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**PRIVATIZATION IN MEXICO: ITS ROLE IN THE ECONOMY AND
THE DEVELOPMENT OF THE PUBLIC INFRASTRUCTURE**

by

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Ingeniero Civil
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Submitted to the Department of Civil and Environmental
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requirements for the Degree of

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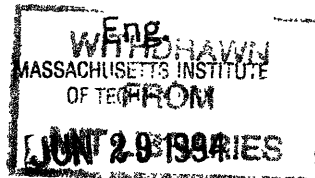
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ABSTRACT

This thesis is organized into two parts. The first part consists of an examination of some concepts and the theory of privatization of public enterprises. The second part analyzes the private sector's involvement in developing the Mexican public infrastructure.

Privatization reform of public enterprises lies at the heart of Mexico's economic adjustment program. The arguments for privatization are often based upon empirical evidence, and in some cases grounded in a questionable analytical framework. Thus, the results of privatization have sometimes failed to meet expectations. Only through an evaluation of privatization theory and the economic and social aspects of each public enterprise, are the optimal results achieved. This will benefit both the consumer and the country.

Part I explains the theory and concepts of privatization. First it reviews the meaning, forms and reasons for privatization; second it describes the potential methods for privatization with a view towards the possibility of these methods being adopted in Mexico; and third it discusses various problems of privatization, such as the social, macro-economic, financial, regulatory, and legal issues which often conflict with the economic objectives of privatization.

Part II examines privatization in a more practical manner. Mexico is used as an example of the implementation of privatization and the effects it has had on the country's public infrastructure systems. In order to better understand these issues, the geographic, demographic, and socio-economic aspects of Mexico are discussed. This section also looks at the evolution of the private sector's involvement in the country's effort to develop and modernize its public infrastructure. In addition, the future prospects for greater private sector involvement in these areas are discussed. Moreover, it concisely describes the structure of the existing regulatory framework for public infrastructure systems. Finally, some conclusions are drawn from this work with regard to: 1) the usefulness of these processes in relation to the final user of the infrastructure; and 2) the country's need to meet its economic, social and infrastructure goals.

Thesis Supervisor: Dr. Fred Moavenzadeh

Title: Director, Henry L. Pierce Laboratory and
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To my Parents
For their love, support... for everything

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Chapter 1

INTRODUCTION

A combination of circumstances has created a favorable environment for privatization-reform of public enterprises in Mexico. This reform lies at the heart of the country's economic adjustment programs. Some of these circumstances are: the lesson of public enterprise reform in developed countries and the successes of market-oriented strategies among developing countries; the acute financial crisis during the 1980's which has raised the economic and political costs of doing nothing; and the installation of a number of new, reform-minded governments within Mexico.

Despite this, the debate surrounding privatization in many sectors of the Mexican economy, including the public infrastructure sector, is often based on limited empirical evidence and in some cases is grounded in a questionable analytical framework. Also, the philosophy of privatization has been embraced to the point where the perceived superiority of the private sector in the provision of goods and services has become almost axiomatic. However, it is precisely this assumption I believe to be invalid, and it is why privatization-reforms have sometimes failed to meet expectations. Only through an explicit evaluation of the fundamental economic and social aspects of privatization can a more balanced role emerge. This thesis examines privatization from this perspective.

This thesis is divided into two parts. Part I consists of an explanation of the theory and concepts of privatization. Chapter 2 begins with a review of the meaning, forms and reasons for privatization, which provides the basis for privatization reform. Chapter 3 briefly charts the potential methods and techniques of privatization with the possibility of these methods being adopted in Mexico and/or in other developing countries. In this third chapter I also consider the problems of privatization: the social, macro-economic, financial, regulatory, and legal issues that often conflict with the economic objectives of privatization.

Part II of this thesis, composed of Chapters 4, 5, 6 and 7, will differ from the Part I theoretical explanation of privatization by focusing more on practical aspects of privatization. Part II will demonstrate examples of privatization used (or with substantial possibilities of being adopted) in Mexico.

In order to understand these examples, Chapter 4 outlines the geographic, demographic and socio-economic aspects of Mexico. Chapter 5, addresses some examples of important sectors of the economy where there have been large advances regarding participation of the private sector in the development of public infrastructure. The main body of this chapter describes the existing public infrastructure in Mexico for the following specific sectors: roads and highways; railways; ports; airports; telecommunication; water; and electricity. It also looks at the evolution of the private

sector's involvement in an effort to develop and modernize the country's public infrastructure and the prospects for greater private sector investment in the future. Chapter 6 concisely describes the structure of the existing regulatory framework for each of the sectors mentioned above.

Finally, the conclusions, which are outlined in Chapter 7, discuss the usefulness of these processes in relation to the final user of the infrastructure in particular and the country's need to meet its economic, social and infrastructure goals in general.

The needs of the country's public infrastructure sector and the decisions made regarding the privatization of government owned businesses are only elements of Mexico's macro-economic policy. Mexico has many pressing needs other than infrastructure: education, welfare, and employment generation, only to name a few. However, the long-term impact of focusing on the improvement of the country's infrastructure system could have a significant impact on the country's ability to meet its other social goals. A country's infrastructure system is a basic building block of the country's economic development. By providing a means for the distribution of goods and services, the country is providing a means for the growth of both the private and public economies. This growth can be used by the government to fund its other social goals. However, without economic growth the government's social goals are even more difficult to achieve.

Over the next fifteen years an estimated 35 billion dollars¹ will be invested in infrastructure projects. The Mexican government has been exploring a means for the financing of this development to shift from the public to the private sector, with very interesting results.

In the future, the private sector will play an essential role in reaching Mexico's development goals. The task at hand today is to have policies in place to determine which projects should be open to the private sector and which should remain in the hands of the public and; also, to show how the economic and legal environment need to be changed to allow for the continuation and success of this transition.

¹see *Opportunities for Investment in Mexico's Basic Infrastructure*, Secretaría de Comunicaciones y Transportes "SCT", 1993.

Chapter 2 THE GENERAL THEORY OF PRIVATIZATION

2.1 WHAT DOES PRIVATIZATION SIGNIFY?

"Privatization" is a term that is used to explain a variety of ideas. It is to be understood, not merely in the structural sense of who owns an enterprise, but in the substantive sense of how far the operations of an enterprise are brought within the discipline of market forces.

2.2 THE MANY FORMS OF PRIVATIZATION

According to the April-June, 1986 Annals of Public and Cooperative Economy, some meanings of the concept of privatization are as follow:

- Transfer (sale) of public assets (firms, parts of firms- "partial privatization") or individual assets to private persons.
- Transition to private law legal forms.
- Transfer of individual public supply tasks to private persons (i.e. contracting out); also functional privatization.
- Transition to private business management in the sense of profit-oriented management.

