been used primarily to finance short-term expediture principally pay-rolls.

5.02 The private sector's view is that lack of clear communication between Government and the private sector is creating uncertainty; with the result that most companies are unwilling or unable to seek loans at prevailing rates for the purpose of corporate investment.

5.03 SECOFIN confirms that there are insufficient investment projects in industry at the present time; and although adequate funds are available for the private sector through NAFINSA at preferential rates, these resources are without takers. SECOFIN makes the point that Mexican investors have traditionally suffered from "lack of definition" as to what constitutes a good industrial investment, and that all too often investors have financed industrial undertakings in the past which they are now beginning to regret [2/].

5.04 SECOFIN is now preparing sectoral programmes for analysis, based on the financial and technological resources currently available. Preference will be given to projects of companies with a majority Mexican equity holding. On the other hand, foreign capital may have a majority control, subject to the law permiting, but only in those cases where nationally controlled enterprises lack the resources to undertake such projects. The view points expressed by the private sector, together with submissions from other sectors, will provide the basis on which government will formulate and define an integrated programme for industrial development. The programme is due for completion by early 1984.

1/ CESP. Centro de Estudios Económicos del Sector Privado
2/ Source: Sub-Secretaría de Promoción Industrial Oct. 1983

Foreign Investment Policy

5.05 Cumulative foreign investment in industry will have grown from US$ 2000 million, when the investment laws were originally approved, to an estimated US$ 12,000 million by December 1983. Of this sum, the USA will account for US$ 8,300 million (68%). [1/] Although estimates for 1983, on investments from other sources, are not available, the 1981-1982 trend is set out in Table 5.1

TABLE 5.1 CUMULATIVE DIRECT FOREIGN INVESTMENT 1981-1982

(US$ MILLION)

Source of Funds Country	1981		1982	
	Value	%Total	Value	%Total
USA	6908.7	68.0	7334.8	68.0
Germany	823.0	8.1	862.9	8.0
Japan	711.2	7.0	776.6	7.2
Switzerland	548.6	5.4	571.7	5.3
Spain	304.8	3.0	345.2	3.2
UK	290.6	2.9	302.0	2.8
Sweden	142.2	1.4	140.2	1.3
Canada	132.1	1.3	140.2	1.3
France	111.8	1.1	118.6	1.1
Benelux	101.6	1.0	107.9	1.0
Italy	30.5	0.3	32.4	0.3
Others	50.8	0.5	53.9	0.5
TOTAL DIRECT FOREIGN INVESTMENT	10159.9	100.0	10786.4	100.0

Source: Banco de México: Dirección General de Investigaciones Extranjeras y Transferencia de Tecnología

5.06 The Government's stated intention is to have a foreign investment policy that is active, selective, and designed to attract capital primarily from European investment sources, so as to reduce excessive dependance upon North American investment. US investment in Mexico currently accounts for 68% total foreign investment, with equity participation in 3,733 Mexican companies. 78% US investment is in industry, 12% in services and 2% in agriculture.

1/Source: Adolfo Hegewisch.- Sub-Secretario de Inversiones Extranjeras y Transferencia de Tecnología Sept. 1983.

5.07 Western Europe's share of direct foreign investment in Mexico, has remained unchanged at 23.5% since 1979 (Table 5.1a) with W. Germany accounting for 34% W. Europe investment, and 8% of Total. Japan has been the fastest growing investor, with share increasing from 4.2% in 1977 to 7.2% in 1982.

TABLE 5.1a FOREIGN INVESTMENT BY COUNTRY OF ORIGIN 1977-1982

	(% Share)					
Source of Funds Country	1977 %	1978 %	1979 %	1980 %	1981 %	1982 %
USA	70.2	69.8	69.6	69.0	68.0	68.0
Germany F.R.	7.3	7.3	7.4	8.0	8.1	8.0
Japan	4.2	4.8	5.3	5.9	7.0	7.2
Switzerland	5.3	5.5	5.5	5.6	5.4	5.3
Spain	1.0	1.4	1.8	2.4	3.0	3.2
U.K.	3.7	3.8	3.0	3.0	2.9	2.8
Sweden	0.9	1.5	1.7	1.5	1.4	1.3
Canada	2.1	1.8	1.6	1.5	1.3	1.3
France	1.3	1.3	1.2	1.2	1.1	1.1
Benelux	2.0	1.8	1.3	1.1	1.0	1.0
Italy	0.6	0.6	0.8	0.3	0.3	0.3
Others	0.4	0.6	0.8	0.5	0.5	0.5
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0

Source: Dirección General de Inversiones Extranjeras

5.08 The importance which the present Government attaches to stimulating increased foreign investment and technology transfer from European sources is evident in the recent talks in Paris between the Undersecretary for Foreign Investment and Technology Transfer and the French Foreign Trade Ministry. The mission was extended to include meetings with the Paris Chamber of Industry, and with major French industries including aviation, port installations, chemicals and automotive industry.

Factors affecting Foreign Investment

5.09 Based on discussions with representatives of Foreign investment bodies in recent months, and viewpoints expressed as recently as 25th November 1983, the Federal Government's investment policy is either not

sufficiently clear or not fully understood.

5.1[illegible] Foreign investors attending the high level International Executive Forum entitled "How to do business with Mexico " [1/] were of the opinion that Mexico's existing foreign investment laws were not sufficiently attractive and were weak on incentives. The policy of limiting foreign equity participation to 49% was unlikely to attract investors with unique technology contributions to offer. Moreover, "Mexico's economic crisis, constantly changing interpretations of foreign investment law abroad, and the nationalisation of the country's banks have put a damper on new investments at present. This is particularly evident in cases of joint-ventures which had been planned with Mexican companies which were later expropriated along with the banks " [2/].

5.11 W. Germany industrialists stated that they "could contribute to a solution of Mexico's economic crisis by bringing in fresh capital and transfering technology. Mexico's foreign investment laws should be made more flexible, so that foreign investors can be offered greater incentives to from partner ships with Mexican industrialists. German investors need clear and secure conditions, and a good margin within which they can move freely, with price controls and export constraints kept to a minimum" [3/].

5.12 The general manager, British Chambers of Commerce, emphasised that Britain is the world's second largest foreign investor, and currently investing the equivalent of US$ 500 million (total investment in Mexico) every 10-days in some other part of the world. During 1983, Britain will have invested US$ 16,000 million in other countries, of which US$ 3,500 million is in USA. Britain believes that more foreign investment in Mexico would lead its industry to be more internationally oriented, would help develop its technology and make exporting easier. To this end, a one - week exhibition was mounted in Mexico D.F. during November 1983 entitled "Dos Siglos de Cooperación México-Gran Bretaña" with supporting lecture sessions. Moreover, in an major drive to assist Mexican exporters, the Chamber is arranging for teams of British importers to visit Mexico and groups of Mexican

1/ 3-day conference sponsored by US business publication "FORTUNE" Cancun Sept 1983
2/ Robert Hickman. President, British Chambers of Commerce in Mexico November 1983
3/ Rolf Rodenstock. President, Industrialists' Association. Fed. Rep. Germany OCT 1983

exporters to visit Britain in 1984.

Tax incentives as stimuli to foreign investment

5.13 US economist Dr. William Grant Ireson, Stanford University, expressed the view that, more important than amending Mexico's current investment laws, would be the granting of greater tax benefits to foreigners willing to directly invest risk-capital in Mexico. At this point, it may be appropriate to cite two specific instances where tax incentives have played a major role in national economic development; namely Ireland and Singapore

5.14 During the past 10-years, Ireland has moved away from a predominantly agriculture-based economy and has given priority to the manufacture of high-technology products. Success has been achieved by actively seeking foreign investment worldwide, mostly from USA, but also from many European countries. Generous incentives and tax-holidays have resulted in the striking growth of Irish industry and exports of high technology products, especially in the electronics field.

5.15 Since becoming an independant sovereign state, Singapore has achieved an increasingly prosperous economy, with few natural resources apart from geographical location, due almost entirely to massive foreign investment stimulated by generous tax concessions. To cite one example from many, General Motors which established a replacement parts factory in 1973 solely for export, has been exempted from Sinagpore's Corporation Tax during the past ten years.

Foreign Investment Policy

5.16 However, Government's stand, as represented by the UnderSecretary for Foreign Investments, remains firm. "Foreign investment laws will not be changed in any way, since they have proved adequate for the country's needs. Proof of this is that foreign investment in Mexico which amounted to US$ 2000 million when laws were approved, is now US$ 12,000 million". (sic)

The Law relating to Transfer of Technology

5.17 The Law relating to the Transfer of Technology [1/] was first published

1/ Ley sobre el Control y Registro de la Transferencia de Tecnología y el Uso y Explotación de Patentes y Marcas. Diario Oficial, 1972.

in the Diario Oficial on 28th December 1972, and subsequently revised on 11th. January 1982. An important feature of the Law is the requirement that all technology transfer contracts must be recorded in the National Register of Technology Transfer. Failure to comply is a serious offence which can result in a summons to appear before a national tribunal.

5.18 To qualify for registration the contract may not include any restrictive clauses or conditions which could be considered as prejudicial to Mexican interest viz; excessively high prices, restrictions on exports, production, research, and any other operational constraints imposed upon the company. Some idea of the extent of the Register can be gained from the fact that over 4,000 contracts were initially presented in 1972, and a further 8,257 submitted between 1973 and 1980.

5.19 Technology Transfer contracts are fairly evenly divided between Priority and Non-Piority sectors of the economy. (Table 5.2) It is notable that, in the Prioirty Sector, capital goods and intermediate goods account for a significant 20.4% and 10.7% respectively. Of particular interest is the 28.7% share of contracts held by the Manufacturing industry, the majority of which were registered between 1973 and 1980.

5.20 With few exceptions, the dominance of foreign technology is evident, ranging between 69.1% for agro-industry and 87.1% in the case of capital goods. However, it is important to note that national technology accounts for 48.4% for goods of strategic priority, and 50.5% for the extractive industry.

Technology Transfer Exchange

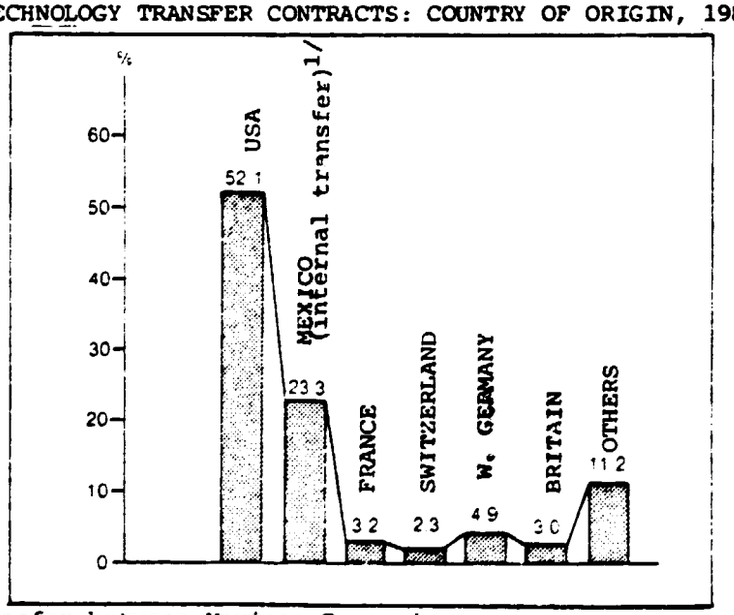
5.21 The Secretaría de Patrimonio y Fomento Industrial (SEPAFIN) operates a technology transfer 'bank', Bolsa de Technologías Transferibles, which regularly publishes a list of technologies offered from national and foreign sources (Annex 3). Technology transfer contracts by country of origin are shown in Chart IV.

TABLE 5.2 TECHNOLOGY TRANSFER CONTRACTS: SECTORIAL DISTRIBUTION 1973-1980

Economic Sector	Total		Source of Technology: Mexico		Source of Technology: Foreign	
	No.	%	No.	%	No.	%
PRIORITY SECTORS						
Agro-Industry	330	4.0	102	30.9	228	69.1
Capital Goods	887	10.7	115	12.9	772	87.1
Strategic Supplies	97	1.2	47	48.4	50	51.6
Consumer Durables	689	8.3	90	13.1	599	86.9
Consumer Non-Durables	623	7.6	150	24.1	473	75.9
Intermediate Goods	1686	20.4	354	20.9	1332	79.1
Sub-Total	4312	52.2	858	19.9	3454	80.1
NON-PRIORITY SECTORS						
Manufacturing	2369	28.7	704	29.7	1665	70.3
Extractive	298	2.4	100	50.5	98	49.5
Services	1378	16.7	261	18.9	1117	81.1
Sub-Total	3945	47.8	1065	27.0	2880	73.0
Grand-Total	8257	100.0	1923	23.3	6334	76.7

Source: Dirección de Inversiones Extranjeras y Transferencia de Tecnología

Chart IV TECHNOLOGY TRANSFER CONTRACTS: COUNTRY OF ORIGIN, 1980



1/ Technology transfer between Mexican Companies
Source: Banco de México

CHAPTER SIX

THE STATE OF GUANAJUATO

6.01 The State of Guanajuato is presided over by the Governor as chief executive officer, and administered through departments and agencies corresponding with Government Secretariats at Federal level. The seat of Government is in the City of Guanajuato.

6.02 The City of Guanajuato, located 256 miles (410 kms) north-west of México City at an altitude of 6396 ft. (2000 m) is situated in the mountains overlooking the central plain of El Bajio which contains the State's major cities, through runs the principal railroad and the Pan-American Highway providing important transport facilities for in-State, inter-State and international road and rail traffic.

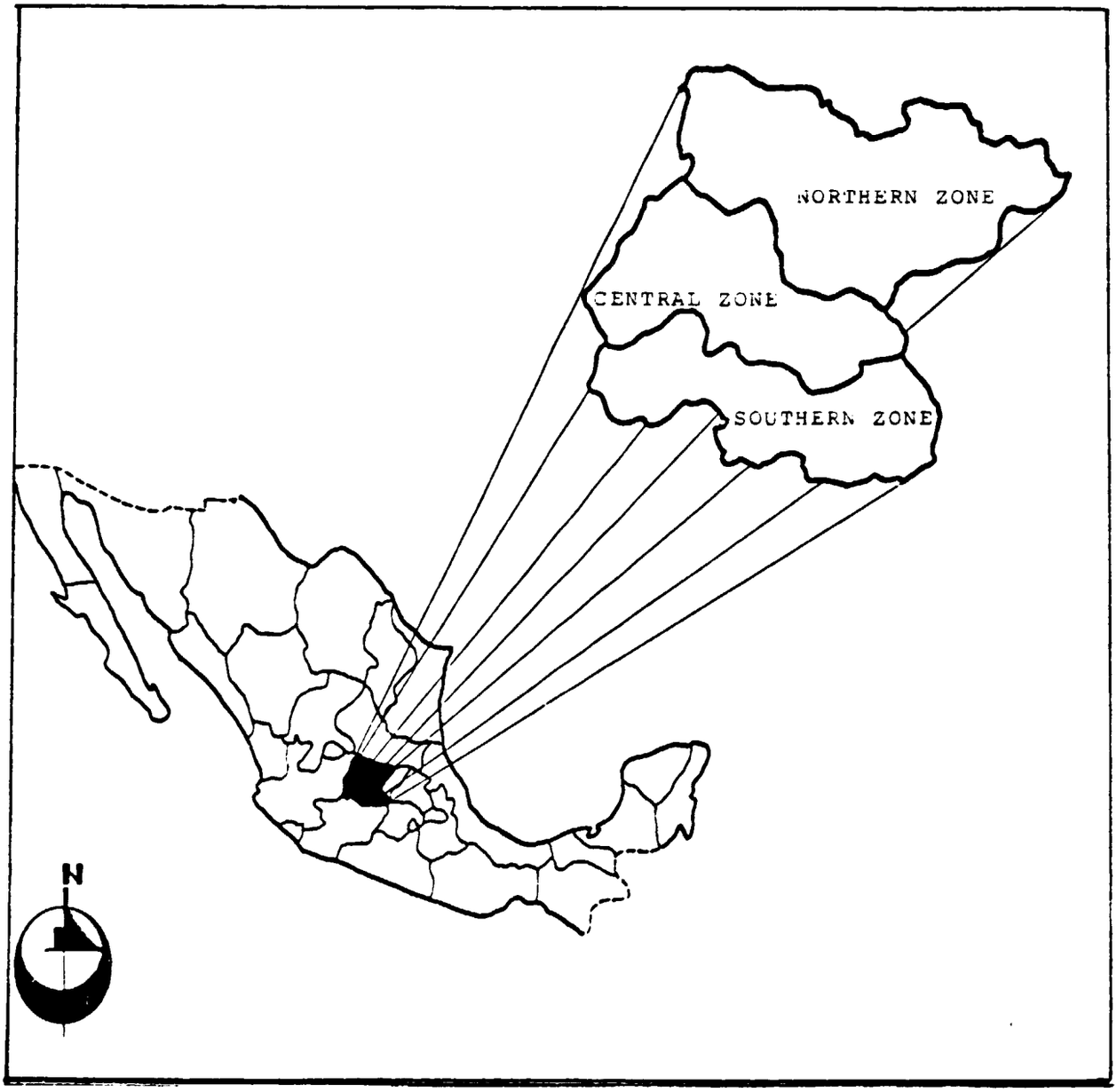
6.03 The State of Guanajuato is one of thirty-two States which together form the Republic of Mexico. The population of 3,376,000 represents 4.6% total Mexico. The State of Guanajuato is geographically located in the centre of the country and covers an area of 11,300 sq. miles - approximately the size of Belgium. There are some 1875 miles (3000 km) of metalled highways and 570 miles (910 kms) railroad track. An inter-urban passenger railroad system, connecting the cities in the Guanajuato Industrial Corridor, is currently in the planning stage.

Climate

6.04 Guanajuato is considered to enjoy one of the most equable year-round climates in the world, with average temperatures ranging between 13.5°C January and 23.5°C June, with annual average 18.5.°C. The wettest months are June/July/August preceeded by a gradual build-up from March onwards, and a steady decline in rainfall after September. The temperature and rainfall continue to an excellent climate well-suited to the production of temperate fruits and vegetables, as well as grain and cattle rearing. As a result, agriculture's contribution

to the GDP of Guanajuato State (para 6.10) is well above the national average. In terms of productivity, however, agriculture is poorly organised, inefficient and considered by the banks to be a bad credit risk; with consequent adverse effects on the processed food industry as discussed later in this report (para 8.47).

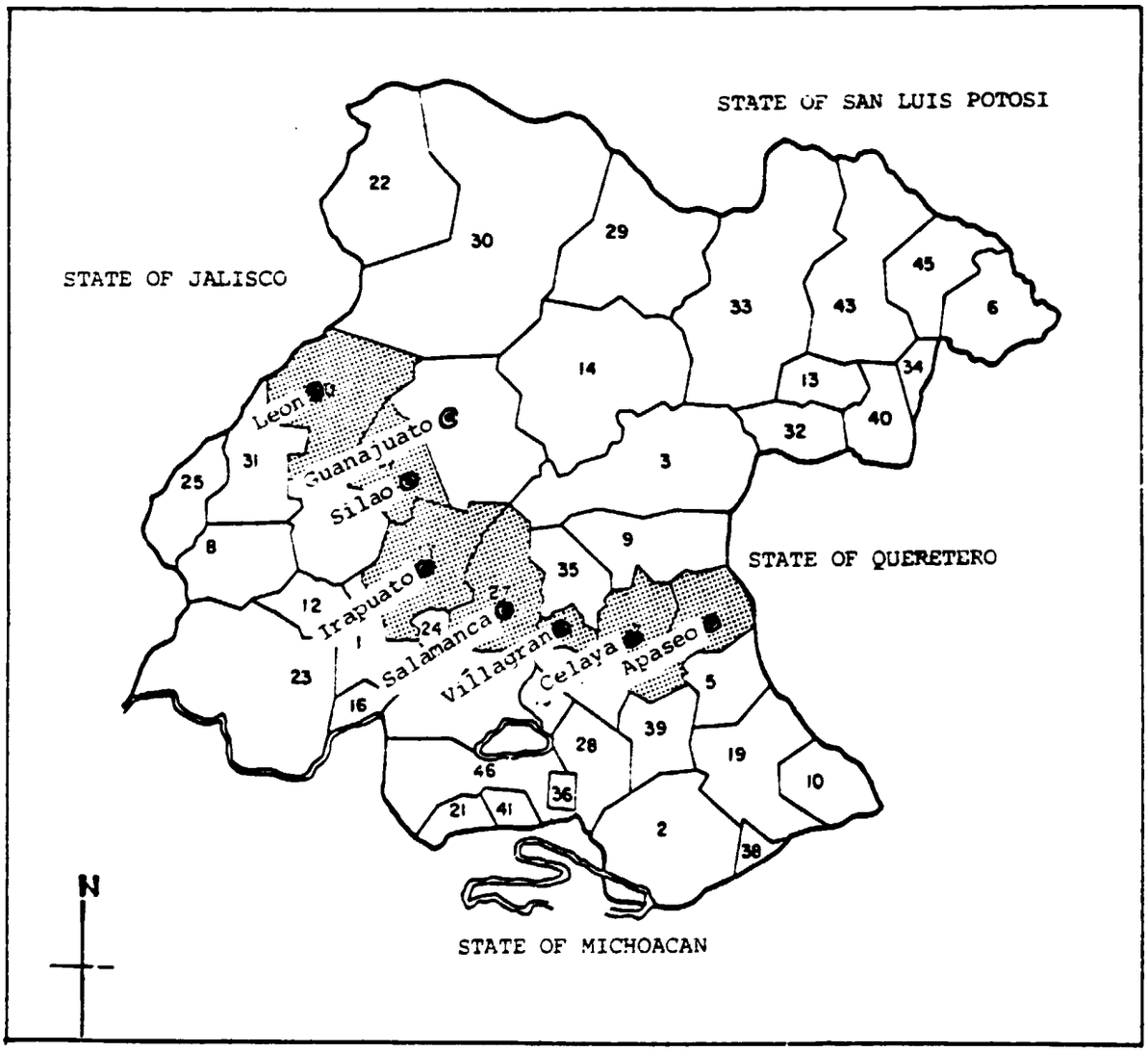
CHART V STATE OF GUANAJUATO: GEOGRAPHICAL LOCATION



The Guanajuato Industrial Corridor

6.05 The Guanajuato Industrial Corridor is located in the centre of Guanajuato State and consists of seven Municipalities at various points along the 160 kms. of the Pan American Highway - Apaseo el Grande, Celaya, Irapuato, Léon, Salamanca, Silao y Villagrán. The emergence of the corridor as a potential centre of industry was largely based on the assumption that, because factories depend o a work force, a multiplicity of factories would, by definition, create an increasing number of employment opportunities.

CHART VI THE GUANAJUATO INDUSTRIAL CORRIDOR



6.06 To this end the State of Guanajuato was designated Priority Zone IB, which incorporates an attractive package of fiscal and industrial incentives (Refer 3.04) most of which are embodied in the 1983 National Development Plan. Between 1979 and 1982, encouraged by the prospects of a continuing properous economy, new manufacturing opportunities were identified and investors responded to the incentives by setting up new industries or expanding existing ones along the Industrial Corridor.

The Current Economic Situation

6.07 The State of Guanajuato is currently reacting to what is undoubtedly the most serious crisis which Mexico has yet experienced. Indeed many of the industrial problems confronting the country as a whole are mirrored in the Guanajuato Industrial Corridor, evidenced by a halt in economic growth and a corresponding decline in investment.

The subsequent reduction in government, industrial and consumer spending has resulted in a fall in demand for locally manufactured goods. The cumulative impact on the manufacturing industry in the Guanajuato Industrial Corridor is measured in terms of factories operating at between 20% and 50% plant utilisation, reduction in manning levels, mounting requests for credits to finance working capital, and closures of small factories.

6.08 The impact of the economic crisis in Mexico as a whole has been experienced as much in Guanajuato as in all other Federal States. Prior to this, Guanajuato's period of greatest industrial growth had been at a time when the highest priority was given to the creation of employment in selected categories of industry, with perhaps less concern for achieving a balanced mix of manufacturers within each category. In fact, by 1982, the momentum of industrialisation in Guanajuato had reached the stage where there appeared to be a strong case in support of a programme to give added impetus to industrial investment. The State of Guanajuato, as with Mexico itself, is now obliged to reflect and take stock of the present implications.

Gross Domestic Product

6.09 The absence of up-to-date regional statistics on economic trends in the state of Guanajuato beyond 1980 has meant that the commentary

in this chapter is based on such data as is available, supported by information and viewpoints supplied by usually reliable sources in the State Government, banking and finance institutions, Chambers of Industry, and individual manufacturing enterprises. Nevertheless it is believed that the existence of more precise data would not have resulted in significantly different conclusions.

TABLE 6.1 GUANAJUATO: GROSS DEVELOPMENT PRODUCT BY SELECTED SECTORS, 1980

Sector	MEXICO		GUANAJUATO		SHARE
	Mexico %	Pesos ('000,000)	Gto. %	Pesos ('000,000)	Mexico %
Agriculture	8.35	357,131.1	11.50	15,234.4	4.26
Mining	6.82	291,374.1	1.03	1,361.9	0.47
Manufacturing	23.03	985,013.1	22.60	29,942.4	3.04
Construction	6.46	276,192.9	7.09	9,390.6	3.40
Electricity	0.98	42,034.9	1.52	2,020.9	4.81
Distribution	29.90	1278,667.4	30.42	40,296.3	3.15
Other Services	24.46	1046,076.9	25.84	34,234.9	3.27
TOTAL	100.00	4276,490.4	100.00	132,481.4	----
Population		67382,581		3044,402	4.50
Per Cápita (pesos)		63,466.0		43,516	68.06

Source: SPP Guanajuato

Agricultural Sector

6.10 The State of Guanajuato is the second largest producer of cash crops in Mexico, with some 250,000 hectares under cultivation producing nearly 750,000 tons valued at Pesos 2,530 million (Table 6.3).

6.11 The number of persons actively employed in agriculture is 258,000 representing 43% of the economically active population in Guanajuato.

TABLE 6.2 GUANAJUATO: AGRICULTURAL PRODUCTION, 1982

Product	Hectares	Tons	Pesos(million)	% Total
Wheat	53,494	157,326	952.3	37.6
Sorghum	79,689	186,193	731.7	29.0
Maize	79,169	55,440	363.1	14.3
Alfalfa	5,644	211,765	149.6	6.0
Beans	29,127	2,716	43.5	1.7
Others	10,815	137,635	289.0	11.4
TOTAL	247,938	745,075	2,529.2	100.0

Source: SARH

Agro-Industry

6.12 Due to the narrow variations in year-round temperature (Para 6.04) and altitude, Guanajuato is well suited to the cultivation of temperate crops, most of which are unspecified and classified as "others". The most important in this category are strawberries, asparagus and chiles which provide the bulk of the input into the canning, frozen foods and processing industry. In fact, the nine large cold-storage depots are currently handling 35,000 tons strawberries annually, of which 25,000 tons are for export, primarily to USA, and 10,000 tons for domestic consumtion. (Refer para 8.49).

Mining Sector

6.13 There are important mineral deposits. Gold and Silver was discovered in 1548 and developed commercially in 1558, following rich discoveries at San Juan de Rayas, which made Guanajuato the largest silver mining region in the world. During subsequent years the resources have diminished as shown in Table 6.4. The mining industry in Guanajuato State generated Pesos 1,362 million in 1980, representing 1% of state GDP compared to national mineral production's 6.8% share of Mexico GDP.

TABLE 6.1 GUANAJUATO: MINERAL PRODUCTION 1977-1979

Mineral	1977	1978	1979	National ranking
Gold (oz troy)	45,461	44,336	45,976	2nd.
Silver(oz troy)	6'770,298	6'142,391	5'997,842	3rd.
Copper (tonnes)	124	94	80	13th.
Fluorspar (tonnes)	121,949	237,602	104,637	4th.
Lead (Tonnes)	71	58	48	18th.
Sulphur (tonnes)	600	1,994	827	6th.

Source: Consejo de Recursos Minerales

Manufacturing Sector

6.14 With the exception of Agriculture and Mining, the sectoral participation of the Guanajuato GDP in 1980 was a stratified sample of the national GDP, and importantly so in the case of Manufacturing and Construction (Table 6.1). In 1980, manufacturing production accounted for 22.6% of Guanajuato GDP, closely corresponding to the 23% contribution of the Manufacturing sector to the national GDP (Table 6.1).

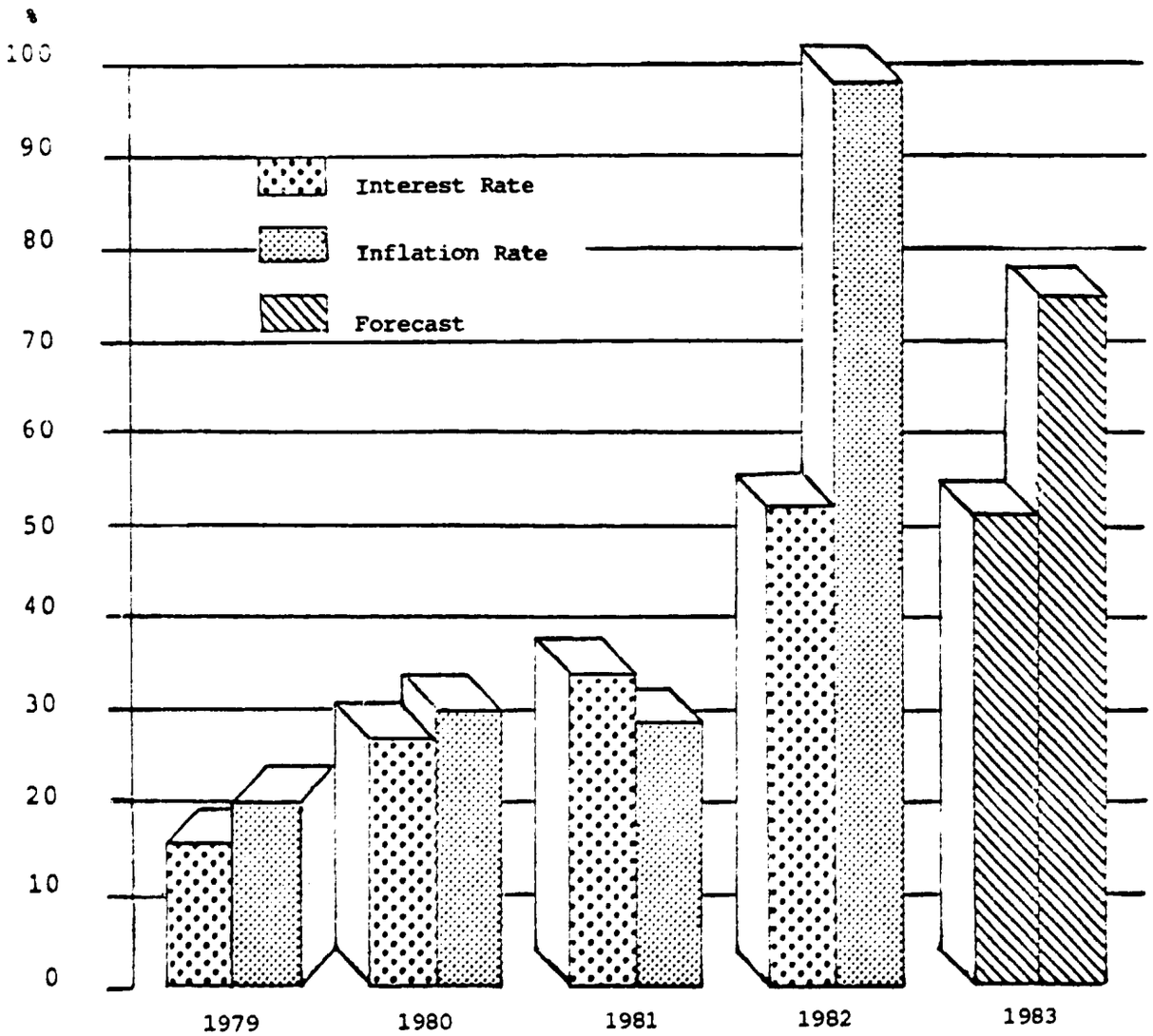
6.15 The assumption is made (with no justification beyond that of convenience) that performance of the Manufacturing sector in Guanajuato since 1980 has followed the national trend, and will continue to do so. In which case, the growth rate of Manufacturing GDP for Guanajuato will have fallen by -2.4%, and will continue to slow down, due to the strict Federal austerity programme aimed at reducing the national GDP deficit to 8.5% in 1983, coupled with the effects of the recession, which directly affects both public and private investment.

Forecasts are that the index of industrial production will fall by betweem -5% and -3% compared to 1982.

Inflation

6.16 In line with the national trend, inflation is currently running at between 80% and 75% [1/] and will continue at this level until early 1984. Banco de Mexico foresges inflation continuing to diminish through 1984 to 35% or 40%, following a gradual reduction in interest rates.

Table 6.2 COMPARATIVE INTEREST AND INFLATION RATES, 1979 - 1983 (Est)



Source: Banco de Mexico; Consultores Internacional; Consultant estimates.

1/ Source: Banco de Mexico

Employment

6.17 Up-to-date information is not available on current employment levels and trends in the manufacturing industry in Guanajuato State. Moreover it appears that plant under-utilisation is no indication of equivalent reductions in number of persons employed. In response to Government's request that industry should maintain employment levels, not to mention the high cost-penalties of severance compensation, the current trend is to under-employment, a factor which cannot readily quantified. Nevertheless, a reasonable estimate based on 1980 Census data points to a total population in the Guanajuato Industrial Corridor of 1.6 million of which 684,632 persons are actively employed. The estimated number employed in the manufacturing industry is 118,441 as of 1983 (Refer Table 8.1).

6.18 Consequently, new employment generated between January and August 1983 is of special importance. During this period, the new programmes listed by NAFINSA/PAI in Para 6.19, represented 1042 new jobs, with León Accounting for 68%, Irapuato 22%, and Celaya 7%. If the 2,875 new jobs listed by SFES [1/] are added, total new employment in 1983 will be approx 4,000 (Table 6.5)

Interest rates

6.19 Time deposit Bank interest rates (November 1983) are marginally down to 55.45% or 9-months fixed-term. However, Banco de Mexico has recently issued (25 October) negotiable promissory notes for 3-,6-,9-, and 12-months maturity yielding 64.8% or 9-months fixed-term.

Investment and Incentives

6.20 In addition to the Incentive Development Law promulgated by the Federal Government 1979 (Para 3.06), incentives were introduced by the State of Guanajuato to attract new industry to the Industrial Corridor, under the Ley de Protección Fiscal y Fomento Industrial del Estado de Guanajuato. These are set out in Annex 4, and summarised as follows:

(a) Eligibility: New enterprises or existing firms seeking to expand. Provided that production cannot be maintained without tax exemptions, or provided that new technology is to be introduced, or product improvement/cost reduction programmes are to be adopted. Subject to the articles/goods not being already available in the State to meet local needs.

1/ SFES: Secretaría de Fomento Economico y Social.- Guanajuato.

(b) Zones: 3 priority zones are defined.

(c) Fiscal Benefits: Tax exemptions from 25% to 50% over 3 to 4 years according to elegibility qualification and zone location.

6.21 As a result of the Federal and State incentives introduced, and encouraged by the bright economic prospects of the petroleum industry, substantial investments were made in the State of Guanajuato from 1979 onwards. From the data which it has been possible to obtain from various sources including NAFINSA and SFES, Guanajuato, the growth of industrial investment and employment generation during 1979-1983 is as set out in Table 6.5.

Incremental capital formation, for which NAFINSA/PAI credit lines have been granted during January-August 1983, amount to Pesos 576 million. Expected annual gross sales are estimated at Pesos 1884 million (Annex 5)

TABLE 6.5 GUANAJUATO: INDUSTRIAL INVESTMENT AND EMPLOYMENT, 1979-1983
(Pesos: Million)

Year	New Companies	Capital	Employment
1979/80	559	2,411.6	9,456
1980/81	123	15,349.1	11,401
1981/82	682	17,760.7	20,857
1982/83	60	4,461.0	3,917
TOTAL	1,424	39,982.4	55,631

Source: Consultant extrapolations from SFES , Guanajuato; NAFINSA

Current Investment trends in the Manufacturing sector

6.22 According to NAFINSA/PAI, applications for financial and technical assistance in setting up new businesses in the Guanajuato Industrial Corridor are higher that had been expected and ahead of the national trend. During the first eight months of 1983 fifty-one new programmes have been

initiated of which 35 are already operational, 10 are being implemented, 4 are under consideration, and one is at concept stage. (Annex 6)

It is significant that 53% of new businesses are located in León and 41% are in the traditional leather and footwear industry. Of the remaining new industries, Irapuato and Celaya account for 20% and 12% respectively. Metal-mechanical engineering account for 25%, processed foods for 12%, chemicals and pharmaceuticals for 12%, and clothing for 8%.

Balance of Trade

6.23 As already noted, Guanajuato GDP mirrors national GDP with few exceptions. The relative contribution of the Manufacturing Sector is almost identical, whilst Guanajuato food production is way ahead. The similarity ceases when comparing respective balance of trade

6.24 Guanajuato's contribution to the national balance of trade since 1979, the period of GIC's greatest industrial development has been an annual US dollar deficit that has grown from -US$ 11.2 million in 1979 to -US$58.8 million in 1982, and increases in imports over exports rising from 25.4% to 116.4% (Table 6.6). Aggregate negative contribution: -US$ 209 million.

6.25 The leather footwear industry accounted for an average 3.5% all imports, but less than 10% exports in 1982. In fact, raw materials for the leather industry averaged nearly 40% all imports during the past four years.

The principal exporting sector is the processed foods industry which accounted for 45% exports in 1982, representing a further improvement over the four-year average of 42.6%. These figures are achieved mainly by subsidiaries of the transnational corporations with processing factories in the GIC.

6.26 It is significant that the industrial development boom in Guanajuato in recent years has contributed virtually nothing to exports. On the contrary non-exporting industries have accounted for an average 53% all imports annually during the past five years.