- Extension of the margin of autonomy for the management of public enterprises.
- De bureaucratization, in the sense of freeing from formal provisions and administrative control.
- Decentralization, in the sense of the delegation of authority to decide, plan, and act.
- Aligning the conditions under which public enterprises act on those market forces which apply to private firms.
- Promotion of competition by market processes (or market-like systems of incentives).
- Dismantling of such state monopolies as are justified by referring to the traditional argument of "natural monopoly"
- Adaptation of wages and working and employment conditions to those applicable to the private sector: privatization of jobs.
- Unilateral reduction of the nature and scope of public services.
- Privatization of public resources.

- Privatization of public revenue: conversion of revenues from public investment into private profits; or private access to public capital and its revenues.
- Denationalization: pressures of international competition; increasing activity in foreign markets; take-over of capital shares and rights of disposal by foreigners.

2.3 THE REASONS FOR PRIVATIZATION

Some of the more significant reasons for privatization are as follow:

- 1) The fact that a large number of public enterprises are making losses

A careful analysis of the anatomy of the losses indicates that these losses: arise from the inefficiency of enterprise managers; are caused by the government's bureaucratic and unproductive control systems; or result from wrong investment choices. In these cases, a restructuring of the enterprise may be required to reverse the financial situation and move back towards profitability.

It is very important to observe that current losses are not a conclusive argument for privatization. This is because some public enterprise are designed by the government in the public interest of reaching certain national goals such as growth, regional

development, welfare systems, etc. Therefore, "losses" arguments for justifying privatization must be used with extreme care.

2) To solve problems of budget balance for the government

The public enterprise sector has frequently failed to generate an investment surplus and instead has created a budgetary burden for the public sector. This as a problem deriving from the phenomenon of losses. The government has eventually to finance these losses, and therefore the public budget is placed under strain.

3) To keep government borrowings under strict control

The opportunities of certain public enterprises to receive the necessary capital for expansion from the government can be scarce. In this case privatization is used to encourage private investors to supply these funds so that planned programs can be realized.

4) The attainment of original objectives

In the specific case of certain enterprises in certain countries, it can be argued that the original objectives for which the public enterprise was established may have been achieved or that public help is not longer necessary in order to achieve them. In this

cases the public enterprise can either be liquidated or considered for privatization.

5) Privatization can be use to assist the government in implementing its decisions regarding income re-distribution

Some public enterprises have been adopting policies of income distribution which have had doubtful or negative results achieving their business objectives, in order to benefit the public sector for which they were created. For example, low prices are offered, which benefit indiscriminately, the richer portions of the population, and not just the portions which really need this assistance. It is argued that if the enterprise is privatized, the new managers will be under no motivation to continue such non-commercial policies. Since privatization of these enterprises is not trying to harm the portions of the population that need this assistance, it is important that the government look for other mechanisms of distribution which are more fair in providing social assistance.

6) To conserve the time and talents of top government officials

The management of many large public enterprises requires that important public ministers expend a great deal of their time and energy in dealing with problems. This can have negative consequences on other areas of public responsibilities through lack of time and involvement. Privatization can minimize this

situation, and the problem associated with the centralization of power which results from the need for more public ministers to attend to the issues of public enterprises.

7) It is widely held that the public sector has become too large in many less developed countries

A 1981 World Bank report on economic prospects, stated the following conclusion:

" It is widely evident that the public sector is over extended [in less developed countries], given the present scarcities of financial resources, skilled manpower, and organizational capacity. This has resulted in slower growth than might have been achieved with available resources, and accounts for the present crisis".²

8) Response to macro-economic concerns

The economic case for privatization is most commonly made in terms of its impact on micro, or enterprise level performance. However, it is important to recognize the fact that much of the pressure for privatization stems from macro level concerns.

Other common objectives and reasons that can be cited to support programs of privatization in different countries are:

² World Bank's Report on Economic Prospects ("Berg Report"), 1981, p.5

- To increase efficiency through competition;
- To implement deregulation;
- To raise finances which can be used to fund other expenditure priorities;
- To reduce taxation;
- To encourage employees to own shares in the company in which they work;
- To boost the level of share ownership in the general economy;
- To strengthen the capital market;
- To gain domestic and international prestige.³

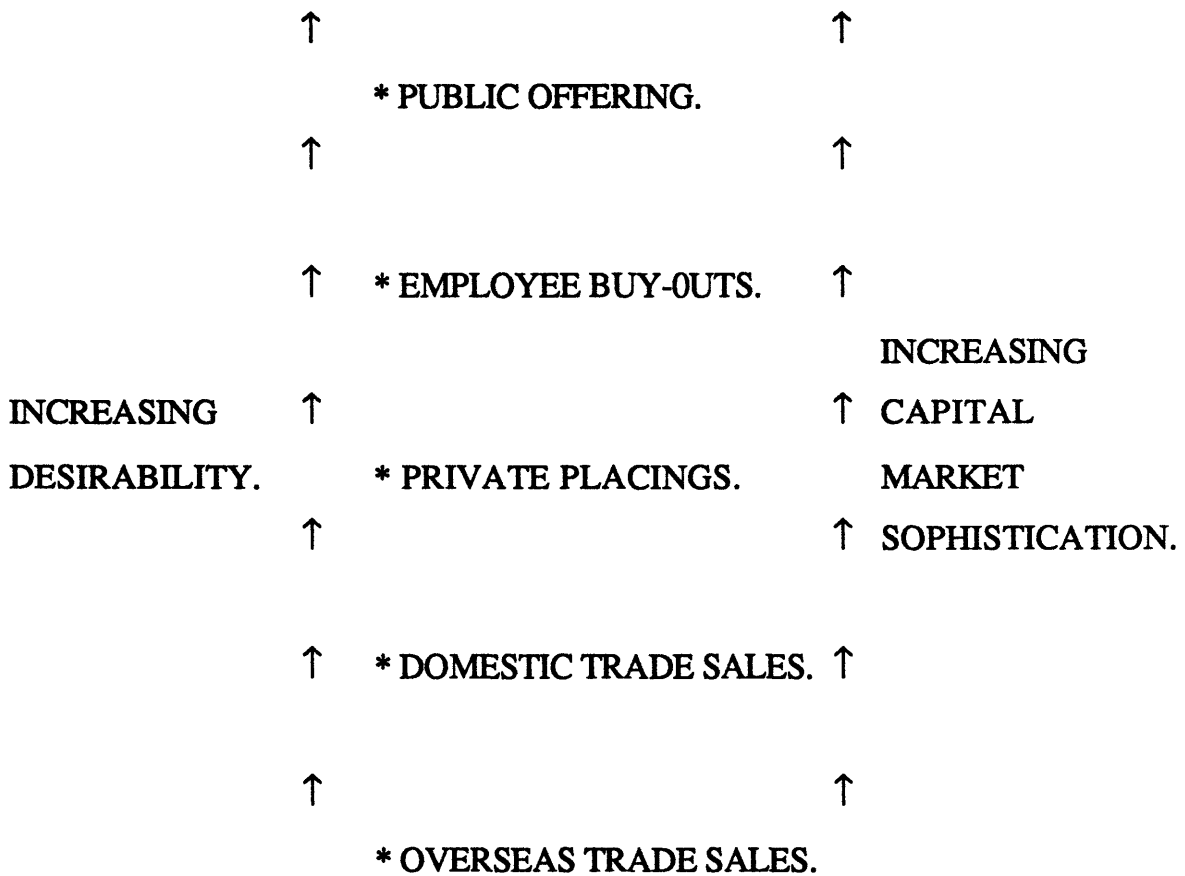
In addition to all the arguments outlined above, a positive and perhaps most significant argument for privatization is as follows: when a public enterprise loses its comparative advantage (this comparative advantage is to be measured in terms of commercial returns, social returns, and a desired trade-off between both), it is preferable for the government to privatize it according to the hierarchy of political desirability suggested in Figure 1. As long as the public enterprise has a superior means of making a contribution to the national benefit, it should be preferred to other forms; but when it has a comparative disadvantage in this respect, it should be reorganized into a private enterprise. This is strictly a practical approach to public enterprise efficiency and must be a non-ideological approach.⁴

³Grimstone, Gerry. *Privatization: Macroeconomics and Modalities*, Schrodgers, London 1988.

⁴Ramanadham, V. V., *Privatization in Developing Countries*, Editorial Routledge, London, 1988

Figure 1.

**HIERARCHY OF POLITICAL DESIRABILITY IN PRIVATIZATION
OPTIONS ⁵**



⁵Source: Grimstone, Gerry. *Privatization: Macroeconomics and Modalities*, Schrodgers, London 1988.

2.4 PRELUDE TO PRIVATIZATION

The search for efficiency in a public enterprise is based upon the theory that any commercial enterprise, public or private, will function more efficiently when it strives to maximize the profits in competitive markets, under the direction of managers with the capacity, autonomy and motivation to respond to signals of the marketplace and when the enterprises that can not compete are able to file for bankruptcy. Public enterprises typically operate under very different circumstances, compared to those enterprises which they must compete against in other countries. In the case of Mexico the last two administrations (1982-88, 1988-94) decided to support reforms that have helped the country to move closer to these conditions of efficiency by proposing and implementing extensive, privatization.

2.4.1 Policy reform

Reform of public policy to facilitate privatization is necessary for the success of a country's privatization effort. However, it is necessary to pay attention, not only to external factors, but also to other internal factors that are important causes of problems. The first problem that frequently arise is to focus on the ills caused by the underpricing of a public enterprise's output and to ignore the insidious effects of cost-plus pricing. When public enterprises sell below cost the results are

deficits and debt, growing shortages, costly distortions in investment decisions, and waste of scarce resources.

The second problem is to promote trade liberalization without preparing public enterprises to respond to competition. Public companies need to improve their management, marketing skills and to increase their manager's autonomy prior to liberalization. A third problem is to ignore the potential to increase domestic competition. A fourth is to inject new equity in financially troubled state enterprises without assuring that this infusion of capital will not be treated as a costless bailout by management.

" To provide capital to an enterprise that is not expected to be profitable enough to its equity is, in effect, the capitalization of a recurrent subsidy".⁶

2.4.2 The role of the public enterprise sector

Before deciding to initiate reforms towards privatization of public enterprises it is necessary to reassess the role that such public enterprises play in the economy. This reassessment typically occurs when structural adjustments are changing the economy and many public enterprises are in serious trouble. Not all of these enterprises merit support, or even survival. Usually there is a public enterprise group whose efficient functioning is vital to development (such as electricity or water supply) and another group of clearly nonviable enterprises that should be liquidated. In between are many

⁶ Shirley, Mary, *The Reform of State-Owned Enterprises*, The World Bank, 1989.

enterprises that may be able to survive as is, or with some restructuring, and others that cannot compete.

2.4.3 Privatization as a part of a process of reforms

An important motive for privatization is the desire to improve the contribution of some public enterprises to the development of the economy by freeing enterprises from politically motivated intervention and eliminating inefficiencies which arise from the lack of accountability within the enterprise.

One early lesson of the privatization experience is the importance of treating privatization not in isolation or as an end in itself, but as a part of a more amplified process of reforms designed, among other things, to promote a better allocation of resources, promote the general competence of the enterprise, foster a more supportive entrepreneurial environment and develop or enhance the capital markets.

2.4.4 Seeking enterprise efficiency

In theory, as it was mentioned before, the level of efficiency of individual firms will be larger when an enterprise, public or private, strives to maximize profits in a competitive market under the direction of managers with the autonomy, capacity and motivation to respond to competition; and when the enterprises that can not compete have the ability to file for bankruptcy. In practice, public

enterprises seldomly face such conditions. These enterprises frequently have different and incompatible objectives separate from the objective of maximizing profits. These enterprises operate in a non-competitive market. In fact, the absence of competition is frequently a reason for their creation. Their autonomy is compromised by governmental intervention. Their managers are not held accountable for their performance and incentives are not given to them to improve their performance. The way in which managers are selected and rewarded encourages more central bureaucracy than in competitive enterprises (see Figure 2, regarding a comparison of non-commercial and commercial enterprises). When public enterprises have objectives other than to maximize profits, these goals must be clarified. The first step is to determine whether or not the public enterprise is the most efficient tool to reach non-commercial objectives; or if another mechanism which is less costly can be utilized (such as a direct subsidy).

Regarding motivation, we can say that it is important to introduce managerial incentives linked to performance. Recognition alone can be an important step towards good performance; and bonuses are an additional motivation, as are penalties for poor performance.

FIGURE 2.

A COMPARISON OF NON-COMMERCIAL ENTITIES AND COMMERCIAL STATE ENTERPRISES.