TABLE 6.6 GUANAJUATO: ANNUAL BALANCE OF TRADE, 1979-1982

Item	1979	1980	1981	1982	1982 %TOTAL	4 year average %TOTAL
	(US$ '000)					
Exports Total	42611	57764	57990	50518	100.0	100.0
Processed Foods	20109	20952	25061	22858	45.2	42.6
Fresh fruit & Veg	--	1952	3418	4247	8.4	4.6
Textiles and Clothing	4348	6452	9484	9538	18.8	14.3
Leather and Footwear	7005	10485	10445	4814	9.6	15.6
Chemicals	1282	2230	-	-	-	1.7
Others	9867	15693	9572	9061	18.0	21.2
Imports Total	53888	81143	126974	109329	100.0	100.0
Agriculture	-	2665	-	1147	1.0	1.0
Food Industry	-	3247	6807	4135	3.8	3.8
Leather Industry	38333	33204	37280	38670	35.4	39.7
Machinery & Equipment	1421	-	10778	1215	1.2	3.6
Others	14134	42027	72079	64162	58.6	52.9
Balance Trade TOTAL	(11277)	(23379)	(68984)	(58811)	-	-
Exports:Imports	1:12	1:14	1:22	1:22		

Source: Banco de México, IMCE

Conclusions

6.26 The prospects appear to be somewhat better than might have been imagined twelve months ago. The industrialised nations are emerging from a 10-year period of economic recession. Mexico's handling of the problem of re-establishing confidence among the debtor nations has been skillfully exercised. Foreign investors are showing renewed interest. But investors' interest in Mexico - and Guanajuato in particular - will become reality only when industry demonstrates its ability to stimulate demand, increase production, and maximise plant utilisation. This will be largely achieved

by the introduction of more sophisticated and aggressive marketing strategies designed to achieve specific targets in both domestic and external markets, and by the ordered establishment of new industries to fulfill evident needs and attain specific objectives.

Recommendations

6.27 In order to establish an industrial development policy for the State of Guanajuato there is an urgent need to obtain an accurate assessment of the following.

(a) The Guanajuato Industrial structure as it exists

(b) The current socio-economic situation, projected trends, and the favourable and unfavourable factors that are likely to affect industry over the next 10-years.

(c) The form and structure of future industrial development and investment programmes appropriate to dealing with the situation (b).

(d) The motivating and regulatory role of State Government.

A proposal for meeting this requirement is set out in Chapter Eight Scenario III.

CHAPTER SEVEN

PART I: DESIGN OF FIELDWORK AND FACTORY VISITS, JULY-AUGUST 1973

7.01 The project as originally conceived provided for 2-months preparatory research to be carried out by the Senior Industrial Economist/Project Director prior to the arrival of the Senior Engineer. This would have permitted the setting up of a stratified quota sample representative of the 4807 industrial establishments in the Guanajuato Industrial Corridor. In the event, both experts arrived similtaneously at the Duty Station.

7.02 In view of this development and the fact that the Senior Engineer's assigment was of 2 months duration, the Project Director took the decision to give the highest priority to the work of the Senior Engineer, during the first two months, with the team working hand-in-hand and the Project Director performing the back-stopping role.

7.03 The first task was to carry out a detailed study of the industrial mix, establish factory selection and evaluation criteria, programme the data into the Senior Engineer's programmable calculator [1/] and extract a list of 43 enterprises located along the 160 km. GIC [2/] for factory visits.

7.04 The industrial data base was derived from the only statistics made available to the mission at the time.

(a) Document "A" : Catastro Industrial del Estado (undated). Secretaría de Fomento Economico y Social, Gobierno del Estado de Guanajuato

(b) Document "B" : Breve Análisis del Area Industria (1983). Secretaría de Programación, Gobierno del Estado de Guanajuato.

Note: Relevant data base 1975 and 1979

Regrettably neither document explained the methodology employed, specifically in relation to data-base and count of enterprises. Moreover, the two sources differ widely in certain key data making it difficult to draw realiable conclusions.

1/ Hewlett-Packard Model 97

2/ GIC: Guanajuato Industrial Corridor.

7.04 A representative cross-section of industry according to location and population was formulated from a statistical analysis of the seven Municipalitites: Apaseo el Grande, Celaya, Irapuato, León Salamanca, Silao y Villagran.
(Table 7.1)

TABLE 7.1 GUANAJUATO: DISTRIBUTION OF POPULATION AND INDUSTRY

	Population 1980 Doc. "A"	Population % of Total	Avr.annual increase in Population 1970-80 Calc.fr.data in Doc."A"	Population Density persons/sq.km. Doc. "A"	Industrial Establishments per Doc. "A".	Industrial Establishments per Doc. "B".
Apaseo el Grande	48175	3.1	3.6	131	77	27
Celaya	258027	16.5	5.8	445	416	495
Irapuato	247511	15.8	3.5	315	480	572
Leon	711106	45.4	5.4	601	1330	3579
Salamanca	173083	11.0	5.1	224	204	96
Silao	95559	6.1	3.0	174	147	29
Villagran	34018	2.1	4.2	346	36	9
Total	1567479	100	4.9	362	2690	4807
State of Guanajuato	3156970		3.6	103	5224	n.a.

7.05 The Catastro Industrial lists nearly 5000 firms. The number was considerably reduced after screening out trading firms, contruction companies, quarries, local bakeries, bottling plant, services industries (workshops, printers etc.), and firms with less than 16 employees.

TABLE 7.2 GUANAJUATO: DISTRIBUTION OF INDUSTRY BY No. PERSONS EMPLOYED

		Celaya	Irapuato	Leon	Salamanca	Silao	All
Total Enterprises listed in Catastro		495	572	3579	96	31	4773
No data on Employment		240	288	1382	3	1	1914
Small	Employees	864	930	8348	331	69	10542
	Enterprises	190	191	1627	64	20	2092
Med.Small	Employees	1005	1382	8518	300	152	11357
	Enterprises	38	58	343	11	6	456
Medium	Employees	719	1040	9868	503	140	12270
	Enterprises	12	19	158	8	2	199
Med.Lg.	Employees	2041	2316	10109	390	0	14856
	Enterprises	12	13	61	3	0	89
Large	Employees	3177	1809	4689	7600	620	17895
	Enterprises	3	3	8	7	2	23
All	Employees	7806	7477	41532	9124	981	66920
	Enterprises	255	284	2197	93	30	2859
% Employees in Group	S	11.1	12.4	20.1	3.6	7.0	15.8
	MS	12.9	18.5	20.5	3.3	15.5	17.0
	M	9.2	13.9	23.8	5.5	14.3	18.3
	ML	26.1	31.0	24.3	4.3	0	22.2
	L	40.7	24.2	11.3	83.3	63.2	26.7
% Enterprises in Group	S	74.5	67.3	74.1	68.8	66.7	73.2
	MS	14.9	20.4	15.6	11.8	20.0	15.9
	M	4.7	6.7	7.2	8.6	6.7	7.0
	ML	4.7	4.6	2.8	3.2	0	3.1
	L	1.2	1.1	0.4	7.5	6.7	0.8
Number of Inhabitants per one industrial Job		33	33	17	19	97	22

Key: S (Small) 15 or less. MS(Medium Small) 16-39 emp. M(Medium) 40-99 emp. ML (Medium Large) 100-299 emp. L (Large) 300 or more emp.

7.06 The final selection of 33 factories was mutually agreed by the Goverment counterpart officer, the three Chambers of Industry (CANACINTRA) in the GIC, and the Project Team as follows:-

(a) CELAYA

ARBOMEX SA de CV	Foundry, Automotive Camshafts
CARROCERIAS DIVERSAS HAKON	Truck body builders
CHIMICA SODIUM SA de CV.	Detergents
ESTUFAS Y REFRIGERADORES NACIONALES SA de CV	Domestic applances
MONTERREY CHLORIDE SA de CV	Batteries (Lead acid)
NABISCO-FAMOSA SA de CV	Prepared foods, Biscuits
PRODUCTOS ESTAMPADAS SA de CV	Heavy duty Pick-up truck bodies
RODAMIENTOS SA de CV	Roller bearing
TALLERES AKERRA SA	Grain Milling Plant
TRANSETE SA	Automotive Gear Boxes
VEL CON	Automotive Axles

(b) LEON

EL ARBOL SA	Footwear Lasts
EVE SA	Jeans
FLEXI SA	Leather Footwear
INDUSTRIAS MEDINA SA	Submersible pumps
MANUFACTURAS DIVERSAS SA	Enging Gaskets, Hollow ware
MEDINA TORRES SA	Tannery, Shoe soles
MICRO-ONDA SA	Cardboard Boxes
PASTIFICO MILANO SA	Pasta
PLASTICOS INDUSTRIALES SA	Plastic Soles-Tubes
PROCESOS MODERNOS DE LEON SA	Tannery, Shoe soles
QUIMICA CENTRAL DE MEXICO SA de CV	Chromite Chemicals
SIETE LEGUAS	Boots

(c) IRAPUATO

COMPAÑIA MANUFACTURERA DE ARTEFACTOES ELECTRICOS SA de CV	Transformers
EMPACADORA Y EXPORTADORA SA	Processed Vegetables, Preserves
EMPACADORA GILBERT SA	Processed Meats

(c) IRAPUATO (cont'd)

INFANTINA SA	Childrens Garments
JABONES CONSTANTIA SA	Soaps, Washing powder
MACON SA	Agricultural Land Clearing Equipment
PIN-HER SA	Metal Furniture

(d) SALAMANCA

ENVASES CONTINENTAL SA	Metal Cans
PRODUCTOS FRUGO SA	Processed friuts, Vegetables,preserves
PRODICO SA	Heavy Steel Plate Fabrication

(e) Supporting Institutions

CANACINTRA (Cámara Nacional de Industrias de Transformación)
IMCE (Instituto Mexicano de Comercio Exterior)
NAFINSA (Nacional Financiera S.A.) and Subsidiaries
CIATEG (Centro Industrial de Asistencia Técnica)
Universidad de Guanajuato (Facultad de Ingeniería)
et al.

7.17 Summary and technical commentary by the Senior Engineer are set out in Part II of this chapter paras 7.08 through 7 19 . The Senior Engineer's full reports on factory visits are presented separately as Annex. 13

CHAPTER SEVEN

PART II. REPORT OF THE SENIOR INDUSTRIAL ENGINEER

SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS RESULTING FROM THE FACTORY VISITS

The following points are not in any specific sequence; each of the items stands by itself. In most cases, the body of the report[1] provides more details, but it is felt that this summary provides adequate information for the reader who is interested to obtain some general ideas, without wanting to spend too much time on specifics.

RECOMMENDATIONS

Opportunities for New Investments

A - The industrial countries, particular in times of prosperity, find it difficult to obtain workers for jobs which are disagreeable, low-prestige, hazardous or potentially health-impairing.

Further, plants which tend to be "polluters" or in some form "public nuisances" are less and less wanted by the communities in which the investors wish to establish them.

It should be determined whether, in principle, Mexico might be prepared to receive such plants.

If so, profitable investment opportunities might be more easily found than for "less objectionable" industries.

B - Polypropylene has, in industrialized countries, become the packaging material par excellence. It is also widely used in Mexico (even though it might be considered a luxury, non-essential, material). It is an oil-derivative and thus could be produced in Mexico from local resources. A pending inquiry to UNIDO is to clear up whether Mexican demand would justify a plant at or over "minimum economic size". If the answer is positive...

An opportunity study should be initiated.

1/ Detailed reports on each visit are set out in Annex 13.

C - Kaoline-coated cardboard is used in Mexico in substantial quantities for high-grade packaging (e.g. luxury shoes). It must be imported, as none is made in Mexico, in spite of the fact that kaoline is a locally-found mineral.

An opportunity study should be undertaken.

D - Fire- and burglar-proof safes are in wide demand; but it seems there is no local production. Manufacture could probably be undertaken by an existing, suitably equipped plant in the "metal-mecanica" field. Manufacturing know-how and some parts (locking mechanisms) might, at least initially, have to obtained from abroad.

An opportunity study should be undertaken.

E - Educational materials (display or working models, such as used e.g. in the teaching of physics or medicine; books are excluded by definition) do not seem to be in production in Mexico (perhaps with the exception of some materials for basic schools). Makers of educational materials are an important segment of industry in many countries -- although not widely known, as they serve a very specialized market.

An opportunity study should be undertaken.

F - While there are a certain number of manufacturers of speed reducers in Mexico, it seems that the manufacture of gears -- either for replacement purposes, or in small production quantities -- is not being undertaken as such. It would appear that a successful business could be created in this field.

An opportunity study should be undertaken.

G - An agricultural tractor, particularly suited to Mexican conditions, has been developed at the Engineering School of the University of Guanajuato at Salamanca. Prototypes are currently being built; a pre-production run is planned. When the situation is ripe -- probably a year or two hence -- ...

an opportunity study should be undertaken.

H - Most of the projects identified as possible investment projects in the massive study by Nafinsa/UNIDO on "Capital Goods", are probably non-implementable during the present "crisis". However, the material should be kept in mind; and when more "normal" times appear on the horizon, the study should be re-examined and, as deemed appropriat ...

potential investor collaborators should be approached as appropriate to Guanajuato.

I - During the current "crisis", certain specialty manufacturers -- particularly in fields which require some special knowledge, but relatively little capital (e.g. commercial detergents) -- have found it possible to establish themselves quickly with considerable success; they have taken over business opportunities which previously were being supplied by imports which have now become too expensive. Some of these opportunities may as yet have remained unrecognized.

A systematic search for additional possibilities should be undertaken; and opportunity studies prepared, as appropriate.

This work ought to be done at an early moment. Once "normal" times return, the possibilities may be much reduced!

J - In bad economic times (like the "crisis") equipment (productive, transport and consumer durable) is usually kept in service longer than in better times. While the original equipment manufacturers suffer, repairers and spare parts suppliers flourish. Much of this work is highly labor-intensive, hence of much interest. Some of these opportunities have been recognized, but

a systematic search for additional possibilities should be undertaken; and opportunity studies prepared as appropriate.

Again as in the preceding item: Once "normal" times return, the possibilities may be much reduced!

O - Iron castings (an item in wide use in industry) are usually obtained by the equipment manufacturers from suppliers (foundries). Many of the castings purchased are said to be of poor quality (Reject rates of 10 % are reported). As numerous foundries exist, the problem might have to be attacked by the institutional approach. One of the CIATE_ organizations seems to be active in matters relating to siderurgy-metallurgy; but so far, the problem seems to persist.

A comprehensive technological assistance recommendation by UNIDO may be in order.

P - Leather shoe soles are generally made with leather produced by a vegetable tanning process for which the material is not currently grown in Mexico. Efforts are underway that in a few years suitable plantations will exist in Mexico. In the meantime, however, material must be obtained from abroad. It is conceivable that other tanning methods which could be substituted in the interim period, do exist. It seems desirable to...

bring this matter to the attention of UNIDO's staff who specialize in the field of leather and leather products.

Q - Complaints were heard that locally available leather, while rather plentiful, has quality problems. It is known that the FAO of the UN has successfully dealt with such difficulties elsewhere. It would appear appropriate to...

inform the Resident Representative of UNDP about the existence of the problem, with the suggestion that technical assistance from the FAO may be useful.

Suggestions for possible Actions by the Mexican Government

R - The exportation of manufactured items which contain subsidized ingredients (e.g. cookies) seems to be prohibited. This may preclude export opportunities which would be advantageous both to producers and the Mexican nation. It might

be desirable to work out a recommendation as to a modus operandi suitable to prevent the government's subsidization of foreign consumers; and to

submit the matter to the Mexican government for consideration.

S - In at least one case, a Mexican manufacturer (shoe lasts) imports used plastic material for re-processing and subsequent use in the making of his product. The same material, but in "virgin" state and more expensive would be obtainable from the Mexico oil-derivatives industry. This would then save foreign exchange. Details as to the financial implications (not known at this moment) might be investigated; and, if deemed appropriate, it would then be desirable to

submit the matter to the Mexican government for consideration.

T - All imports seem to require specific action by government, relative of licenses and foreign exchange allocations. The approval process is reportedly quite time-consuming; where spare parts for equipment requiring emergency repairs are concerned, delays may be costly not only to the enterprise concerned, but also to the nation. It is felt by some entrepreneurs that personnel in government dealing with import licenses for spare parts are not always sufficiently technicallt cognizant to recognize the consequences of delays. It may be appropriate to ...

bring this matter to the attention of the Mexican authorities.

U - In one developing country (Bangladesh) government has successfully created mechanical work shops which fill a dual function: Training of personnel in "metal-mechanica"; and readily available assistance in urgently needed repair parts and operations. The scheme is described in some detail on page 79 of the report. It may be just as useful in Mexico as it is, for many years already, elsewhere. It is suggested to ...

bring this possibility to the attention of the Mexican authorities.

Senior Industrial Engineer's Report (cont'd)

Some Thoughts on Technological Development in Mexico

7.09

The beginnings of industrialization in Mexico can be traced back to the time immediately following the first World War. Since then, two-thirds of a century have passed, equivalent to two human generations.

It is felt by some that this time span is sufficient (but really no more than necessary) for the transition of a non-industrial society into the industrial age. It would seem that Mexico has successfully made this transition: There exist now in the country many industrial plants which not only are well equipped; but which are being managed, and are functioning properly, entirely with indigenous manpower.

In other words, production technology at an up-to-date level (by world standards) is being applied intelligently and without any, but the usual, problems.

*

What seems to be less well understood, however, is the following:

The design of products, as well as the design of production processes must, for good efficiency and economy take into consideration the local environment.

For example: An automatic washing machine which controls the quantity of water admitted into the machine by timing , will not work properly in an application where water pressure is too low. The design ought to be changed to control the water by measuring water flow or level.

For example: A metal tool box which is to be made in very large quantities is best designed so that the body can be deep drawn on a heavy press. This, of course, requires the availability of a special tool, which is quite expensive; but which can be justified as the production quantities are large. If a functionally equivalent toolbox is to be made in limited quantities, the product should preferably be designed so that manufacture is possible on relatively inexpensive sheet metal cutting and bending machines of a versatile type. While function is maintained, appearance may be somewhat different. Also, labor costs may be higher, but the necessity of major investment costs (for heavy machinery and special tooling) can be avoided.

These examples are illustrative only; they do point to the fact, however, that the copying (or taking over under license) of product designs, or production processes, will in many cases lead to bad industrial economy.

Decisions on what to produce, and how to produce it should only be taken after a careful determination of (a) basic functional specifications, and (b) the best (i.e. most economical under the prevailing conditions) way to fulfill them, both as to product design and manufacturing process.

It seems that technical personnel in Mexico (design engineers, process planners, etc.) are frequently overly hesitant to deviate from designs and processes which have proved themselves in some foreign country.

Training institutions should include in their programs (*) whatever it will take, to release their graduates with a recognition of the fact that "what has proved itself elsewhere is not eo ipso best for us"; and with the conviction that the ability to design products or processes best suited to local needs is simply based on sound knowledge of fundamentals, plus the daring to venture into the untried.