	NON-COMMERCIAL ENTITY	COMMERCIAL STATE ENTERPRISE
INPUTS	<ul style="list-style-type: none"> * Hard to judge performance on the basis of outputs. * Inputs must be more carefully controlled. 	<ul style="list-style-type: none"> * Can be judged on the basis of outputs (production profits). * Flexibility in input decisions.
BUDGET DECISIONS	<ul style="list-style-type: none"> * Government must provide the funds or current operations. * No market or consumer forces for cost control. * Current expenditures must be more closely scrutinized. 	<ul style="list-style-type: none"> * Current operations funded from own resources. * Return on investment of more interest than current budget. * Management is closer to management of a private firm.
PERSONNEL	<ul style="list-style-type: none"> * Management is closer to management of a government department. * Personnel rules and compensation system closer to civil service. 	<ul style="list-style-type: none"> * Personnel rules should allow public enterprise to compete with private sector and react with flexibility to changing markets.

SOURCE: POLICY, PLANNING, AND RESEARCH
 The World Bank, Mary Shirley
 Country Economics Department, 1989

2.4.5 Reforming the policy framework

Sound macroeconomic policies are critically important for the health of public and private enterprises. Certain policy issues, especially pricing, labor, commerce and finance, are particularly important for the public enterprise.

Pricing

Price adjustment are often needed to end further de-capitalization of the firm and to avoid budget drain, waste, and distortion associated with artificially low prices.

Labor policy

Workers in state enterprises, particularly unskilled or semi-skilled workers, have special privileges compared to their private counterparts in many countries. Not only do they enjoy a higher degree of protection from layoffs but they also are paid (in salary and benefits) as much or more than equivalent private workers. This situation tends to raise wage expectations for less skilled workers in both public and private firms, threatening external competitiveness and slowing job creation. Introducing fair but more disciplined labor policies in public enterprises can thus benefit both public and private firms and increase productive employment opportunities.

Commercial policy

There is ample evidence that any enterprise, public or private, operates more efficiently when faced with a competitive market. Since public enterprises tend to be large in relation to the local market, the opportunities for domestic competition may be limited, especially in smaller economies.

Also if the public enterprise is managed by bureaucrats rather than businessmen, if it has never developed marketing or financial management skills, if it is not permitted to respond to competition by cutting costs through layoffs and closures, if its capital base has been eroded by past government pricing policies, if it cannot collect from its creditors, then a potentially viable firm may not be able to compete.

In some cases, these problems can be solved by improving the institutional environment and the management of the public enterprise. In others, privatizing the firm may be a rapid and efficient way to improve its capacity to compete since it addresses many of these problems simultaneously.

2.4.6 Financing

On the one hand, state enterprises have usually enjoyed privileged access to credit and government guarantees, unlimited overdraft facilities, and funds at low or zero cost. On the other hand, public

enterprises often have been created with little or no equity and then forced to borrow to cover operating deficits or to finance all of their investment with debt because of government pricing policy. These circumstances make it difficult to suddenly switch to a market-oriented financial policy.

Care should be taken to assure that an enterprise benefiting from financial restructuring or new equity is economically viable, potentially profitable and subject to financial discipline. Subventions should be ended wherever possible and public enterprises should be required to borrow principally from banks and to pay market rates for the cost of their capital.

2.4.7 Determining the roles and objectives of public enterprises

Reforms to the public enterprise sector, require that the government redefine the role that its enterprises will play in the economy and also the scope of the sector. The impetus to reform the public enterprise sector typically arises when a structural adjustment of the economy has changed the economical rules of the game and many public enterprises are in serious financial trouble. Not all of these public enterprises deserve support or survival.

In all countries there exists a group of enterprises whose efficient functioning is essential for the development of the country and

which are likely to remain public in the short-run. Taking into account that this is not a rule, these enterprises usually include electricity companies, railways, telecommunication firms, very large extraction enterprises, etc. There is another group of firms of not very clear viability that should be liquidated: these enterprises typically include small retail businesses, state farms, and marketing firms. A good number of enterprises are between these two extremes, some of them capable of surviving under new economic rules, some of them that will need assistance to adapt and some of them that should be liquidated.

Once the government has redefined the fundamental objectives for which the enterprise was created and determined that these goals are still valid, then the government could decide on the one hand, which enterprises should remain public and which ones will need restructuring, and on the other hand, which enterprises should be privatized or liquidated. Then the government will classify the public enterprises and will establish a program of actions according to the classification system. One classification system tends to classify enterprises as "strategic" or "essential" and "non-strategic" or "non-essential". Another classification usually divides enterprises into potentially viable or non-viable, as shown in Figure 3.

Figure 3.

CLASSIFICATION AND ACTION PLANS FOR PUBLIC ENTERPRISES.

CATEGORY	ACTION
A) Essential/Strategic, Viable.	Retain in public sector.
B) Essential/Strategic, Non-Viable.	Retain, take specific steps to improve.
C) Non-Essential/Non-Strategic, Viable.	Divest in whole or in part to the private sector.
D) Non-Essential/Non-Strategic, Non-Viable.	Liquidate.

Source: Shirley, Mary; "POLICY, PLANNING, AND RESEARCH",
The World Bank, Country Economics Department, 1989

"Strategic" means that the enterprise fulfills a priority role for the state and carries out activities which "for the moment and under present policy conditions, cannot be undertaken by any other means".

"Viable" means that the enterprise either now or in the future could conceivably (under present policy conditions and without fundamental macroeconomic changes) function in a competitive environment at a profit.

2.4.8 Individual public enterprise objectives

Once the role and scope of the public enterprise sector has been decided, the next step is to reform the relationship between the government and its state enterprises. This involves four actions:

- Set clear and attainable objectives, compatible with the commercial operation of the firm.
- Give management greater autonomy over operation of the firm and select managers capable of operating independently.
- Establish clear rules and procedures for government involvement in decision making.
- Hold managers accountable by negotiating targets, monitoring and evaluating results, and rewarding managers and staff on the basis of performance.

2.4.9 Non-commercial objectives

Some governments find many reasons to create public enterprises. Some examples are the promotion of certain sectors, the opportunity to create profit for the state treasury, the necessity to diminish the foreign dominion of specific sectors or certain national interests and the regulation of monopolistic power. These enterprises should have

as a goal the efficient operation as a commercial entity. However there are other reasons for the creation of public enterprises, which I will call non-commercial objectives. These objectives include the use of public enterprises to promote the development of certain regions, to create jobs or to redistribute income. These frequently involve the hiring of an exaggerated number of workers, the sale of goods and services priced below market levels, or the maintenance of facilities which are not economically viable.

The most effective way to promote efficiency of an enterprise is to require it to maximize profits in a competitive environment. In theory, this requirement doesn't allow the possibility of the government utilizing a public enterprise to pursue social objectives or non-commercial objectives. For example, a public enterprise could be required to be located in a remote area to promote the social and commercial development of the area and also asked to maximize profits. The problem will be that this public enterprise will have a lower profit level than the same enterprise in a more appropriate area; and, it will be unable to compete, even if it could be operated with great efficiency. In trying to solve this problem, the government could decide to give to the public enterprise a transfer of funds to cover the additional cost (or in the worst case, protect the enterprise from other competitors). However, this transfer is difficult to calculate and provides ample evidence that the existence of a subsidy has as a consequence, the diminishment of productivity. In this case, the cost of resolving social issues could be used to cover the poor performance of the public enterprise. Due to the fact that

this hides the cost of the goals of social help, it can induce the government to continue programs that are difficult to support.

The use of public enterprises to promote welfare objectives can have some negative consequences. For example, when public enterprises are required to maintain prices at an artificially low level, the results are budget deficits, debt, costly distortions in investment decisions and the waste of scarce resources. When public enterprises must hire workers only to promote employment, the result is a drop in productivity and the creation of a labor elite. Where unskilled workers can end up earning more than in the private sector, inefficiencies are created that tend to generate problems in the economy that are much more costly than a direct subsidy.

It is important to note that governments that try to embark upon a program of economic reform have to recognize that in many cases, public enterprises are not the best tool to reach their social objectives. Such reforms should make explicit the social goals they are trying to reach, and should calculate their costs carefully to prevent de-capitalization of the public enterprise.

2.4.10 The role of the government in the management of public enterprises⁷

It is important to point out which decisions in the management of a public enterprise the government should or should not be involved in. Some examples of decisions that the government should be involved in are:

- * Establishing the basic objectives (fundamental objectives, to reach profits or the diversification in a new area of exportation or the privatization of part of the activities of the public enterprise, etc.).
- * Appointing the managing director and the members of the board of directors.
- * Evaluating performance.
- * Rewarding or penalizing the managing director for his/her performance.
- * Reviewing financial decisions that affect public funds, (for example, requests for government equity, debt with government warranty, reinvestment of profits versus payment of dividends).

⁷This section includes extracts from: Shirley, Mary; *The Reform of State-Owned Enterprises*; The World Bank, 1989

- * Conducting long-range planning to achieve coordination across units, (for example, determining industrial, energy or infrastructure policy, developing sector plans, or deciding to leave activities which should be addressed by the private sector).

- * If the public enterprise is a monopoly, the government should also regulate pricing decisions.

2.4.11 Privatization of state owned enterprises

In developing countries like Mexico, privatization spans a broad range of concepts. Such as comprising the general reassignment of property rights from the state to the individual; contracting out the delivery of public services to the private sector (garbage collection, cleaning and maintenance of public buildings, etc.); and cutting back activities of the state to promote private initiatives. Privatization recently became a common feature in the public enterprise reform programs of developing countries for several reasons. First, there has been an increased interest in privatization of public enterprises in the developed world. Second, it is the sense in some countries that the public sector has become too big and that peripheral (non-essential) public enterprises are diverting public money and managers away from priority activities of the government.

Third is the hope that the privatization of public enterprises will lead to a more innovative administration that uses public resources more efficiently. Privatization is viewed as a way to reach efficiency, not only because non-viable private firms are more likely to have a lower survival rate than public enterprises, but also because the administrative deficiencies commonly found in the public sector are expected to be lower in the private sector. Some examples are slow decision making due to political bureaucratic requirements, a preoccupation with the process instead of with the results, and an administrative environment in which the systems of rewards are only remotely related with performance.

A fourth reason is that in some countries it is important to consider the increasing of popular participation in the ownership of national assets. Fifth, some governments see the privatization process as a way to raise revenues. Sixth, privatization is important as a way to reduce fiscal pressure by getting rid of unprofitable public enterprise through sale or liquidation.

Although post-privatization performance of enterprises was not investigated during the course of research for this thesis, there are some encouraging experiences. Performance evaluations should take into account that the ultimate success of privatization efforts are judged not in terms of the sale or contract itself, or the price paid to the government, or even the survival or expansion of the enterprise but, rather, in terms of any positive net benefits to society. Since privatization is a relatively new and experimental activity for most

governments of developing countries and since underdeveloped economies may not have all the necessary conditions for success, these benefits are by no means assured. Preliminary reviews of experiences suggest the following ways to maximize the net benefits.

First, privatization should be viewed not as an end in itself, but as one of many means to help governments increase the efficiency of both government and business. Thus, privatization should not be pursued in isolation but as part of a broader program of reforms designed, among other things, to promote a better allocation of resources, encourage competition, foster a supportive environment for entrepreneurial development, develop the capital market, etc.

Second, Privatization programs need to be tailored to individual country circumstances.

Third, The problem of weak capital markets has been a key constraint on privatization. The financial prerequisites for privatization need to be assessed more carefully and be a part of the design of programs of sale.

Fourth, the design of a strategy for privatization and the classification of public enterprises to be privatized, leased, and so on, have been useful in clarifying the government's objectives and approach.

Fifth, The administrative capacity of governments involved in privatization requires special attention. There is a danger that the government may make a poor bargain. Managing a privatization program is a complex matter. Government officials seldom have needed skills or administrative skills required to handle such programs.

A central administrative unit is needed to oversee the privatization process and keep decision-makers informed. The unit requires special skills and often will need to hire experts from law firms, consulting companies, and banks. Moreover, some experiences has shown that ministries are typically reluctant to pursue vigorously the privatization of their subordinate enterprises. With a central unit, responsibility for privatization can be vested in a group with an interest in its success. Such a body can do the analytical work necessary to decide between liquidation and privatization and to make economically rational choices about the terms of the sale, the subsequent privileges for buyers, and so on.

Sixth, a related issue is the transparency of the issues and information surrounding the process of privatization. Experiences show that there will be a debate on the merits of privatization, regardless of whether information is hoarded or released. The challenge is to make the debate an informed one.

Seventh, the immediately visible social costs of privatization can be severe in the short run, while the growth of benefits and increases in employment and investment do not appear until later.

Finally, privatization programs should include a realistic assessment of costs and a feasible financial plan.

2.4.12 Implementing reforms toward privatization

The government-owned sector in developing countries tends to be large, diverse, and often in a state of illiquidity or on the verge of collapse. While approaches have to fit individual circumstance, experience has shown that the more successful reforms have begun by eliminating major price distortions (including interest and exchange rates), halting most new investments, and cutting off most subsidies. These actions clarify the enterprises' true situation, and therefore facilitates decision making.