Coupled with this must, however, be a willingness at levels of investors, lenders, and managers to allow their technical personnel to exercise their inventiveness and ingenuity to arrive at, discuss and try out novel ideas; and to accept the fact that some of these ideas will eventually turn out to be unsuccessful.

Managers have long recognized that their success is largely based on their ability "to be more often right than wrong".

The same right must be granted to those people who are responsible for the technical aspects of industrial enterprises (which are usually mysterious to those whose contributions are primarily in the financial or marketing areas; and often unclear even to those who direct operations at the "general management" level).

Major progress is never achieved by simply proceeding along the well-trodden path, however vigorously it may be pursued. It invariably comes from new ideas, pursued with conviction and daring.

This, in this writer's conviction, is still virgin territory in much of Mexico's industry!

P.S.: Toward the very end of his mission, the writer had an opportunity to visit the Engineering School of the University of Guanajuato. This School is located at Salamanca; its Director is Dr. Arturo Lara López, who, on 12 August 1983, received the writer very kindly in his office and provided much information on, and a guided tour through the entire establishment.

The School has an enrollment of about 150 students, who are admitted to it upon completion of secondary schooling; and who eventually graduate with bachelors' degrees in Mechanical or Electrical Engineering.

(*) It is, unfortunately, one of the characteristics of training institutions that teachers tend to "create their students in their own image". Thus, the teacher who himself lacks creativity and daring (innately, or through conditioning) will not generally be eager, or very good at, stimulating his students as to these faculties. Thus, quick success can hardly be expected. The time scale involved may be measured in decades, or even in generations (cf. the introductory paragraph of this chapter). This fact should even more indicate the urgency of implementing what has been postulated here.

the enthusiastic explanations by the director, and what was seen in the laboratories of the school, lead the writer to believe that the problems described above have been recognized and are being counteracted in this School and possibly others in existence in Mexico. It would seem that once the graduates of this and similar schools in Mexico -- these schools seem to be of very recent vintage; and cannot yet have released many graduates into industry -- begin to influence decisions in Mexico's industry, then the beginning of an intellectually autonomous industry, able and desirous to go its own way, will be at hand.

The Engineering School at Salamanca, probably together with many other deserving institutions, must at the present time tighten its belt, in consequence of the country's difficult economic situation. Budget for subscriptions to foreign periodicals had to be curtailed; and the computational facilities -- most important in the training of the future technological elite of the country -- are badly in need of upgrading.

It would seem that a relatively limited support program by the United Nations (UNDP or UNESCO) with a relatively small personnel component, but a somewhat sizeable equipment component (say, of the order of US 100,000) would not only be very useful, but in all probability much more productive in the long run than could be achieved with comparable inputs along the more "traditional" lines.

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Senior Industrial Engineer Report (cont'd)

A PROBLEM OF SKILLS AVAILABILITY IN MEXICAN INDUSTRY

7.10
In many industries, including particularly (but not exclusively) the "engineering" types, the skills needed to produce qualitatively acceptable, and economically produced products requires the concurrent availability of many types of personnel.

Such personnel, as to specific background, will, of course differ greatly; for example, persons knowledgable in the tanning of leather will require quite a different training from one whose field is the heat treatment of steel.

However, as to the level of training (as distinct from its specificity), these two persons may be quite similar.

In principle, it may be useful to distinguish the following categories of skill levels (which, for the purposes here pursued, do not include managerial or administrative ranks, such as "foreman", "supervisor", "director", etc.).

Unskilled workers	do mostly manual work which is highly repetitive, usually requires more physical strength than mental ability, and whose performance can be learned with virtually no training.
Semi-skilled workers	perform slightly more complex tasks, such as the operation of machinery which is set up by other personnel; they usually can be trained to do a repetitive task (which may from time to time vary in details) within days to a few months.
Skilled workers	must be able to use machinery and tools peculiar to their trade and to produce high quality output, even where the particular item to be made was not previously encountered. They have usually gained this proficiency by a combination of "formal apprenticeship", "training on the job", "attendance at courses and/or trade schools", and "real life experience".
Technicians	must have a good understanding of skills, materials, machines and tools used in their specific fields; and possess a sufficient amount of theoretical knowledge to perform as the "interpreters" to the "factory floor" of the instructions, work order or directives, which emanate from the "front office" and require execution in "the shop".

Technologists	are persons who perform in functions requiring a good understanding of principles, but at less than the highest levels of science and/or ingenuity; they must have thorough training in the application of science and technology to specific problems as such are encountered in industry.
Engineers and Scientists	do work involving research, experimentation and other investigative tasks requiring the highest level of ingenuity and conceptual thinking in the devising of new theories, ideas, products and processes, as such are required to proceed from the "present state of the art" into the unknown.

*

In the "traditional", pre-industrial age, the world was largely divided into the "doers" (which went from the unskilled laborer to the highly skilled craftsman); and the "philosophers" who pursued their thoughts without, in most cases, tangible results.

The educational systems of "civilized countries" corresponded to this dichotomy; and it provided as training (to the extent that it did exist) "apprenticeships" for the doers, and "universities" for the thinkers.

With the advent of the industrial age, and particularly with the introduction of ever more complex products, processes and manufacturing machinery, an increasing need arose for the availability of an "in-between" group, which consists of the Technicians and Technologists as they have been identified above.

Even in the "industrialized countries" training institutions for Technicians and Technologists have largely been established in the very recent past, almost entirely since World War II.

In most developing countries, where industrialization itself is a very recent, and indeed partly an incipient matter, the need for this intermediate skill group has hardly been recognized; and where recognized, has so far failed to engender action.

It is felt strongly that rapid progress in industrialization requires, as a necessary pre-condition, the existence of a well-selected and then well-trained group of persons with the characteristics delineated for Technologists and Technicians.

This report cannot be the place in which to describe what has to be done to achieve this. However, the writer believes that he could be chided for incompleteness of his work, did he not point to the problem.

1440

31.VII.63

Standards and Standardization

7.11

The writer, in the mid-1970's, had occasion to comment on problems in Mexico relative to standards and standardization. While this area was not a specific topic of investigation during the current mission, the general impression was that little has changed in the intervening seven years. Therefore, the following is quoted from a report of 1976:

> "...difficulties exist relative to standards and standardization. While, apparently, quite a few persons are members of a system of consultative bodies and standards (co-ordinated by CONACYT (*)), little conclusive output has so far been achieved. To be sure, a country which still, to a substantial degree, depends upon imported materials and components (and which constitutes a relatively small market for the corresponding exporters) can hardly expect that it can create a set of norms by which all its suppliers will be willing to abide. This, however, is not the point. Efforts should be made, with as little delay as possible, to establish the long-range objectives which will have to be satisfied if Mexico, as a nation, is to become the efficient industrial producer which it evidently hopes to be. On this basis, the requirements of industry as they will eventually exist, must be determined; and after that a carefully laid out plan should be delineated (and enforced!) so that progress will be made in the intended direction.
>
> "It is, of course, recognized that in a free enterprise system government has only limited enforcing ability in matters of this type. This, however, should be so much more reason to deal with standards and standardization in an effective manner which should include approaches involving active participation of industry in the creation of standards; and perhaps eventual incentives (and even, if it has to be, subsidies) to achieve the voluntary co-operation of all concerned."

It might be mentioned that Mexico, due to its geographic proximity to the USA, is in many instances using the "traditional English" system of measurements (inches, gallons, acres, etc.) in spite of the fact that the metric system is the official (and also widely used) one.

This causes a duality of physical requirements (fasteners, containers, paper sheet sizes, etc.) which result in inefficiencies and hence costs to the economy.

As long as this situation continues while industrialization progresses, these costs will keep on increasing. And the eventual (and probably, in the long run, inevitable) change to a single system will become ever-more difficult and costly, as long as the mentioned duality is permitted to continue.

(*) See also "Local Efforts to develop/improve Technology" elsewhere in this report.

Senior Industrial Engineer's Report (cont'd)

CONACYT/INFOTEC: Access to world data Bank Systems

7.12 INFOTEC provides access for Mexican information seekers to the world's information resources, largely through instantaneous access to the several large data bank systems, such as, for example, "ORBIT" in the USA and "EURONET" on the European Continent. **(Refer Para 4.31)**

A terminal with direct access to INFOTEC is said to be in existence at University of Guanajuato; apparently it is to be disconnected in the near future as it remained virtually unused during its first year of availability. It seems there were some technical problems (transmission errors due to low-quality telephone lines between Guanjuato and Mexico, D.F.); the main difficulty, however, is said to lie with very high connection charges to the user.

In this connection, the writer wishes to place on record that during his time as a staff member of UNIDO (in the 1970's) he was instrumental in securing access for UNIDO personnel to the data bank system the administered by the International Atomic Energy Agency (at its old location, Kaerntnerring 5, Vienna, Austria). /The system is now in operation at the Vienna International Centre./

Charges for the use of that system were very reasonable, indeed. They consisted of three distinct components:

A connection charge, which was very low, and was proportional to the length of time a terminal was kept in use;

a transmission charge, which was based on the number "bits" transmitted, and which -- due to the high speed of transmissions on circuits which had many simultaneous users -- was quite low; and

an access charge, which was largely covered out of an annual fee payable to the owner of the particular data bank which was being addressed.

A typical connection, lasting for, say, 20 minutes and producing two dozen references cost no more than $US 10 to 20; with an additional fee of $US 0.10 per printed page which was requested through the appropriate signal, and which was satisfied through computer print-outs dispatched by airmail from the source by airmail.

There are few activities in this world which are both so costly and so useless as the repetition of research which has already been done and has been documented in scientific literature.

To the extent that the writer can judge the situation, it must seem that the discontinuance of an access station connecting the State of Guanajuato to the world's scientific literature would be a step in the wrong direction.

The cost of maintaining such a station (particularly if it is used rather rarely) should be quite reasonable (*); and that cost should, indeed, be negligible, if in the absence of the station, essential information were simply considered unavailable; and in consequence not sought, or obtained through re-researching a subject on which information could readily be located through the modern information systems which have come into existence during the last ten or so years. (**)

(*) If these costs were indeed unreasonably high, then efforts should be made to find a solution, if necessary by governmental action. Should the reason lie in the fees charged for the use of telephone lines -- long-distance telephone calls, especially to foreign countries seem to cost many times what is now customary throughout most of the world -- then it should be considered that the costs of any telephone system are largely fixed costs; virtually no loss will accrue to the owner of the telephone system through "marginal utilization of the system", say during night-time, low-usage periods.

(**) If worst came to worst, the "live" terminal at Guanajuato could perhaps be replaced by a telex machine which would permit rapid (though not instantaneous) information exhange between INFOTEC at Mexico City, and the remote station somewhere in the State of Guanajuato.

Senior Industrial Engineer's Report (cont'd)

AN OPPORTUNITY FOR TECHNOLOGY TRANSFER [1/]

7.13
Castings (ferrous and non-ferrous) are used for many applications, ranging from parts used in earth moving machinery, over door handles, to water faucets.

There seems to be no shortage of foundries in Mexico.

However, apparently the castings required by the "metal-mechanic" industries (which are generally machined and/or otherwise "finished" and then used as components in some final product), are very often of inadequate quality.

Quality problems may originate with product design; or with mold design; or they may have to do with foundry practices or a lack of metallurgical understanding.

*

It may not be feasible to assist individual foundries in specific instances through the "technology transfer" mechanism established within the United Nations system.

It would, however, seem possible to establish in Mexico something like a "Center for technological information in the field of castings". This could be visualized as a small organization with, at the very least, a few professional specialists, such as a

design engineer specializing in castings;
a specialist in foundry practices (probably best one in ferrous, one in non-ferrous work); and
a versatile engineer as "trouble shooter".

It would probably be useful, if the idea as such were to be pursued, to provide somewhat more than the above minimum. This could consist of drafting facilitities; test equipment (hardness, metallurgical properties etc.); up to a complete demonstration foundry.

*

This is not the place to make a comprehensive proposal for a technical assistance project. The basic point is:

> Mexico has a very sizeable metal-work industry ... castings are a basic requirement ... there are many foundries in the country ... but quality problems are frequent ... help to overcome these quality problems would seem useful.

1/ Refer also to Chapter Five "Industrial Investment and Transfer of Technology".

Senior Industrial Engineering's Report (cont'd)

INVESTMENT OPPORTUNITIES IN THE FIELD OF

CAPITAL GOODS PRODUCTION

7.14
A massive effort to analyze the situation prevailing in Mexico relative the existing capital goods industry; its needs; and its opportunities with respect to both domestic and foreign markets has been, and continues to be made by a joint Nafinsa/UNIDO team working in Mexico City.

A first publication, comprising almost 500 pages of text and tables, appeared in 1977 under the title (translated from Spanish) "Mexico - a Strategy to develop the Capital Goods Industry".

Volumes issued subsequently deal with

500 Enterprises manufacturing Capital Goods in Mexico (a directory), 1980; and

some specific subsectors of the Capital Goods Sector, such as
- compressors
- foundries
- professional electronics
- equipment for petroleum and petrochemical industries
- equipment for the mining industry
- etc.

Some of the new enterprises in the capital goods sector which have become operational in recent years, or are currently approaching completion, have had their conceptual origin in this effort.

Meanwhile, the optimistic investment climate of the late 1970's has given way to what is generally referred to as the "crisis" which began in 1981-82 and which is still continuing.

In consequence, some of the opportunities identified by the Nafinsa/UNIDO team have lost some of their lustre, at least for the present, and the immediate future.

Nevertheless, unless one wanted to admit complete pessimism relative to Mexico's industrial future, it must be felt that sooner or later the investment outlook will improve; and in this case, the conclusions drawn in the above-mentioned reports, may - perhaps with some modifications - still be valid.

While the Nafinsa/UNIDO effort has been and is being directed at the United Mexican States, and not at Guanajuato in particular, it is felt that any development plan for the State of Guanajuato should only be formulated with due consideration of the work done by the Nafinsa/UNIDO team.

Senior Industrial Engineer's Report (cont'd)

Two Industrial Opportunities

a) Agricultural Tractor
b) Educational Materials

7.15

The identification of the following two potential opportunities resulted from the writer's visit to the Engineering School at Salamanca, mentioned elsewhere in this report.

(a) Agricultural Tractor:

The Director of the School (Dr. Arturo Lara Lopez), while working for his Ph.D. degree at the University of California (Davis Campus, Cal., USA), published, together several faculty members of said university, a paper entitled "A Two-Wheeled Tractor for Manufacture in Mexico."*

The abstract of said paper reads as follows:

> A high-clearance, two-wheeled, 6- to 8-kw, kerosene-fueled tractor design to meet the needs of Mexico's 8- to 10-ha farmers is described. V-belt and roller-chain transmission elements make the design suitable for manufacture by small-scale industries. Economic analyses show that manufacturing costs for intermediate-sized batches would permit a selling price of $/US/ 2000 (in 1979) and that at this price the unit would be competitive with tractor custom-hire service and advantageous to farmer-owners relative to current costs for farm field work. Field tests indicate a plowing capacity of about 0.1 ha/h.

A prototype of the tractor (which had served for the above-mentioned field tests) was seen. Ten pilot units are currently being built; seven of them have already been sold, and the remaining three are expected to be acquired by the Government of the State of Guanajuato.

After performance results of these ten units are available, a pre-production run of 100 units is planned (probably 1984 or 85). Thereupon industrial manufacture could be undertaken.

It should be said that the engine (a gasoline engine, not the kerosene engine mentioned in the abstract) for the pilot run is a Mexican product (make "Kohler"); and that a kerosene engine can be built largely from the same design, with some modifications.

The most advantageous production design should be determined before actual quantity production is begun, taking into consideration the anticipated market size (internal and export).

It would seem that one of the four existing tractor manufacturers established in Mexico might be interested in producing the design; and UNIDO might be interested in promoting the use of this tractor in other developing countries, possibly with local production. The design is conceptually similar to (but in details quite different from)

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* Transactions of the American Society of Agricultural Engineers (1982), Identification No. 0001-2351/82/2505-1189$02.00

the "TINKABE" tractor in whose development (in Swaziland) UNIDO played a role.

Further pursuit of this project would potentially entail efforts in "transfer of technology" (transition from prototype to a production design which is economically advantageous without abandoning the basic intentions of low production costs at relatively low quantity levels; easy easy serviceability in rural environments); and "investment promotion" , which may well direct itself at one of the transnational companies already engaged in tractor manufacture in Mexico.

(b) Educational Material

Dr. Lara Lopez also mentioned that there is only one company in Mexico manufacturing educational material; and its products do not include items of the type needed in engineering schools. These are, to the extent that they are affordable, always imported.

It should be explained here that "educational material" does, by definition, not include books; but many other types of items which are used in educational institutions for demonstration or laboratory purposes. Examples are globes (geography), disassemblable models of human bodies (anatomy), models of molecules (chemistry), slider crank mechanisms (mechanical engineering), rope-and-tackle systems (physics), etc.

The writer, while working as a management consultant in Switzerland some time ago, had occasion to undertake one task for a company in this type of manufacturing industry; and to discover that this is indeed a field in which quite a number of enterprises are active. He attended in this connection a major international exhibition (at Basle, Switzerland) during the winter 1979/80, in which a large number of exhibitors (probably somewhere between 100 and 200) showed their wares.

It would seem that at least some sub-groups of "educational materials" would be very well suited for manufacture in Mexico, as -- with production runs usually quite limited -- production could advantageously make use of both the mechanical skills and the relatively low labor rates which are characteristic of Mexico.

oooOOOooo

The following publications were obtained from Dr. Lara Lopez and handed to the Project Director, Mr. I. Matthews:

A TWO-WHEELED TRACTOR FOR MANUFACTURE IN MEXICO

PRUEBAS DE BARBECHO PARA UN MOTOCULTOR DE ALTO DESPEJE

PRUEBAS DE ESCARDA DE UN MOLTOCULTOR DE ALTA DESPEJE

PRUEBAS DE CAMPO PARA TRACTORES E IMPLEMENTOS AGRICOLAS EN LA UNIVERSIDAD DE GUANAJUATO

(Inclusion in the report would have increased bulk without contributing information valuable to the reader not directly concerned with technical details).

Senior Industrial Engineer's Report (cont'd)

A POSSIBLE INVESTMENT OPPORTUNITY (Manufacture of Gears)

7.16

Gears (i.e. toothed wheels) are an essential component of many machines. They are needed in agricultural machinery; elevators; manufacturing equipment; copying machines, etc. etc.

They range from very large to very small. They may be made from ordinary cast iron (even with cast teeth); from high grade steel (possibly heat treated, and with tooth flanks subsequently precision ground); or from various types of non-metallic materials (such as nylon).

Gears are widely used in the manufacture of new equipment; and they are often needed as replacement parts , after wear or breakage has made a specific gear useless.

It seems that there does not exist in Mexico a manufacturing facility which is able to produce gears to order, be it a single replacement gear, or production quantities (*).

As gears come not only in many sizes and materials, but also in many types, the manufacture of gears is a complex business; and also one which requires many types of equipment and in a range of sizes (**)

Tooling is a major item in a gear manufacturing plant. It must correspond to the several production processes (hobbing; shaping; single-tooth cutting, where applicable; and grinding). And it must be available for tooth sizes from small to large; further, in a country like Mexico, where at least a duality of standards is being followed (USA "Pitch"; and European "Modul"), also in at least two "tooth systems".