Another step is to identify key enterprises in terms of revenue generation or budget drain, employment, and linkages to the rest of the economy, which need rehabilitation and are likely to remain in the state sector for some time. In most countries no more than ten or fifteen enterprises are in this group; typically they include electricity, water, post service and telecommunications, railroad companies, and some mining or industrial firms that cannot be privatized easily. The rehabilitation effort should focus first on meeting the emergency needs of these critical firms.

The remaining public enterprises should then begin to fend for themselves. Special privileges should be removed, state monopolies ended, and competition (with domestic and foreign firms) encouraged, market pricing permitted, and managers given flexibility to react to market signals. Enterprises that cannot compete should be liquidated, sold or at least permitted to wither away. Some viable enterprises which cannot compete because years of public operation have left them de-capitalized or without proper management, may need financial and technical assistance which could come from the public or the private sector.

2.4.13 Implementing legal changes

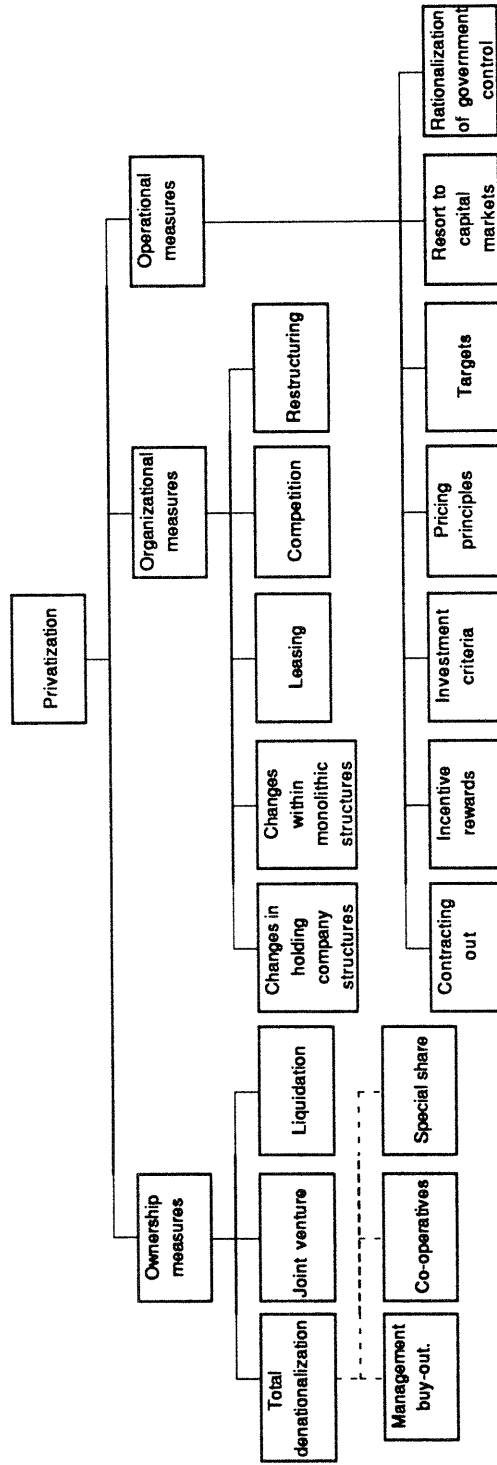
A systematic assessment of the existing legal framework is necessary to have a sound basis for proposing reforms. There is also a common tendency to underestimate the time required to enact changes, and this has become a major bottleneck in some countries. Often governments agree to reforms in principle but hesitate to take more visible step of amending a law.

Chapter 3 TECHNIQUES AND METHODS OF PRIVATIZATION

3.1 INTRODUCTION

There is a wide range of possibilities with regard to techniques and methods of privatization with denationalization on one extreme and market discipline on the other (understanding that by the term denationalization I mean the transferring of the ownership of a public enterprise to private hands). Figure 4 contains a diagram which illustrates the range of privatization options. These options are described in section 3.2 which follows.

Figure 4. RANGE OF POSSIBILITIES IN PRIVATIZATION.



Source: Ramanadham V.V., "Privatization in Developing Countries"; Editorial Routledge, London 1988; p.5

3.2 PRIVATIZATION METHODS AND TECHNIQUES

3.2.1 Ownership privatization

This is the most obvious form of privatization. Here we see some different cases including: 1) the sale of the enterprise in a complete manner, 2) the introduction of private capital to a public enterprise through the sale of some percentage of equity by the government, or 3) the introduction of private capital during the course of a company's expansion. The larger the private equity proportion, the greater the degree of privatization.

3.2.1.1 Total denationalization

A special version of denationalization is called a *management buy-out*. This represents the sale of the assets to the employees who, with appropriate funds, take control of ownership. Another form is a *cooperative*, if the legal features of a cooperative society are satisfied for the organization that bought the enterprise or the assets. A cooperative is created when the consumers are also the owners of the enterprise and share in the profit or losses of the company.

In the case of the term "*special share*" we can say that this means that the government is allowed to maintain a participation in the privatized enterprise under the condition that the government is not

going to actively participate in the direction or the administration of the company, except in certain extreme circumstances, for example when an undesirable amount of the company's shares may be manipulated by an individual or organization, creating a monopoly or oligopoly. This form of privatization can be a helpful mechanism in sectors where some public vigilance is necessary and where protection from the government is a vital consideration for the interest of the nation.

3.2.1.2 Liquidation

The liquidation of a company by sale to the public, as a form of privatization, represents the most independent form of ownership for the private sector (new owner). This can be accomplished by the sale of the company's assets to someone who is going to use the assets in the same activity or to move the assets to another activity which may be more profitable. This measure is ordinarily an answer to the financial failure of the enterprise.

3.2.2 Organizational privatization

3.2.2.1 Changes in Holding Company Structures

The holding structure in a public enterprise can be reviewed and changed so that the government limits its control and intervention in the apex level, leaving the operation of the company to private individuals or companies who need to function within market disciplines.

3.2.2.2 Changes Within Monolithic Structures

A monolithic organization can be subject to two forms of organizational change. On the one hand, the company can be separated into smaller units without losing the firm's economies of scale, allowing these units to perform with a more competitive character. On the other hand, the principle product lines of the company or the regional operations can be converted into independent companies allowing improvements in the operation of the company with the benefit of a smaller centralized administration.

3.2.2.3 Leasing

A public enterprise can adopt the method of leasing out a large percentage of its assets, by putting the use of the assets out to the highest bidder, allowing the government to maintain ownership of

the property while receiving profits according to the agreement reached with the lessee. Leasing can improve the efficiency of a government department while reducing operating costs. This method also can be used in a gradual way, partially or totally, as a step toward ownership privatization.

3.2.2.4 Competition

The promotion of competition is of extreme importance to secure the desired privatization results of improved efficiency, reduced costs and therefore, a reduction in prices. This can be achieved in different ways, for example: 1) by transforming big public enterprises into smaller units which have the opportunity to compete one with another; 2) establishing conditions that permit internal competition inside a public organization; and 3) by deregulating the barriers to entry in the public sector and allowing for the easy access of competition. This modification will make it possible for private units to be established in areas where only public enterprises operated before. Under these natural market forces the most efficient companies in any sector will attract the preference of the consumers by assuming that the conditions of competition are fair.

Here the majority of the economists agree on the important role competitive markets play to induce enterprises to operate efficiently. The theory of competitive markets shows that under normal market conditions the efficiency of production and the allocation of resources are reached.

Allocative efficiency can be defined as the supply of a variety of goods and services that satisfy the preference of the consumer while reflecting the cost of production of the goods. Efficiency of production is the supply of goods and services at a minimal cost of production.

Economic constraints to the introduction of competition can usually be divided in three categories. The first and probably the most important is natural monopoly we find this where the technology of production in industry means that production is carried out more efficiently by a single firm. The networks for distribution of gas, electricity and water are relevant examples. In the case of many natural monopolies, a potential competitor will face significant costs (that can not be recuperated) to enter the market. In these circumstances, the possibility of competitors entering the market is sufficiently remote, even when the entrance is not statutorily prohibited and the threat of entry of new competitors will not be sufficient to induce the existing operator of the monopoly to operate efficiently. In other words a natural monopoly is incontestable.

The second category of constraints is present where diversion exists between the public and private interest where competitive markets may not achieve the public good. These can be present where there exists important benefits or costs, which are external to the private decision maker. Environmental pollution and traffic congestion are two relevant examples.

The third category of constraint is common to every market. The private interest of any company is always better served by restraining the competition in its market. Competition can be restrained through the collusion of rival firms, the take-over of a company's competitors or any other means that discourages companies from entering the marketplace. These forms of restraint are destructive to competition instead of productive.

The existence of a natural monopoly, where this is associated with high entry costs, is a powerful constraint on the introduction of the competition. Typically however, a natural monopoly is characteristic of only a part of the activities of a public enterprise. The electricity supply industry provides a good example. The distribution of power has obvious characteristics of natural monopoly; however, this is far less clearly the case for the production of power, while the sale and maintenance of electric appliances is clearly a competitive activity. It is always recommended that whenever possible, to attempt to separate natural monopolies from potentially competitive activities.

3.2.2.5 Restructuring

In the case of certain public enterprises, restructuring can be a desirable step toward market discipline. This restructuring can take one of two forms. One form is the financial restructuring by permitting the access of private capital. The other form is a basic restructuring of the functions of large public companies so that these functions are confined to a more homogeneous segment of

commercial activities. The other activities can be left to other investors or these remaining functions can be sold in an effort to strengthen government funds to promote activities of governmental interest such as small scale industry, mineral development, etc.

3.2.3 Operational measures towards privatization

These are the measures of privatization which are less spectacular, but not less important. In some economies these measures could constitute a first step toward eventual denationalization and in other cases these measures could be all the necessary or desirable reforms required for a long period of time.

3.2.3.1 Contracting out

Contracting out involves the decision of an enterprise to acquire an input from the market, instead of producing it from within itself. With this process it is possible to derive benefits of scale, because the outside provider will produce the input in a more economic manner, leaving only the in-house provision of those products which are more economically produced than purchased outside. This process benefits not only the firm, but the final consumer. By reducing the cost of production, savings can be passed onto the consumer in the form of lower prices.

3.2.3.2 Incentive Rewards

This is a common and fruitful practice in the private sector that can be adapted to the public sector, not only to motivate the blue collar workers, which is the most common use, but also to motivate the white collar employees with compensation for producing an efficient and motivated administration. When these incentives are adapted we can achieve a "maximizing" attitude that can be measured not only in terms of profits, or in terms of production, but also in unit costs. There are good examples in some countries with respect to the performance of these ideas in practice.⁸

3.2.3.3 Investment Criteria

Three measures that contain the essence of privatization are investment criteria, pricing principles, and target setting. Because public projects are not all non-commercial or low-profit , it is important to adopt proper investment criteria, trying to keep as close as possible to market discipline. In addition, more attention needs to be paid to capital expenditures because in many cases there is the tendency to overextend these expenditures due to the relatively easy money that comes from the government.

⁸Bennett, A.M.H.; *Paper on Evaluation in the Thematic Issue*; ICPE Journal of Public Enterprise, 1988

3.2.3.4 Pricing Principles

In reference to pricing principles as a step towards privatization, we can say that in a competitive industry, prices tend over time to settle at a level which assures self-financing. We know that not every activity in the public sector approximates such ideal conditions of market discipline, but to strive toward this measure will be a healthy goal. Most public enterprises should operate under this measure in the long run, or else they will invite the creation of a monopoly, because pricing policies will not permit competition in the sector.

3.2.3.5 Target-Setting

It is very important to define the goals that every public enterprise is trying to reach, in a realistic manner, in order to obtain the best possible outcomes from the use of resources vested in them.⁹

Target-setting acts like competitive market forces, putting pressures on managers that market discipline otherwise does. In many cases, the absence of objectives agreed to between the government and the enterprise, is the largest single circumstance that lets poor performance persist in state owned companies. If these approaches are closely followed, some similarity could develop between private and public sector investment, creating a more natural transition to

⁹Reference may be made to "Target-Setting" followed in the U.K. and the technique of "Contract de Programme" followed by France.

privatization of an enterprise that does not justify direct participation by the government.

3.2.3.6 Resort to capital markets

Another measure that significantly brings a public enterprise towards a market discipline, is to insist that it should go to the capital markets for funding. Obviously, it can only attract funds if the investors feel that the purpose of the project is worthwhile. At the same time, the credibility of the project's management is an important factor. With the exception of public projects which are non-commercial due to the social benefits that they pursue, there is no reason why this criteria can not be introduced in the public sector to test the viability of projects.