In addition, there will be need (best within the plant itself; otherwise in a qualified subcontractor's plant near-by) for heat-treating facilities; and also for foundry work (ferrous and non-ferrous), with an ancillary pattern-making capability.

Finally, as - particularly in the gear replacement business - in many cases it will be necessary to do considerable engineering work (if, for example, a broken gear is brought to the plant with a request to "make us a new one, just like the broken one") the plant must have a capable engineering organization, properly staffed and equippped.

*

From the above, the establishment of a versatile "gear shop" may seem a forbidding undertaking; and it seems, so far potential investors have shied away from this opportunity which may, however, be a good and a highly profitable one.

It is hereby recommended for consideration.

(*) Gears are being made in companies making, for example, automotive transmissions. However, such plants are invariably equipped and tooled only for their specific purposes.

(**) "Types" include spur, helical, spiral, bevel, miter, worm and several others.

P.S. - Gear (Manufacture)

During the visit to Mexico City by Mr. Matthews and myself in July 1982, Mr. Ayza, Manager of the Nafinsa/UNIDO "Capital Goods" project, suggested that the manufacture of gears may be a possible investment project for the State of Guanajuato, within the context of UNIDO Project SI/MEX/82/801.

Now (received on 8 August 1982), Mr. Ayza sent to us a report by Nacional Financiera, S.A., dated 3 July 1981, and entitled "Proyecto de Reductores de Velocidad con Potencia hasta de 14,000 HW". Bound into the same report was a copy of the newspaper "Novedades" of 4 September 1981, according to which an agreement for the proposed speed reducer plant had been signed, with Altos Hornos de Mexico SA, Nafinsa, and Technokommerz of the GDR, being partners.

It would seem that -- at least that is the impression the writer had during the discussion with Mr. Ayza -- the project must subsequently have been canceled or at least suspended. This, however, can, and should be verified.

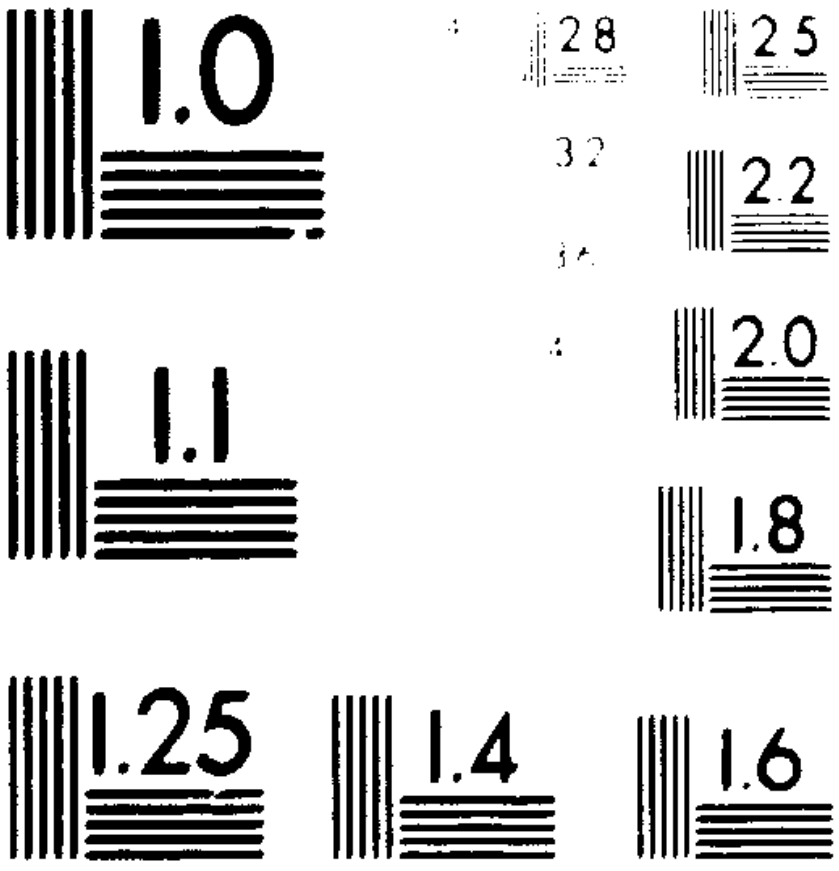
The suggestion by the writer that the establishment of a gear manufacturing facility may be worthy of consideration, would in any case not significantly be affected by the activation (now or in future) of the proposed speed reducer plant. The facility proposed by the writer would produce gears largely for replacement purposes; or in relatively small series, and presumably only in relatively small sizes. It would not produce anything but the gears themselves; there would, in particular, be no manufacture of gear reducers (which include housings, bearings etc., and constitute an integrated unit of machinery).

What may be more significant, though, is the information contained in the report here under consideration that there exist in Mexico already at least 11 plants making speed reducers (and hence gears), as described on page 41 of the report.

To which extent these plants are prepared to undertake the manufacture of gears (as such, instead of selling them as part of complete speed reducing units) is not clear. In any case, it seems likely that none of the existing plants are in the State of Guanajuato, even though this State, possessing a considerable number of industrial establishments, would probably by itself justify a moderately sized plant for the manufacture of replacement gears.

Thus, it would seem that the emergence of the above-referenced Nafinsa report will not in itself invalidate the suggestion that a gear manufacturing plant might be considered; but before any major amount of effort is expended into this possibility, more information ought to be sought as to the several existing plants with gear-making capabilities, and the way in which they operate.


84.05.21



The pervading "Spare Parts Problem"

7.17

Everyday life in our age, whether in an industrialized or in a developing country, depends on the availability of mechanical and/or electrical equipment.

Even more so, modern industry is unthinkable without tools, instruments, and, first of all, machines.

Unfortunately all man-made items have a limited life; sooner or later, there will be wear or breakage. Then there will be, at least in many cases, the need for spare parts.

The spare parts problem in developing countries is generally even more severe than in industrialized countries, for at least the following reasons:

Much of the industrial, as well as personal equipment, on hand in developing countries was initially, either wholly or partly obtained from abroad. And "abroad" will mean "any one of numerous foreign countries, in each of which there many competing manufacturers".

Further, the combination of high cost of foreign equipment, and the usual scarcity of foreign exchange, cause a situation where much of the equipment in use in developing countries is, on average, considerably older than comparable equipment in use in the industrialized countries. And, as older equipment, for obvious reasons, requires more spare parts, the "spare parts problem" is once again aggravated.

This situation has repeatedly led to the conclusion that "a spare parts factory ought to be built"; and this writer was, already quite some years, deeply involved (in a West African country) in a project which was intended to create such a factory.

Hard economic facts, however, made the project a real-life impossibility; and there is, unfortunately, no reason to feel that in other countries and at other times, the situation would be substantially different.

Modern equipment, be it a typewriter or a milling machine, has many component parts. The (relative) inexpensiveness of the final equipment is a consequence of the fact that it, and particularly its component parts are manufactured in large quantities, using carefully prepared methods and, in many cases, specially made tooling and, at least often, highly specialized machinery.

Were this not the case, most of us would still be riding horses instead of automobiles; and wash their clothes in the near-by river by hand, instead of placing them into an automatic washing machine.

For this very same set of reasons, the occasional manufacture of an individual spare part (and, even more, of a spare sub-assembly) is simply, in the great majority of cases, an economic impossibility; and the same holds true for the establishment of a factory which is to undertake such "occasional manufacture of individual spare parts".

To this general rule, there is, however, an exception: Under certain circumstances, an equipment breakdown in an industrial plant may cause the immediate shut-down not only of the particular piece of machinery, but also of the plant as a whole, or at least large portions thereof. This will generally be the case in a chemical process plant, where each piece of equipment is an essential link in the chain which produces the eventual output. But also in mechanical industries, a parallel situation may occur; an example would be the breakage of a press die which produces a part essential to the assembly of the company's product (which may be a meat grinding machine or a light switch).

A versatile machine shop, with a work load arranged so that priority can quickly be given to the manufacture of a part such as described above, would be extremely helpful in such a situation.

In at least one other country, an ingenious solution to this type of problem was found:

At several strategic locations within the country, the government, in collaboration with a bi-lateral "official development agency", set up training workshops for apprentices in the metal-working trades. These workshops, which accommodated about 50 trainees at any one time, and which had qualified craftsmen as instructors-foremen, were equipped with a full complement of machine tools, such as lathes, milling machines, surface and cylinderical grinders etc.; and they also had facilities for the heat treating of steel, as well as an ample stock of standard and special materials.

In "normal" times (i.e. when there were no "emergency orders" to be filled), the shop functioned primarily as a training institution; when possible it did some work for industry in subcontract, to the extent that such work lent itself to instructional purposes.

However, when necessary, the shop -- or, more precisely, that portion of the shop which was needed in the particular case -- would quickly "shift gears" and devote whatever effort was needed to produce an urgently needed spare part, which otherwise might have caused major problems in the client's establishment.

As the client was only too happy to obtain this rapid help, he was invariably willing to pay a good price for the service, which in turn helped the training institution relative to its own budget problems.

This seemed to be an ingenious solution which was useful to both parties involved; and it may well be something which could be emulated at one, or even several locations within the Corridor Industrial de Guanajuato.

INDUSTRIAL INVESTMENT OPPORTUNITY MANUFACTURE OF SUBMERSIBLE PUMPS

Addendum [1] to Senior Industrial Engineer's Report

7.18

Background

On the basis of information obtained from an established manufacturer of sumersible pumps there are thirteen manufacturers throughout Mexico of which two probably control 45% market. Company sales in 1982 were 600 units, the majority being rebuilt units, valued at Pesos 185 million, representing est. 25% domestic market.

Market Profile

The market consists of three largely unrelated sectors each requiring pumps of different specification and performance. Market participation in total sales is estimated [3] as follows:

Agriculture (small farmers)	70%
Drinking Water Boreholes	25%
Mining Industry	5%
T O T A L.....	100%

Market Size and Growth Prospects

Estimated market size in 1982 was Pesos 740 million (US$ 5 million) and 2500 units. Growth prospects assume 1982-1983 at + 35% p.a.
1983-1985 at + 25% p.a.
1985-1990 at + 10% p.a.

Forecast 1981-1990	1981	1982	1983	1985	1990
(1983 value) millions	360	740	1000	1562	2576
Units	1215	2500	?	?	?

1/ Project Director's addendum

2/ Annex 13

3/ Base: Company estimates

Indications

At a time when most factories are working at between 25% and 50% capacity the fact that manufacturers of sumersible pumps are working at full capacity, with a full order book in hand, has important implications. The industry is not a new one. It is long established. It is unable to satisfy domestic demand. Existing manufacturers see no reason to expand when they are already doing very well.

Due to inflation distortions, projections (1981-1990) cannot be regarded as indicating in excess of 2500 units per annum new and replacement. Indeed, growth estimates would prove to be conservative if agricultural development should improve during the next five years as is generally believed.

One company has modified its overseas design to withstand the abrasive effects of sand in suspension to a point where design could find a wideopen market in third world countries, notably Africa. This is important at a time when, all things being equal, international financing organisations would give preference to manufacturers from developing countries. After-sales service, however, is a key factor in the case of sumersible pumps; the need to establish special workshops would be vital.

Conclusions

a) Existing manufacturers should be encouraged to develop submersible pumps especially suited to rough-handling in export markets.
b) The establishment of another manufacturer of sumersible pumps in the Guanajuato Industrial Corridor would not prejudice existing firms, and would be essential to satisfy increased demand from the local market.

Recommendations

It is recommended that

(a) opportunity studies should be initiated and prefeasibility studies carried out to determine the commercial, financial, and production justification for the setting up of a new manufacturer of sumersible pumps.
(b) Potential partners should be identified as having the most appropriate Technology for a joint-venture operation (vz. Sumo Pumps Ltd. England)

INDUSTRIAL INVESTMENT OPPORTUNITY
MANUFACTURE OF BATH AND FANCY SOAPS FROM COCONUT OIL
Addendum [1] to Senior Industrial Engineer's Report [2]

7.19

Background

Jabones Constancia is the only soap manufacturer in Guanajuato. Manufacture is by the hot process and produces 300 tons of long-bar Laundry Soap annually for the low price market. Additional plant and packing lines are now being installed with incremental capacity for a further 300 tons Toilet Soaps in tablet form.

90% distribution is through CONASUPO, a state-owned enterprise, selling to government departments, public sector institutions, and consumer outlets at controlled prices.

Product Profile

Coconut oil is the key ingredient in this soap. The high cost of coconut oil limits its to use in soap manufacture in industrialised markets to only the most expensive toilet soaps; except in coconut-oil producing countries, of which Mexico is one.

In North America, Western Europe, Australia and New Zealand, coconut oil is highly valued in the cosmetic and fragance industry as a key ingredient in luxury gift soaps. Moreover, the coconut oil content is emphasised whenever they can afford to include it. Soap based on 10%, coconut oil, manufactured by the cold process, has sudsing qualities in extra-hard water, even sea water. There is a growing market in the Prairie Provinces of Canada where exceptionally hard water is a characteristic.

Coconut oil's growing importance in the Soap Industry

A trend towards greater use of coconut oil in soaps and detergents is predicted by PROCTOR & GAMBLE as an alternative to petro-chemicals [3] KAO., Japan's leading manufacturer of toilet soaps and shampoos, installed a US$ million coconut oil plant in the Philippines in 1977 to supply coconut oil to its subsidiaries.

1/ Project Manager's addendum
2/ Annex 13
3/ Source: Fred Wells Vice-President. PROCTO & GAMBLE 1982

SIMIMOTO, Japan, predicts that consumer pressure could force them to replace synthetics by coconut-oil in their products, resulting in 10% increase in cost of raw materials. 1/

Market Profile

A US$ 10 million export market exists 2/ for coconut-oil- based fancy soaps packed and presented for the high-priced gift market.

The soap market is divided into three distinct segments

- Household/laundry soaps (ususally unbranded)
- Mass consumption branded toilet soaps (Lux, Palmolive etc.)
- De luxe fancy soaps. Cosmetic and fragance houses

Each category is destined for a specific market segment. Competition between each segment is minimal.

Up-market coconut-oil based gift soaps retail at US$ per 100 gram tablet in Australia and USA.

Indications

The maintenance of coconut-oil production is of important social significance to coconut growers in the low-income groups in sub tropical regions of Mexico. Thus justifying full support to manufacturers using coconut-oil as a key ingredient.

Conclusions

Jabones Constancia has adequate production facilities to manufacture a high quality coconut-oil base toilet soaps for the gift market.

The company has no experience in sophisticated speciality marketing in domestic and export markets.

Recommendation

It is recommended that:

(a) Domestic and export market research studies should be carried out in the USA, Canada and Western Europe.

(b) Export packaging and promotion strategy be formulated.

1/Source: Chemical Weel April 1982

2/Source: The Export market for coconut oil based soaps 1981. Ian Matthews.

CHAPTER EIGHT

A STRATEGIC INDUSTRIAL DEVELOPMENT PROGRAMME FOR GUANAJUATO

Definition

8.01 The aim of the Strategic Industrial Development Programme is to provide active employment for the increasing population of the State of Guanajuato, through the manufacture of a wide range of goods which are capable of competing successfully and profitably in domestic and export markets, by factories located in the Guanajuato Industrial Corridor.

Population Growth in the Guanajuato Industrial Corridor, 1980-2000.

8.02 The focal point for priority development during the next 16-years will be the CIC, comprising seven municipalities (Table 8.1) with a total population of around 3.6 million by the year 2000, of which some 1.5 million (41.7%) will be economically active. To realise the State Government's overall socio-economic aims, in the context of a balanced agricultural and industrial economy, employment in the manufacturing sector in the year 2000, projected from the current base, will be 265,000. This figure represents 16.3% of the economically active population in the seven municipalities, and is more than double the size of the present manufacturing population. (Table 8.1)

8.03 The projections are based in the 1982 Survey of Employment by Occupation Categories in the State of Guanajuato , conducted by the Instituto de Estudios Económicos y Sociales del P.R.I., and projected on the basis of variable growth trends, derived from the Census of Population in each of the seven municipalitites in the GIC, until year 2000. Table 8.1 points to the levels of employment to be achieved by the manufacturing industry in each municipality by the end of each 5-year period. Employment targets in the manufacturing industry are based on the following assumptions:- That the population increase of 4.7% annually continues; That the economically active population continues at 41.7% GIC population; That the employment in the manufacturing industry is maintained at 17.3% of the economically active population.

TABLE 8.1 GIC POPULATION PROJECTION AND EMPLOYMENT TARGETS, 1983-2000

(a) = 100% (b) = 41.7% x (a) (c)= 17.3% x (b)

	1983	1985	1990	1995	2000	%
Apaseo el Grande						
(a) Population	49577	52290	59788	68307	78100	27%
(b) Actively Employed 41.6% x (a)	20673	21804	24931	28484	32567	
(c) Manufacturing 17.3% x (b)	3576	3778	4313	4928	5634	
Celaya						
(a) Population	243806	274248	319892	389100	473528	40%
(b) Actively Employed	101667	114362	133361	162254	197457	
(c) Manufacturing	17590	19784	23071	28070	24160	
Irapuato						
(a) Population	291722	319788	401692	505390	634830	4.7%
(b) Actively Employed	121648	133351	167505	210747	264724	
(c) Manufacturing	21045	23070	28978	36459	45797	
Leon						
(a) Population	757787	846634	1116297	1472836	1941951	5.7%
(b) Actively Employed	315996	353046	465496	614172	809793	
(c) Manufacturing	54667	61077	80531	106251	140994	
Salamanca						
(a) Population	178523	194578	242135	300303	373700	4.4%
(b) Activity Employed	74444	81139	100970	125226	155833	
(c) Manufacturing	12879	14037	17468	21664	26959	
Silao						
(a) Population	88033	90693	97433	104962	112761	1.5%
(b) Actively Employed	36709	37819	40629	43769	47021	
(c) Manufacturing	6350	6542	7029	7572	8134	
Villagran						
(a) Population	32355	34192	39153	44952	51471	2.8%
(b) Actively Employed	13492	14258	16327	18745	21463	
(c) Manufacturing	2334	2466	2824	3243	3713	
Total						
(a) Population	1641803	1812423	2276290	2885850	3666331	47%
(b) Actively Employed	684632	755780	949254	1203399	1528860	
(c) Manufacturing	118441	130750	164221	208188	264492	

Source: Instituto de Estudios Economicos y Sociales del P.R.I.; Census of Population; S.P.P. Guanajuato; Project Director's extrapolations based on annual growth rates of the seven Municipalities in the GIC.

8.04 Incompatibility of the statistical sources could result in unacceptable margins of error in the longer term. All that can be stated with certainty is that skillfully conceived and executed investment promotion strategies will be required, if a manufacturing structure is to be created capable of generating 8500 new jobs annually between 1984 and 2000.

Strategy options for Guanajuato

8.05 The conclusions to be drawn from this report, and their impact upon Guanajuato's future industrial prospects and strategies, are as follows:

Short Term

Existing plant is seriously under-utilised, and increased local market demand is not to be expected during the next three years, 1984-1987. Moreover, higher output levels in manufacturing will be required to obtain the increases in employment opportunities necessary to absorb the growing labour force.

A Strategy is required for motivating and assisting manufacturers to actively seek new export markets, as a matter of urgency and even survival.

Medium Term

Future Industrial development should be related to the heavy demands upon employment which will result from a population increase well above the national average.

A Strategy is required for setting out clearly defined guidelines for the identification of the new manufacturing opportunities and their feasibility by type of industry, appropriate location, employment needs, and training requirements.

Long Term

Radical Changes in the national investment climate mean that competition to attract new investors will be stronger and more aggressive than at any time before.

A Strategy is required for a well-planned investment promotion programme to sell the Guanajuato Industrial Corridor as the ideal location above all others in Mexico for the establishment of export industry, whilst at the same time providing fast and easy access to the vital domestic market centres.

8.06 The extent to which above strategies are successful will depend upon two vital elements, the importance of which cannot be too strongly stressed, namely:

(a) The requirement that New Investment proposals and factory expansions should be "market oriented" and supported by detailed evidence that they are more than simply a good credit risk. They will need to be commercially and economically justifiable in the context of defined marketing criteria (Para 8.22) applicable to both domestic and external markets. In short, new industry should be market-led and geared to support market-led industries.

(b) The formulation and enactment of State Policy on investment promotion and development, and the establishment of a "Dirección para la Promoción de Inversión y Desarrollo Industrial de Guanajuato" or similar body, charged with responsibility for collaborating with industrial institutions in the setting of objectives and assisting in their attainment within agreed time-scales (Scenario II).

FACTORS AFFECTING SHORT TERM STRATEGY

Import Substitution

8.07 In order to identify new investment opportunities in Guanajuato for the manufacture of products to replace those imported in recent years, it is useful to review past industrial development as related to import substitution.

8.08 During the two decades following World War II, Mexico's economic development policies followed the classical pattern of priorities adopted by most developing countries. High on the list was import substitution, aimed at covering foreign exchange reserves. Low on the list, if not least important of all, was the development of export markets. Indeed, domestic market potential was considered to be sufficient to ensure maximum plant utilisation for a wide range of locally manufactured products.

8.09 By the end of 1960's the creation of new local industries manufacturing product to replace imports was well advanced, resulting in the need for the protection of "infant industries".

Import controls were introduced, which resulted in subtantial reductions

in import of manufactured products and capital goods, the only exception being intermediate products for further processing.

8.10 The bonanza years, 1977 to early 1982, led to spectacular increases in demand by all sectors of industry (Table 8.2).

In fact, during this period imports of manufactured goods soared by 240%, consumer goods by 132%, intermediate goods by 283% and capital goods by 206%. The initial impact of the economic crisi in 1982 led to a rapid drop in imports, -60% down in 1981. Consumer goods fell by -83%, intermediate goods by -56%, and capital goods by -60%. With 1983 1st-quarter, imports dwn by -70% on 1982, indications are that 1983 total imports will be cut back to US$ 4,000 million equivalent to 1973 levels.

Expected Trends in direct import substitution

8.11 The ready availability of foreign exchange and the removal of most import controls during recent years, meant that many businesses in Guanajuato found it quicker, more reliable and often cheaper to import than to deal with local manufacturers. In fact, according to CANACINTRA (Leon), importing had become such a habit that little thought had been given to the possibility that local manufacturers might even exist, until applications for import permits were turned down. Foe example, PEMEX, had been importing floor-cleaning materiall until import permits were refused. Enquires into alternative sources revealed that a similar product was being manufactured 10 kms. away. In another case, leading local manufacturer had been importing chemicals until major production cut-backs were threatened following non-renewal of import permit. Investigations by CANACINTRA revealed that the identical chemical was being manufactured within 60 kms.

Government Stimulus for import substitution

8.12 Effective 23 March 1983, SECOFIN has set up a commission comprising CFE, PEMEX, FERTIMEX, SARH, CONATUR, SIDERMEX, SEP y SRA to implement an import substitution programme valued at Pesos 336,000 million, on the basis of a register of alternative local suppliers.

TABLE 8.2 PRINCIPAL COMMODITY IMPORTS, 1977-1982

	(in million US dollars) 1977	1980	1981	1982
Unprocessed Imports	790.3	2,267.7	2,700.3	1,537.2
Agricultural raw material	566.5	1,871.5	2,204.1	926.6
of which,corn,wheat, sorgum etc.	307.5	1,060.4	1,089.0	335.4
Beans	9.8	241.1	337.6	98.3
Soybeans seed	156.0	132.4	335.0	155.8
Livestock,fish and related products	67.8	140.3	216.5	172.4
Extractive industries		255.9	279.3	220.9
Manufactured imports-total	4,805.4	16,002.8	21,018.2	12,956.1
Processed foods, beverages, tobacco	195.5	1,174.8	1,079.7	691.5
of which sugar	-	562.0	360.2	140.6
Textiles, clothing and leather	62.4	262.1	404.3	270.1
Wood products	23.5	73.0	89.4	51.7
Paper and products, printing	239.7	631.8	705.4	471.5
Petroleum derivates	149.6	291.8	367.5	409.9
Petrochemical	224.2	535.1	637.2	452.6
Chemicals	597.7	1,484.7	1,745.9	1,251.2
Plastics and rubber	65.7	284.5	408.8	215.0
SUBTOTAL	(1,037.2)	(2,560.1)	(3,159.4)	(2,328.7)
Non- metalic minerals	39.3	163.1	201.9	117.4
Basic iron and steel	350.6	1,824.4	2,219.6	1,071.0
Non-ferrous metals	76.3	384.6	579.8	268.5
Metal products, machinery and equipment	2,753.8	8,826.2	12,473.6	7,609.7
of which for transport and communication	785.8	2,365.4	3,385.2	1,756.8
Industrial equipment	1,184.0	4,189.0	6,151.2	5,875.0
Electronic and electrical machinery	475.9	1,098.1	1,475'9	1,087.5
Other imports	9.2	215.7	259.6	469.9
TOTAL	5,604.9	19,486.2	23,929,5	14,421.6

SOURCE: Banco de México

8.32 In order to discourage the imports of materials which could be obtained locally, and so as to encourage the production of local materials to the standards required by industry, SECOFI has amended the scale of import duties as follows:

(a) Capital Goods Not produced in Mexico 10%
Locally manufactured 25%

(b) Intermediate consumer goods (Industrial raw materials)
Not produced in Mexico 10%
Locally Produced 40% - 50%

(c) Consumer Goods Not Produced in Mexico 50%, 75% and 100%

(d) All other goods Duty assessed in accordance with strategic necessity.

Conclusions: Import Substitution

8.13 Import substitution has probably reached the stage where opportunities to set up new industries are becoming fewer or are not economically or financial feasible. An analysis of industrial import reveals that the majority are raw materials, equipment and component parts which cannot be economically produced in Mexico, either because raw materials are not available locally, or because the level of demand does not justify investment in local plant and equipment of a highly sophisticated nature; not to mention the time required to train specialist skills to the technological levels required.

8.14 It is inevitable that the next phase in import substitution will be in the area of high technology and sophisticated plant and equipment. Since the domestic market will not be able to take up total output, the development of export markets will be a key factor in the decision to set up local operations capable of generating an economic rate of return. Consequently, it is clear that increased engineering exports will have a vital role to play in financing specialised new industries.

Recommended Import Substitution Products.

8.15 The following products are recommended for manufacture in the Guanajuato Industrial Corridor, as import substitution items, subject to satisfactory opportunity studies being carried out:

- Polypropylene film as packaging material
- Kaolin-coated paper-board for high grade packaging
- Fireproof and burglar-proof steel safes
- Scientific educational models and display materials
- Cellulose for the paper and packaging industry.

For more detailed information refer Chapter Seven.

8.16 It is recommended that CANACINTRA regional offices in the Guanajuato Industrial Corridor should obtain from all members details of all raw material, replacement parts and other essential supplies normally imported, and for which alternative locally manufactured products are required or recommended [1/].

1/ NOTE: This proposal is shortly to be implemented by CANACINTRA, León.

Action already taken

8.17 As the official body representing the manufacturing industry, CANACINTRA sponsored and organised the " CANACINTRA 4 " National Industrial Exhibition held in the Convention Center, León, 9th-16th September 1983. Objective: Bring the attention of Industrial users and buyers to the wide range of locally manufactured goods available in the Guanajuato Industrial Corridor.

Export Promotion

Current trend in Mexican Exports

8.18 During the first six months of 1983, exports increased at the phenomenal rate of 25% each month, resulting in a favourable trade balance of US$ 6,500 million.

This improvement was due almost entirely to petroleum exports which accounted for 75% all exports.

8.19 The non-petroleum sector, accounting for 25% exports, was up 4.8% on the same period 1982, largely due to the favourable exchange rate and the removal of export permits. The impact is specially evident in the case of manufactured products, an important indicator for Guanajuato, where the increase was 15.8%, representing an absolute increase of US$ 192 million over 1982. Moreover, 60% of this increase was achieved by medium-sized firms, and as much as 35% by small industries.

8.20 An important role is played by maquilladoras located mainly in the USA/Mexico border region. In fact, it is becoming an established practice for transnational companies to depend on sub-contractors, due to higher prices required by US sub-contractors to cover substantially higher operating overheads. For example, General Foods Corporation (USA) is reported to be drawing supplies from 525 maquilladoras/sub-contractors the world over.

8.21 The continued fall in agricultural exports has important implications for Guanajuato, particularly in respect to temperate horticultural produce, which constitute the bulk of supplies to the frozen foods and canning industry. Agricultural exports were down 4% on 1982, which in total were 21% down on 1981. Exports of fruit and vegetables were US$30 million less than in 1982.

Current Trend in Guanajuato Export

8.22 Despite the rapid and extensive industrial development and the diversity of products manufactured, Guanajuato's annual exports have not increased since 1979, whilst imports have outstripped exports by 40%. Moreover, exports have not reflected this industrial diversification, but have been restricted to two traditional sectors, and dominated by a few exporters namely: Horticultural products (fresh and processed) and the Clothing industry (garments and footwear).

8.23 Guanajuato's exports fall far short of national performance of similar product categories, at a time when the Federal Government is looking to the manufacturing sector to augment the foreign exchange earnings required to reduce the national foreign debt. In Table 8.2 the Metal/Machinery sector is included in the "others" category in Guanajuato export statistics. Guanajuato exports in the first 6-months 1983 are down -30% compared to +5% national average for the same sectors.

TABLE 8.3 EXPORTS: SECTORAL COMPARISON GUANAJUATO/MEXICO, 1979-1983

(US$ MILLION)

	1979	1980	% +(-)	1980	% +(-)	1982	% +(-)	1983 Jan/June	%1982 (-) +
Processed Foods									
- Mexico	799.0	770.0	(-3)	679.0	(-13)	791.0	(-11)	326.0	(-2)
- Guanajuato	20.1	20.9	+4	25.0	+20	22.8	(- 9)	16.2	(-3)
Clothing/Footwear									
- Mexico	209.0	201,0	(-4)	180.0	(-10)	150.0	(-17)	73.0	(-9)
- Guanajuato	11.3	17.0	+50	20.0	+17	14.3	(-28).	2.8	(-80)
Metal/Machinery									
- Mexico	755.0	938.0	+24	894.0	(- 5)	888.0	(-0.6)	455.0	+13
- Guanajuato	9.8	15.6	+61	9.6	(-38)	9.0	(-6)	2.5	(-77)
Total									
- Mexico	1762.0	1909.0	+8	1753.0	(-8)	1829.0	+4	854.0	+5
- Guanajuato	41.2	53.3	+30	54.6	+2	46.1	(-1.5)	21.2	(-30)

Source: Banco de Mexico; IMCE; Consultant's extrapolations

Guanajuato Industry's attitude to export

8.24 Visits to thirty-three manufacturers in the GIC during July/August 1983 indicated that over 70% had insufficient knowledge of the domestic and external markets for their products, with particular reference to market size and potential, market share, competitive activity and consumer requirements.

8.25 Exporting companies operating below capacity, attributed drop in exports to " fall off in demand " by importers. The majority appeared to be 'order takers' relying on unsolicited enquiries from foreign importers. Few believed in the need for sales promotion, and trained sales personnel were, for the most part, considered unnecessary, except by firms jointly owned by foreign partners. Export consortia, which currently account over 15% of Mexico's exports, were considered "too expensive" to use.

8.26 The most successful businesses are fully occupied in satisfying local demand (mechanical plant replacement, automotive spare parts, gaskets and pump manufacturers). Management could see no reason to seek export markets so long as local demand continued.

8.27 Mexican subsidiaries of foreign firms and businesses with foreign partners are either production units supplying an existing external distribution network, or limited to the Mexican domestic market by agreement.

8.28 Mexican owned Guanajuato firms, who have never exported before, regard exporting as the last resort. This is mainly due to lack of experience by management, lack of confidence in their product, and a deep- rooted scepticism about government's ability to simplify the vast amount of documentation, and time-consuming bureaucratic procedures associated with exporting. This is considered to be the greatest single disincentive, outweighing the benefits of all other incentives.

Lack of Marketing policy

8.29 The majority of manufacturers in the GIC lack a defined marketing policy, and have not assigned this responsibility to a competent senior executive. In the past, management response to training events, courses and seminars organised by IMCE, has been negative.

Appointment of Agents in export markets

8.30 The role of the sole agent/importer is not properly understood and is even suspect. Companies without an export policy believe that export success will result from spreading the risk across as many importers as possible. Importers are mostly "brokers" with no other objective than a quick sale. The practice is short-sighted, because it ignores the fact that no importer will promote the Mexican product if he suspects that other importers will benefit.

Exporters dealing through a sole-agent in each export region benefit from the agent's credibility and resources in the market-place, as well as the opportunity to gain a close insight into the market forces at work. Sales will be developed on the sound commercial base of mutual confidence and good personal relations between both parties. The sole agent will give advice and assistance on pricing and quality requirements, and up-to-date information on market trends and competition.

Export Price Competitiveness

8.31 Although comparative price structures of similar products on the US and Mexican sides of the border do not provide a basis for predicting the longer term export prospects in the US market or worldwide, the implications should not be overlooked. There are already indications that price advantages from the 1982 devaluation could become diluted, or offset by inflation running at around 80%.

In the US-Mexico border area, the considerable price advantage enjoyed by a cross-section of Mexican products over similar US products in February 1983, had been substantially narrowed by July 1983 (Table 8.3). In a number of specific cases former price benefits were reversed to disadvantages as high as 57%. Moreover, the price differences give no indication as to quality of the Mexican item, which is often inferior.

Taken in conjunction with Para 8.33 (Quality Control) the implications are important to Guanajuato manufacturers.

TABLE 8.4 PRICE ADVANTAGE OF SELECTED MEXICAN PRODUCTS IN THE US/MEXICO BORDER AREA.

FEBRUARY 1983: JULY 1983

(-) Less expensive than US.
+ More expensive than US.

Item	Feb 1983 % price comparison with US equivalent	July 1983 % price comparison with US equivalent
Food, Drink, Tobacco	- 226%	- 125%
- Butter, Apples, Pears	(-)	+
1/Toiletry Products	- 211%	- 106%
Lotion and Cream	(-)	+
1/Household electrical appliances	- 43%	- 33%
- (Blenders)	(-)	+ 37%
- (13" color T.V.)	(-)	+ 47%
1/Clothing and Footwear	- 146%	- 56%
- (Womens & Childres Garments)	(-)	+ 44%
Tires	(-)	+ 25%

Source: Banco Nacional de Mexico (BANAMEX) August 1983

1/ These products are also manufactured in the GIC, and point to the need for exporters to review current export costing and pricing policies.

Quality Control

8.33 In industrialised countries, ten years of economic constraint, resulting in higher priced goods and the highest levels of unemployment on record, have brought about two major changes in purchasing criteria, namely:

(a) That a product must be the best available at its price.

(b) That buyers are prepared to pay more for the best - even from slender resources

Buying cheap does not mean buying "shoddy" or "sub-standard".

Limists on financial resources are affecting industrial and consumer buyers alike. The "deciding factor in purchase in industrialised markets is, first and foremost, quality followed by price - which need not to be the lowest"[1/]

1/ Source: Dr. R. Greppi. President Snampropetti, S.A. Holy's leading Construction firm

8.34 During recent months, the Mexican press has given extensive coverage to the urgent need for manufacturers to raise the quality standards of export products, to have any chance of success in external markets. The rewards from high quality production are too great to ignore. Low labour costs are no longer sufficient to compete in export markets. Consequently, Mexico's former price advantage is already being seriously threatened by the emergence of large new areas of low labour costs, notably Taiwan (eg. the Shoe industry), and developing countries such as Africa and South East Asia.

8.35 Future emphasis will be on competitive quality and adherence to delivery dates, with low price (i.e. low wages) becoming of less importance to importers and consumers. Japan's success in export markets evolved from producing similar products at lower price, to selling quality products at the same price, and has now reached the stage of creating new products which will command high prices.

8.36 IMECCA [2/] cite current quality/price policies of the shoe industry as destined to further prejudice Mexico's weak position in the export market. The price of a high quality (eg. export quality) pair of shoes can currently cost 9,000 pesos. "Even medium to low quality Mexican shoes cost the equivalent to 4-days pay at the minimum wage ". The need to improve the quality of Guanajuato exports becomes a matter of extreme urgency. To this end, CIATEG (Para 4.38) has already taken major steps to set up pilot manufacturing plant and research laboratories in Leon, in order to establish quality standards that conform with the requirement of the market place. Yet, it is for the record that CIATEG's resources are available to all manufacturers in the Guenajuato Industrial Corridor, but only Shoe industry is making use of CIATEG services.

Bureaucratic constraints

8.37 The volume of paperwork and detailed documentation required from each exporter, product by product, far exceeds that of most other exporting countries. (Bound copies of all documents are the size of a standard workshop manual). The protracted delays in processing applications result in non-delivery on schedule, unwillingness of reputable importers to handle Mexican products, and frequent loss to local exporting firms.

2/ Source: IMECCA (Instituto Mexicano de Control de Calidad)

Road and Rail Transport

8.38 There are seasonal shortages in the availability of transport, primarily due to the movement of large quantitites of imported agricultural produce and domestic commodity transportation, eg. Maize etc.

Air Cargo

8.39 There are no national air cargo operators. Air freight is mostly handled by US airlaines and charter companies, and shipments are dependant upon the availability of cargo space. Air Cargo is essential for the transport of perishable produce to export markets. High cost, and produce deterioration on transhipment in the absence of direct flight facilities, make air cargo a high risk factor in export. The Department of Commercial Aviation is currently investigating the establishment of Mexican cargo-carrying operations.

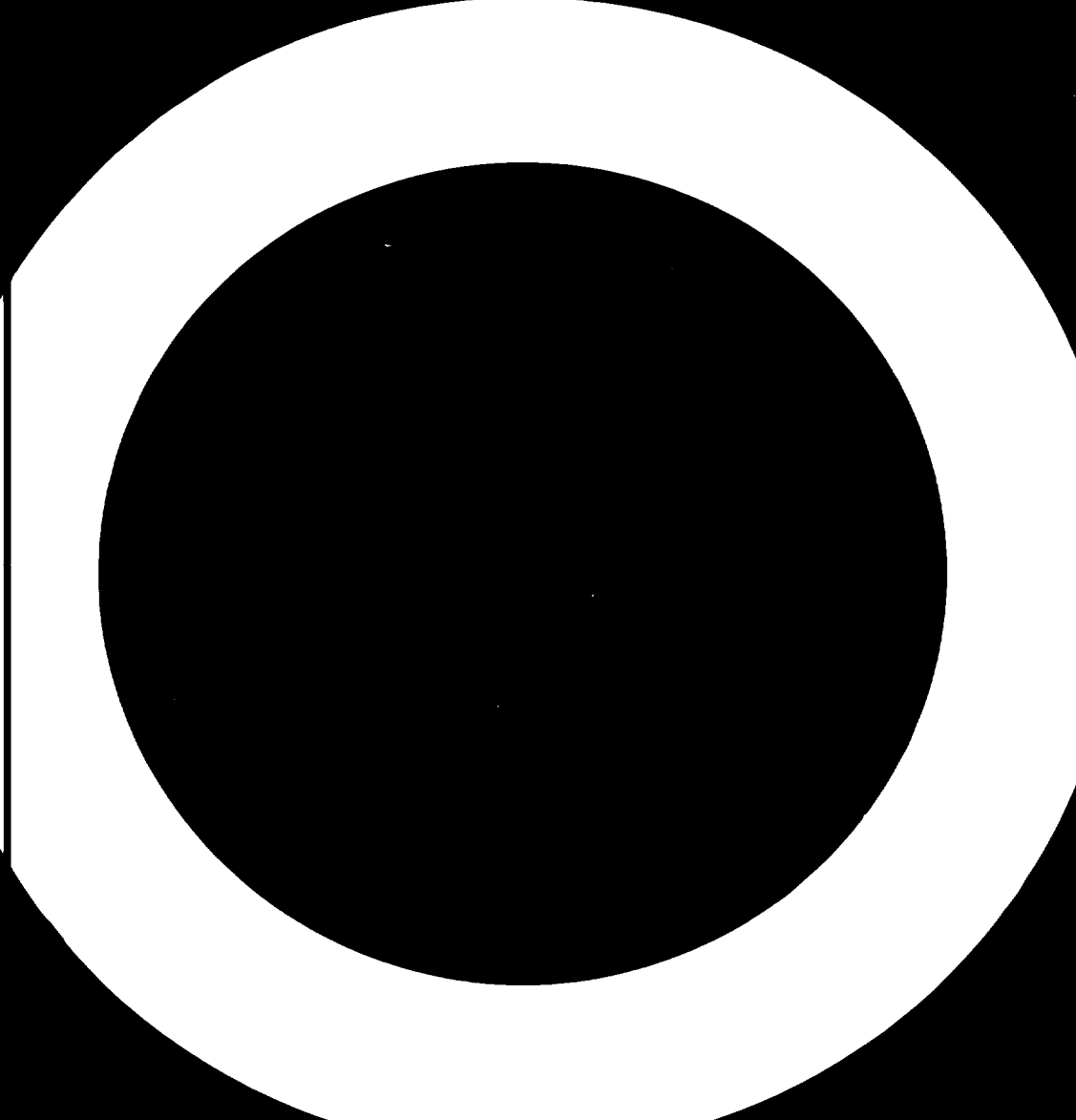
Port handling facilities

8.40 Mexico's principal seaports are not apparently equipped with container terminals or Ro-Ro facilities [1/]. Consequently, cargo handling operations are heavily over-loaded, with further protracted delays and increased costs to the exporter. Under these circumstances, it is probable that small exporters could be penalised by high shipping tariffs laid down by the various Conference lines. (Should this be the case, UNIDO's experience in setting up Shippers Councils would be beneficial to Mexican Industry).

Recommended Industrial Development and Export Priorities.

8.41 In 1982, export from the State of Guanajuato amounted to US$50.5 million. Nearly half was achieved by a few firms in the fruit and vegetable canning industry. The Shoe industry, the largest employer and principal importer (nearly 60% of all imports) contributed no more than US$ 4.8 million (9.5%) to Guanajuato foreign currency earnings. Notwithstanding the boom in industrial development in recent years, the value of exports from Guanajuato has remained static since 1979, which implies that the volume has steadily decreased by at least 12% annually. In fact, exports of shoes in 1982 fell 54% to the lowest level in five years.

1/ Source: IMCE



8.42 It is evident than Guanajuato urgently needs to embark upon a systematic export promotion programme, not only to increase the volume and value of existing exports, but to extend the range of products, enlarge the number of exporting firms, and expand the numbers of markets. The role of the State Government in such a programme is proposed in Scenario I.

The immediate need is for a major effort by the two industries with the gratest potential for achieving success in the shortest time - the Shoe industry and the Processed Foods industry.

The Shoe Industry

8.43 The shoe industry is concentrated in Leon, 4th largest city in Mexico, and the principal city in the Guanajuato Industrial Corridor. Traditionally, the shoe industry has been fully preoccupied with meeting the needs of the domestic market. Industry estimates that there has been a consistent short-fall in supply of approx 12% p.a. or 30 million pairs. Consequently, there has been no incentive to develop exports, even though the USA, with three times the market potential of Mexico, is on the country's doorstep. And so Mexican shoe manufacturers, with few exceptions, have left the US market to overseas suppliers namely Italy, Spain and Brazil, whose landed prices are higher than Mexico's. Only Taiwan and Korea offer price advantages over Mexico. The US market is valued at US$981 million annually. 1982 imports of snoes were 103 million pairs, of which only 1.7% were from Mexico.

8.44 Only in recent months has the foreign exchange earnings potential of the shoe industry, and its intensive labour structure, received the attention of both government and the industry itself. Indeed, the shoe industry's (quote) "lack of interest in having an export policy, constitutes a larger obstacle than product quality or the problems of exporting. Mexican shoes have an acceptable quality in export markets; it is therefore necessary to revitalise export activities and promote shoe exports" 1/

8.45 1983 finds domestic demand has fallen to the point where the industry is currently working at 50% capacity. Lacking an established foothold in export markets, the industry has no alternative means for broadening its demand base in order to maintain full, or economic, plant utilisation.

1/ Source: FONEP. "La Industrial del Calzado en México " 1979

Moreover, a prolonged delay in Mexico's economic recovery would result in further production cut-backs, plant closures and unemployment, at a time when the municipality of Leon's contribution to new job creation should be in the order of 3100 per annum (Refer Table 8.1). Consequently, an initiative by the shoe industry to sell aggressively into external markets could also lead to a more positive attitude to exporting by all manufacturers in the GIC.

8.46 The Guanajuato chamber of the Shoe Industry [1/] (CICEG) in conjunction with CIATEG, responsible for design and quality control, is currently setting up an export consortium as contract supplier to the Shoe Retailers Association of the USA, an organisation operating a network of retail shops throughout the USA. This is an operational response of the Guanajuato Shoe industry to the National Plan for the Shoe Industry inaugurated in September 1983, the key elements of which are as follows:

(a) The Mexican Shoe Industry undertakes to export 3-million pairs of shoes, valued US$ 30 million, in Year I. Total shoe exports for 1982 were US$ 14.8 million, and 40% less than 1981. Guanajuato's share of 1982 exports was 24%. Thus, Guanajuato's Year I target will be US$ 7 million

1988 export target: 18 million pairs, Value US$ 225 million.

(b) 40% foreign exchange earnings will be allocated to imports of plant, machinery and raw materials.

(c) Plant and employment will be increased by 5% annually.

(d) The industry will set up a National Institute for the Development of Fashion trends and Design in Footwear, to create export footwear designs.

(e) Credit institutions will grant credit facilities on the authority of the industry, and not on individual company's guarantee.

(f) FOMEX will finance purchase of imported plant, machinery spare parts, and raw materials. Imports will be tax exempt, as will be local supplies during the year.

(g) SECOFI will accelerate the import and export procedures. IMCE will provide full administrative facilities. The provision of foreign exchange will automatically follow documentary request.

1/ CICEG; Cámara de la Industria de Guanajuato

(h) Import permits will be eliminated and Customs procedures simplified.

(i) Additional facilities for exporting in the USA border area.

(j) Referential quotas for exports to Canada.

Processed Foods.

8.47 Exports of processed foods have remained static since 1979 at just over US$ 2.2 million annually of which 52% is asparagus. Increasing annual inflation means that exports have steadily fallen in volume and continue to do so. Since processed foods account for as much as 45% of Guanajuato's total export earnings, the causes for the continuing deterioration should be investigated and remedied as a matter of urgency.

8.48 Maximum assitance should be given by the State of Government to removing obstacles and stimulating a major increase in exports, and encouraging the Processed Foods industry to propose a systematic export strategy along the lines of the Shoe industry

8.49 The State of Guanajuato is the second largest producer of temperate fruits and vegetables in Mexico, with 250,000 hectares under cultivation. Principal export crops are strawberries, brocoli, asparagus and chiles. Guanajuato grows 85% Mexican production of asparagus and 30% of strawberries. Processing takes place during the three critical harvest months of May, June and July, followed by exporting between August and January. Daily workers are hired during the peak periods and laid off at end of season, with a skeleton staff for maintenance during October-May

The main exporting industries are Del Monte, Campbells, Birds Eye, and Covermex. Manufacturers of concentrated foods include Anderson-Clayton, Purina and Alimentos Balanceados.

8.50 Principal export markets are USA and most countries in the EEC.

Principal constraints on export

8.51 Five key factors combine to bedevil the food processing industry in Guanajuato - shortage of raw materials, shortage of packaging materials, shortage of working capital, prolonged delays in bureaucratic paperwork, and a short manufacturing season.

Shortage of raw material

8.52 Fragmentation of the cultivated area into small minifundios and the absence of planned cultivation programmes geared to market requirements, result in gluts or scarcity. Failure by manufacturers to negociate and secure adequate supplies during the six-month critical period rules out all export operations for the whole year.

Problems therefore start at farm level where technical assistance and effective extension work is lacking in cultivation, harvesting and marketing know-how.

Shortage packaging materials

8.53 Technical constraints are covered in the report of the Senior Industrial Engineer. Apart from being in short supply, locally manufactured cans are not acceptable in export markets due to inferior quality and failure to satisfy the strict sanitary requirements of most importing countries - especially USA and EEC. Consequently, the industry is dependant upon imported supplies of the required specification - and at lower cost. The alternative of glass containers is too costly, and breakage levels too high to be economic to the exporters or acceptable to the importer, except in high margin products eg. Asparagus.

Delays in financial and administration procedures

8.54 Small farmers encounter great difficulty and prolonged delays of up to 9-month in the processing of applications for credit which, in any event, is frequently unobtainable, due to lack of colateral and banks considering farmers to be a bad risk. Interest rates at 62% are unaffordable.

For their part, food processing firms allege that financial criteria required by FOGAIN ignore the fact the industry is heavily dependant upon small farmers for vital supplies which are subject to seasonal cycles and adverse weather conditions.

Quality Control and Export Marketing

8.55 Mexican-owned food processors experience particular difficulty in export marketing. Absence of quality inspection by the farmers is compounded by slackness in quality control in the factories. For the most part, these lack ready access to established distribution systems, as are enjoyed by those firms connected to transnational organisations.

Lack of understanding about the whole marketing process, coupled to the problem of supply, results in exporters selling to anyone who wants to buy, in any export market than semms interested. Consequently, the exporter is vulnerable to changes in the market place, and at the mercy of importers, usually "brokers" who will trade-off products whenever it suits them.

Conclusions

8.56 The food processing industry will succeed or fail as an exporter - and as the basis of Guanajuato's ailing export programme - to the extent that the availability of credit and raw materials are geared to the critical months of May, June and July. Failure to meet these dates can result in loss of exports for the next 12-months.

Recommendation - Processed Foods Industry

8.57 It is recommended that an Agro-Industrial Development Committee be set up and initially convened by the Director, Dirección para la Promoción de Inversión y Desarrollo Industrial as proposed in Scenario II, and that export priorities should be established in the context of Scenario I.

Summary

8.58 Since September there have been clear signs of a significant change of attitude towards exporting by industry in the GIC. Interestingly, it is the shoe industry, by far the most important in the GIC and historically the most strongly opposed to developing export markets, which has taken the first steps. Indeed, at meetings between the Project Director and members of the Cámara del Calzado, export marketing strategies have been presented that are both realistic and well conceived.

8.59 At the same time the principal governmental, industrial and financial organisations, notably IMCE, CANACINTRA and CIATEG, have accorded the highest priority to motivating Guanajuato manufacturers to greater export activity.

8.60 Significant, too, is the stand taken by the Banks in encouraging industry to embark upon agressive export programmes based on market-l d strategies.

A significant stand has been taken by the Banks in support of "a new industrial strategy" and summed up by BANAMEX [1/] as follows:

"It is essential for Mexican Industry to pursue aggressive marketing policies to exploit to the full their major price advantages. Current exchange rates enable exporters to plan medium- and long-term export strategies to increase market penetration and product recognition. Industry must understand that export markets are very different from the domestic market and not simply a way of disposing of surplus production. The export product must be designed to meet consumer requirements and be competitive which will mean higher quality standards and conforming to strict specifications".

Recommendations : Export Promotion.

8.61 It is recommended that the Government of the State of Guanajuato should declare 1984 as an Export Promotion Year and entitled PRO-EXPO '84. Refer Scenario I.

FACTORS AFFECTING MEDIUM TERM STRATEGY

The need for a new investment promotion and industrial development policy.

8.62 Accelerated industrial development programmes should be designed to achieve the recommended Aims of the State of Guanajuato proposed in Para 8.01, namely: "to provide active employment through the manufacture and marketing of goods which can compete successfully and profitably in domestic and export markets". These aims are unlikely to be fulfilled if industry is able to develop on a largely ad hoc basis.

8.63 The economic crisis and the subsequent deterioration in the investment climate may be the appropriate time for the State Government to formulate a new industrial development policy, setting out short- and long-term investment objectives, and recommended guidelines for their attainment.

8.64 The formulation of such a policy implies the availability of up-to-date information on the mix and structure of industry, its strengths and

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1/ Source: BANAMEX Banco Nacional de Mexico

weaknesses, and growth potential in terms of employment, training and resource allocation. At the present time this information is not available; and other essential data, if it exists at all, is at least three years out-of-date.

Recommendations

8.65 The first step would be the creation of a Directorate of Investment Promotion and Industrial Development for the State of Guanajuato [1/]. Responsibilities would include, inter alia, defining the up-to-date status of industry in Guanajuato in relation to national industrial development trends, identifying investment opportunities and recommending promotion activities for Government sponsorship or support. Proposals are set out in Scenario II.

FACTORS AFFECTING LONG-TERM STRATEGY

Promotion of new investment in the State of Guanajuato

8.66 In his statement on Government policy, the President of the Republic (Chapter One) emphasised that recovery is expected to be led by private investment from 1984 ownwards. Despite optimistic assumptions, it is unlikely that the economic recovery of industrialised nations will be automatically followed by an increase in aggregate demand as in the past. Industrial recovery and expansion in Guanajuato will be dependant upon a turnaround in private investment, and positive steps to promote increased demand, instead of waiting for it to happen.

8.67 As of this date, foreign investors seeking to establish a new business in Mexico, and manufacturers in Mexico D.F. planning to relocate their existing factories elsewhere, have a wide range of alternatives to choose from, including 126 urban locations in Priority Zone I category.

The final decision will be the investor's, on the bases of criteria which be regards as essential to the success and growth of the business on a continuing basis.

8.68 In the absence of detailed information supplied by the State, and backed up by convincing argument, the investor's decision could be largely subjective.

1/ Direccion para la Promoción de Inversiones y Desarrollo Industrial (PROMIDI)

Conclusion and Recommendations

8.69 It is not improbable that twenty-three other Federal States are already planning to attract new investors. It is recommended that action should be taken to ensure that potential investors should select the Guanajuato Industrial Corridor in preference to all other alternatives. (Refer Scenario III).

SCENARIO I. Short-Term Strategy

STRATEGIC EXPORT MARKETING PROGRAMME FOR THE STATE OF GUANAJUATO: PRO-EXPO '84

Purpose

S-I.01 The operation is defined as a "Programme" because it will consist of a number of export related activities during a period of one year. "Marketing" emphasises the Government's belief that external demand has to be actively generated - not passively expected. The operation is strategic because it aims to achieve export objectives that will stimulate continuing economic stability through increased industrial investment in the State of Guanajuato.

Scope

S-I.02 The long term aim is to build an image of Guanajuato as the "Export State" of Mexico. The short term objectives are:

(a) To identify State Government's role in reinforcing Federal Government policy on export.

(b) To give maximum encouragement to all bodies concerned with industrial exporting.

(c) To proclaim 1984 (or appropriate year) as Export Promotion Year Pro-Expo '84, backed up by a sustained programme of events, and supported by a hard-hitting publicity campaign throughout 12-month period.

Method

S-I.03 A programme of activities /events will be drawn up and agreed by representatives of all sectors of industry, support organisations and services concerned with the promotion of exports.

S-I.04 The programme would be inaugurated by the Governor of the State of Guanajuato on the occasion of a High Level Symposium to be attended by the Heads of government departments and the Chief Executives of industry in the State of Guanajuato. To this end, personal invitations will be despatched

from the Governor to each guest by name. The purpose of the High Level Symposium would be to present the "Strategic Export Marketing Programme", to launch PRO-EXPO '84, and to announce the concept of The Governor's Awards for Export .

S-I.05 During each month of the year of PRO-EXPO '84 there would be a programme of special export events, eg. official luncheons to invited guests with guest -speakers, executive training events, and special interest seminars.

The year would culminate in an Export Trade Fair PRO-EXPO '84, in the Sala de Convenciones in Leon, to which importers from USA and other target markets would be invited. The Export Trade Fair could be timed to coincide the Festival Cervantino, Guanajuato, in order to provide an added attraction.

Throughout the year a special publicity compaign in support of PRO-EXPO '84 would be maintained in the press, radio and television media.

S-I.06 The end of the year, PRO-EXPO '84, would be marked by a formal ceremony when the Governor would personally present "The Governor's Award for Export " to successful industrialists. The Award could take the form of a flag or penant to be erected over the factory, and another to be placed in a prominant position inside the offices.

S-I.07 It is envisaged that "The Governor's Awards for Export" should become a permanent annual feature, to be augmented by "The Governor's Award to Industry" on the basis of alternative criteria.

Implementation

S-I.08 The Strategic Export Marketing Programme would be the responsibility of the Director of Investment Promotion and Industrial Development [1/]. This would be a newly created appointment, as set out in Scenario III of this report.

S-I.09 The Director would be assisted by an operational committee representing appropriate government departments, industrial institutions and exporters in the State of Guanajuato. The Committee would recommend policy, objectives and strategy. "Task Forces" (sub-committees) would be charged with

1/Director para la Promocion de Inversión y del Desarrollo Industrial (PROMIDI)

sectoral targets, programming and implementation. Task forces would have power to co-opt specialists as required.

Task Force activity areas would include, inter alia:

(a) High Level Symposium. Governor's Award for Export. Governor's Export Luncheon; Guests and speakers. Governor's industrial visits.

(b) Training events.

(c) Trade Missions and Trade Fairs

(d) Publicity

Activities and Content

S-I.10 High-Level Symposium. 2-days. Contributors: The State Governor, Chief officers and executives of Projects and Planning, SECOFIN, IMCE, CANACINTRA, Director Investment Promotion and Industrial Development. Guest speakers: Chief executives of USA Chamber of Commerce, Japan importer canned fruits/vegetables, etc.

S-I.11 Executive Management Seminar: Export Promotion. 5-days. Subjects: Getting started in Exports; Market Research abd Selection; Export costing and pricing; Packaging and presentation; Product development for competitive advantage; Export documentation; Sole agency agreements; Export case-histories, successes and failures.

S-I.12 Special Consultant Services. 1-day seminar, plus 2-day factory advisory service. Selected subjects as in S-I.11

S-I.13 Governor's Monthly Luncheon. Guest speakers: VIP authorities on product and market opportunities in USA, Canada, Japan, EEC countries etc.

S-I-.14 Guanajuato Export-Trade Fair. 5-day exhibition to be held in the Sala de Convenciones, Leon. Supported by programme of factory visits CIATEG, etc.

S-I.15 Publicity. Regular monthly features. Double-Page spreads. Case histories. Personal profiles. News coverage on new products, packaging, promotion. Radio and Television programmes on current affairs, Who's Who in Guanajuato export industry etc., and other export related programmes.

S-I.16 Certificates and Awards. Certificates for all persons on completion

of 5-day seminars to be issued by IMCE. Presented by Governor or VIP.

S-I.17 "Governor's Award for Export". Suggested criteria and/or qualifications for eligibility could include: First-time exporter; New product exporter; increased exports over previous year; increased exports over forecast. All exporters to be awarded flag, pennant or banner, to be prominently displayed outside company buildings, and in Chief Executive's office, factory etc.

Companies will be authorised to display the Export Award symbol on company stationery, documents stc.

S-I.18 Quality Standards. Symbol/seal of approval for export to be proposed and administered by CIATEG.

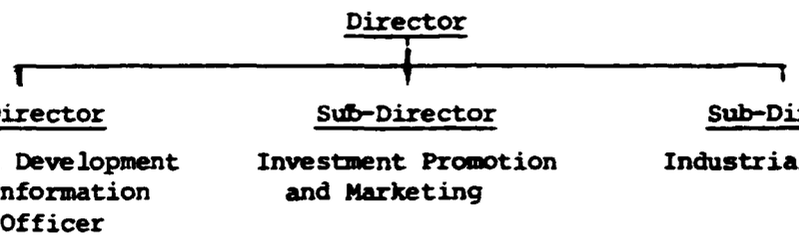
SCENARIO II. Medium-Term Strategy

THE ESTABLISHMENT OF A DIRECTORATE OF INVESTMENT PROMOTION AND INDUSTRIAL DEVELOPMENT FOR THE STATE OF GUANAJUATO (PROMIDI) 1/

Purpose

S-II.1 PROMIDI would have three principal responsibilities, namely: Industrial Information, Investment Promotion, and Training.

S-II.2 The chief executive of PROMIDI would be the Director. He would report directly to the Secretario de Programación del Estado de Guanajuato. Responsible to the Director would be three Sub-Directors with resposibility for each of the functions defined, as follows:



Each officer would be appropriately qualified and experienced to discharge his responsibilities efficiently and, above all, to command the respect of industry. Outline executing profiles are as follows:

(a) Director. A mature manager with all-round experience in government and industry. Diplomatic, personable, and a good team-leader. Should be persona grata with industrialists and enjoy good connections in banking circles.

(b) Sub-Director, Industrial Development and Information, should be either a qualified engineer with some knowledge of statistics and production management, or an industrial economist with considerable experience in the manufacturing industry.

Job Training requirements: Specific training could probably be provided by SECOFI (México D.F.) department of statistics, SPP, or Banco de Mexico. Initial training period: 6 weeks.

Assistant Officer. To understudy and assist the Sub-Director Numerate. Trained in computer work, or suitable for training in computer work.

(c) Sub-Director, Investment Promotion and Marketing. Should be a financially oriented commercial manager with practical experience in marketing, sales promotion and publicity at company level.

(d) Sub-Director, Training. Would be a qualified engineer with experience in factory management and personnel administration, especially in respect to the planning and implementing of training events. Alternatively, he could be an educationalist with experience in technical career development or in a Technical Training Institute.

Scope

S-II.3 In order to determine industrial objectives it is important that up-to-date statistics on industrial status should be readily available to the State Government; especially in respect to the Industrial Corridor. Moreover, the information should be evaluated in terms of quantity and quality. Basis data should include:- Number of factories; industrial category; products and markets; capital structure; number of employees, office and factory, method of remuneration; installed plant capacity and percentage utilisation; etc.

S-II.4 The continual process of up-dating is a basic requirement of effective industrial statistics. The information contained in the Catastro Industrial del Estado de Guanajuato, apart from being out-of-date, falls far short of providing a data-base on which to construct a realistic industrial development strategy.

S-II.5 It is understood that the creation of a Statistical Information Centre is under consideration, to be based on proposals presented by the Special Committee for Information and Statistics[1/]. The proposals are for a major information centre for the collection, collation and storage of statistical data, including industrial statistics. In view of the high priority accorded to industrial investment in Guanajuato, it is recommended that an Industrial Statistics Centre be set up as a matter of urgency, and housed in PROMIDI, for linkage with the larger information centre at a later date.

1/Recomendaciones del Sub-comité Especial de Informacion y Estadística Comitéde Planeacion para el Estado de Guanajuato, June 1983

Method

S-II.6 It is assumed that national statistics conform to the ISIC Code[1/] which, being decimalised, permits statistical analysis by classes, groups and sub-groups. It is therefore suggested that there should be close collaboration with SECOFI, to ensure compatability of data inputs.

S-II.7 Information data- base and other inputs could be compiled in collaboration with State Government departments, chambers of industry, chambers of commerce, and finance institutions etc., representing or servicing industry in the State of Guanajuato. Additionally, questionaires would be mailed directly to firms listed in the Catastro Industrial.

S-II.8 The standard "Personal Computer" would be adequate for this work and is recommended for its economic price of around US$ 6000; which includes keyboard input, central processing unit, double discette station and output printer. Equipment is supplied by IBM (USA), Siemens (W.Germany) Olivetti, Sanyo (Japan) and many other makes.

S-II.9 From meetings with CANACINTRA, NAFINSA, PAI/FOGAIN, IMCE and other bodies it appears that many of them have recently introduced systems to chart up much useful data which, prior to the present economic recession, had not previously been compiled. Industrial company information of a non-classified nature is currently being gathered which, if collated and consolidated, would provide an accurate and up-to-date census and profile of industry in the GIC.

Central Chart Room

S-II.10 Once the available data has been collected, a feature of PROMIDI would be the preparation of mural charts illustrating the industry mix in the GIC, according to Municipality. Industry distribution charts dipicting the national situation would provide a useful basis of comparison between Guanajuato and the country as a whole. The chart-room system is well suited to Mexico, a country which has developed diagrammatic statistics to a fine art.

Investment Promotion and Industrial Development

S-II.11 The function of this section would be as follows:

(a) Maintain continuous contact with industrial and financial institutions (Refer S-III.07)

(b) Recommend objectives and strategies for promoting the establishment of new industries and attractive investors.

(c) Recommend Public Relations and Publicity activities and campaigns briefing outside specialist agencies, and supervising implementation. (Refer Scenarios I and II)

The catalyst role of the section is demonstrated in Scenario I. Export Promotion, and Scenario III Investment Promotion.

Industrial Training

S-II.12 Economically active population of the State of Guanajuato was 1'409,000 in 1982 [1/], of this 17.30% were employed in the Manufacturing Sector (transformation industries). The average annual growth rate of manufactur - ing employment is 4.6%, bringing the total number of persons employed in the manufacturing sector by the year 2000, to 547,500; representing an estimated increase of 292,500 during the seventeen years between 1983-2000.

S-II.13 Assuming 30% new jobs created will be a supervisory nature (skilled, technical or managerial), training will be required for 87,750 persons. Training for this group will require form 3-to-7 years, with an average 4-years This equates to 351,000 training years or a "group in-training" of 20,000 at any time between 1983 and 2000. Even assuming that manufacturing growth does no more than increase in line with population growth of 2.6% p.a. a group-in-training would amount to 10,000 at any time. Applying this calculation base to the GIC only, the training requirement would be approximately 50%.

S-III.14 Although the specific types of training, based on industry's needs, cannot reasonably be predicted at this time, it is obvious that industry will only be effective and efficient if its skill-requiring jobs are filled by skill-possessing personnel.

It is, of course, premature to make detailed recommendations at this moment, when industrial employment appears to decrease rather than increase. Nevertheless, it is a fact that, if industry in the State of Guanajuato is to grow at the rate expected, there will be a massive need

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1/ Source: Instituto de Estudios Económicos y Sociales del PRI. 1983

for training in industrial skills.

S-II.15 It is recommended that industrial development in the State be closely watched with particular attention to these training needs, lest progress comes to a halt, because of a lack of the skills which are needed for industrial operations.

PROMIDI Location

S-II.16 It will be important for PROMIDI to maintain day-to-day contact with the Cámaras de Industria, Cámaras de Comercio, IMCE, PAI/FOGAIN, Nafinsa, Banks and to be aware of industrial problems and activities along the Industrial Corridor. No doubt these considerations promted these government agencies and investment institutions to locate their regional offices in Leon. It is strongly recommended that PROMIDI should be located where the action is, namely a centre of industrial investment in the Guanajuato Industrial Corridor, and preferably in Leon.

Technical Assistance and Training

S-II.17 In order to ensure the effective implementation of the Short -, Medium -, and Long-Term strategies it is suggested that a UNIDO project of integrated technical assistance could provide the specialist skills and experience required during the establishment period. Specific in-puts would be as follows:

(a) Project Director/Senior Industrial Promotion Economist. To assist Director in setting up PROMIDI.
Qualifications: Extensive general management experience in corporate organisation, and strategic and adaptive planning for domestic and external markets.
Duration: 6 months

(b) Expert in industrial statistics. To assist sub-director to set up the Industrial Development and Information Department.
Qualifications: Experience in setting up industrial information centres based on computerised systemsfor collecting, collating and publishing industrial data and information.
Duration: 4 months

(c) Expert in national promotion. To assist the sub-director Investment Promotion and Marketing, in the promotion of the Guanajuato Industrial

Corridor as an integrated investment package.

Qualifications: Extensive senior management experience in publicity and promotion in national or trans-national industrial corporations/ institutions, or similar responsibility in leading Advertising or Public Relations agency.

Duration: 6 months

(d) Expert in market identification and export promotion: Footwear

(e) Expert in market identification and export promotion: Processed Foods.

(f) Expert in market idertification and export promotion: Metal Machinery products.

It would be possible to combine (a) and (c). Duration of assignment (d),(e)(f) Duration of each assignment (d), (e) and (f); 3 months including visits to export markets.

SCENARIO III. Long-Term Strategy

PROMOTION CAMPAIGN TO SELL THE GUANAJUATO INDUSTRIAL CORRIDOR

Background

S-III.1 The State of Guanajuato has a diversified and established industrial base in the Guanajuato Industrial Corridor. There are many reasons for the GIC's phenomenal growth. Three are especially important:

(a) Classification as a high-priority industrial zone and an attractive package of investment incentives.

(b) Relative proximity to Mexico D.F. enables industry to relocate in Guanajuato, without loss of existing clientele.

(c) Geographical situation in the centre of Mexico, good year-round climate, power, communications and labour resources. A record of good labour relations.

S-III.2 In order to achieve the proposed Strategic Aims (Para 8.01) an additional 146,000 jobs will need to have been created in the Manufacturing industry by the year 2000. To achieve this will be a major task. It will need a continuous programme of new investment to provide the 9000 new jobs which will be required each year. This is equivalent to starting up seven new firms with 100 employees, each month. Moreover, twenty-three other Federal States will be pursuing similar objectives for the 126 municipalities listed in the Zone IB Priority group.

Purpose

S-III.3 It is proposed that the Government of the State of Guanajuato should launch and Investment Promotion Campaign to sell the Guanajuato Industrial Corridor as an integrated investment package to selected investors.

Whom to sell

S-III.4 Recommended Target Audience

(a) Owners and Top Management of existing industrial groups, manufacturing industries, etc., currently located in Mexico D.F. indentified by PROMIDI [1/] as potentialty interested in re-location away fror Distrito Federal

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1/ PROMIDI: Direccion para la Promoción de la Inversión y Desarrollo Industrial (Scenario II)

(b) Potential foreign investors. A register would be prepared in collaboration with NAFINSA; foreign Chambers of Commerce, and Trade Promotion representatives located in Mexico; The Commercial Sections of foreign embassies in Mexico, D.F.

Special targets would be foreign companies with established export distribution systems capable of handling the marketing of Guanajuato manufacturers' own products, or products adapted to the foreign assiciates' specification, or on a sub-contract or maquilladora component manufacture basis. This points to a range of metal-mechanic products of high quality and competitive price; and a revitalised food processing industry.

What to sell

S-III.5 The Guanajuato Industrial Corridor, due to its unique location plus road, rail and air communications, is the ideal operations base for fast and economic access to Mexico's largest cities and centres of industry, including Distrito Federal with population of 16 million. The GIC is also the most convenient jumping-off point for external markets to the North, South, East and West.

The GIC offers a young and industrious labour force, a wide range of education facilities including numerous schools, the University of Guanajuato with departments of engineering, economics, and commercial studies, and Technical Training institutions. Not to mention the most up-to-date recreational facilities, and inter-city transport services.

The diversity of industry, and the importance attached to the GIC, are evidenced in the number of industries and prestigious companies who have selected the GIC in preference to all others. Information would highlight the specific industrial opportunities identified by PROMIDI, and recorded in the "GIC New Industry Opportunity Study" (Refer Scenario II).

Scope

S-III.6 Industrial development guidelines would be drawn up, in order to promote investment in manufacturing categories considered important to achieving specific industrial objectives eg., capital, intermediate, or consumer goods; and in order to locate firms in areas best fitted to the type of industry.

Emphasis would be given to industries with high employment potential, and small and medium manufacturers scheduled for strong financial support in the National Development Plan.

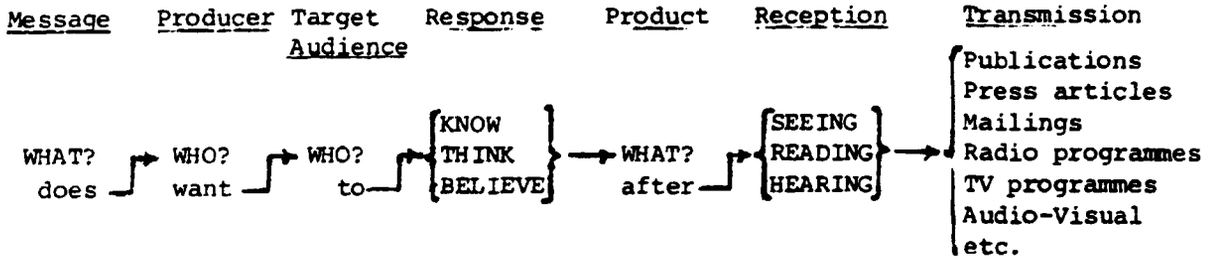
The Communications Brief

S-III.7 As in the case of Guanajuato's manufactured products, success will only result when the promotion is market-led; in other words, when the needs of the "customer" (the investor) are satisfied by the "product" (The Guanajuato Industrial Corridor).

It is a well-researched fact that many 'good' products have failed because the publicity and promotion failed to interest the potential buyer. The Market Response Critical Path Checklist [1/] is used by at least two of the most successful trans-national corporations [2/] and three leading international advertising agencies.

S-III.8 The Market Response Critical Path Checklist is adaptable to a wide variety behavioral situatuins involving the transmission-reception-response sequence. The critical path content applicable to selling the GIC would be as follows:

(a) Critical Path Structure



Each factor has a specific role to perform in achieving the Objectives.

(b) Example. The industrial analysis of the GIC indicates the need for the manufacture of non- chokeable centrifugal pumps. The Market Response Critical Path would produce the following basic statement as the basis of a promotion brief:

(Who?) The Government of Guanajuato wants(Target Audience) manufactures of non-chokeable centrifugal pumps in the Distrito Federal -to KNOW specific facts to be stated about the GIC,- to THINK that

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1/ "Creative Marketing Communications". Ian Matthews. Restricted distribution

2/ General Foods. Nestlé

operational benefits etc, will be gained by transfering to the GIC,

-to BELIEVE that the company will derive financial, commercial and environmental benefits (to be stated) and that the employees will gain social housing, educational (to be stated) advantages, form transfering to the GIC.

- as a result of READING the feature article
- in the magasine "TRANSFORMACION"

Method

S-III.9 The concept visualisation and execution should be assigned to a professional Advertising or Public Relations Agency, with a proven track-record in industrial investment promotion at corporation, if not State level. The Agency should have established international connections and an outstanding record in creative communications.

A shortlist of agencies should be invited to make presentations to the State Government on the basis of defined objectives and a specific brief.

Media and Communications Channels

S-III.10 The Media compaign would be directed along three channels: State publication the Newspaper and Magazine press; local/and radio television network.

S-III.11 State productions would include the following

(a) The GIC Investors Handbook. A deluxe publication to be published annually. Foreword by the Governor.
Contents: Industrial and Financial incentives. Manpower. Education and training facilities. Housing communications Industrial Parks. Market access. Transportation. Raw material. Natural resources. Trade associations, Chambers of Commerce, Industry etc. Legislation. Future development. New industries established. Technological development. New industrial opportunities. Comparative location advantages etc.

(b) Brochures. 4-page double-fold. Information to investors:-

i. Specific manufacturing sectors vz. Food Processing, chemicals pharmaceuticals, foundries, metal-mechanical etc.

ii. Municipalities in the GIC. Advantages, Services etc.

(c) Audio Visual. Slides, Film-strips, VideoTapes. Communications content as for (b). Distribution: Mexican Trade, Industrial and Commercial association, Embassies/Commercial representatives in foreign countries vz. USA, Japan, EEC countries, IMCE

S-III.12 State Press Relations. The GIC Investment Promotion Campaign could be launched at a Press Conference and luncheon convened by the Governor. Thereafter, the press would be kept informed by special Press Releases on a wide range of news and information items on all aspects of the GIC.

S-III.13 State Public Relations. Invitation to potential investors, Mexican and foreign businessmen, journalists, financial and technical assistance organisatichs, foreign chambers of industry and commerce, visiting foreign trade missions, to official Government receptions, tours of GIC, meetings with local industrialists, chamber of industry etc.

Missions to potential investor countries, and donors etc. (Following example of recent visits to Europe by the State Governor)

Administration

S-III.14 It is recommended that the GIC Investment Promotion Campaign should be administered by the newly created Dirección para la Promoción de Inversión y Desarrollo Industrial (PROMIDI). It is recommended that the investment promotion campaign should be a continuing activity with an annual budget to be funded by the State Government.