3.2.3.7 Rationalization of government control

At this point we can say that the more expertise and comprehension of the investment criteria and the objectives that the public enterprise tries to reach, the less will be needed for constant control from the government. Another step toward privatization, such as managerial autonomy, a characteristic of the private sector, can be adapted for public enterprise managers if the system of government control is adequately reviewed.¹⁰

¹⁰Committee of Public Undertakings; *Accountability and Autonomy of Public Undertakings*; Report # 32; New Delhi, 1987

3.3 PROBLEMS OF PRIVATIZATION

3.3.1 Social issues

Public enterprises are often expected to pursue social objectives, which can range from subsidizing particular consumer groups, assisting certain regions, and creating or maintaining employment. Thus, in addition to economic and financial performance, consideration must be given to the public enterprise sector's performance in fulfilling "non-economic" objectives.

Not only in Mexico, but also in many developing countries, the public enterprise sector is seen as an important instrument to promote income redistribution, even though economic theory would suggest that distributional objectives should be pursued through the use of the fiscal system. The public enterprise sector, therefore, is frequently used to create employment, to assist employees through the payment of higher wages (or benefits), and to benefit consumers, by subsidizing the price of public enterprise products.

The more significant issues relating to the social dimensions of the problem are as follows:

- Some public enterprises are viewed in Mexico as symbols of the process of building the nation [i.e. *Petróleos Mexicanos*, PEMEX (State-owned oil monopoly)].

- In the Mexican society, the social pressure for the majority of the people is not towards less government, but towards more efficient government and a far larger coverage of welfare measures, (those being defined in an entirely different way from those in developed countries) [i.e. Comisión Federal de Electricidad, CFE, (State-owned electricity monopoly)].
- There is a serious concern for the loss of employment and for the lack of unemployment insurance.
- Middle-level management of public enterprises and, to some extent the bureaucracy itself, are also important forces in resisting efforts towards privatization.

3.3.2 Macro-economic aspects

There is a large degree of consensus that competition, particularly in the domestic arena, should be encouraged. However, a mere transfer of ownership of a public enterprise doesn't necessarily ensure this. The track record of the private sector shows that competitive forces cannot, as a matter of routine, be assumed.

- In the macro-economic environment based on comprehensive planning, the distinction between public enterprises and the private corporate sector appears very thin. The entry conditions are restricted even in the private sector.

Also the price environment is often controlled in many important activities. It is only in the consumer-goods sector that some competition in the private sector can be perceived. The overall regulatory framework makes the operating environment of the private sector quite close to that of the public sector.

- In terms of skilled manpower, financial practices, and even overall efficiency, data have not formally established the perceivable superiority of private enterprises over public enterprises, but in Mexico there exists a popular tendency to think this.
- In the past (before 1982) socio-economic transformation was not desired widely and privatization was viewed purely as a means to achieve predetermined ends. Now, we can see that in the last two administrations (De la Madrid, 82-88 and Salinas, 88-94) this tendency has been changing. Still the allocative aspects of investment continue (in some important measure) to be determined by public policy rather than by market forces. In such a situation, the scope for allocative efficiency through privatization is restricted.

3.3.3 Financial issues

An essential prerequisite for privatization is the capacity of the private sector, in particular capital markets, to absorb the divestiture

of ownership from the public sector. Some financial problems relating to this issue are as follows:

- The participation in capital markets is highly skewed in favor of select urban centers and in favor of large holdings owned by a small number of people.
- Most of the trading in stocks takes place in selected centers. There is a large presence of public financial institutions in the equity markets.
- In the recent past, before the privatization of the nationalized Mexican bank (1991), the private corporate sector itself had a large dependence on finances from public financial institutions, in the present it is changing slowly.

3.3.4 Regulation issues

In respect to activities of public utilities or potential monopolies, the prospects for privatization should take into account several regulatory issues. To the extent that economic change is attempted through structural transformation, allocative efficiency becomes an important aspect of public policy.

3.3.5 Legal issues

There are some considerations in the Mexican context provided by its Constitution.¹¹ The limitations imposed on public enterprises by such legal provisions cannot be easily removed by mere change of ownership (i.e. the privatization of Mexican banks in 1991). Also the protection in law that the workers have originally acquired may have to be continued even after a change in ownership, resulting in a reduction in the potential economic benefits of privatization. [i.e. in the privatization of Teléfonos de México, TELMEX (Telecommunication company)].

¹¹Particular information regarding the Mexican Regulatory Framework is described in Section 6.2, "Structure of the Regulatory Framework".

PART II

Chapter 4. PRIVATIZATION'S ROLE IN THE MEXICAN ECONOMY AND THE DEVELOPMENT OF ITS PUBLIC INFRASTRUCTURE

4.1 INTRODUCTION

This chapter describes the opportunities for the private sector to participate in the construction of public infrastructure in Mexico in the coming years. These investments, which depend on the participation of both the domestic and foreign private sector, are essential to achieving continued economic growth.

4.2 BASIC PROFILE OF MEXICO¹²

This section presents a basic profile of Mexico and describes the key geographic, demographic and socio-economic features necessary to understand the current potential in developing its basic public infrastructure.

Mexico is the eleventh largest country in the world with a population of 85 million people. A quarter of Mexico's population is concentrated in the Federal District (Mexico City). Other large cities, with more than a million inhabitants, include Monterrey, Guadalajara, Puebla, and León. Mexico's economy is the world's fourteenth largest.

In its recent history, Mexico's growth permitted the building of a public infrastructure on a par with world standards. Nonetheless, population growth and the hope of reaching new levels of economic development have created the need to increase and modernize this public infrastructure in order to offer the Mexican people the services they require while supporting the country's economic growth.

¹²The information provided in this section can be found in more detail in the *INEGI's Annual Reports* (Instituto Nacional de Estadística, Geografía e Informática).

4.2.1 Geographic features

Mexico's territory, which lies between the Pacific and Atlantic oceans, covers an area close to two million square kilometers. To the North, the country shares a 3,107 kilometers border with the United States, and to the South 1,122 kilometers with Guatemala and Belize. Furthermore, Mexico has almost 10,000 kilometers of coastline.

Figure 5

GEOGRAPHIC LOCATION AND MAIN CITIES IN MEXICO



- * Main border cities
- Main ports
- Main cities

Mexico's territory includes coastal plains, mountain ranges and plateaus, the later occupy 75 percent of the total area and have an average altitude of 2,000 meters above sea level. As a result, Mexico has four different types of climates ranging from very hot to mildly cold, and from humid to dry, with annual temperatures ranging between 10 and 25 degrees Celsius over most of the territory.

These geographic features have posed important challenges for the development of the country's basic public infrastructure. The territory's geography and size has stimulated the creation of a wide network of seaports and airports. Moreover, the nation's topography has required that the highway system run predominantly from North to South. The cumulative efforts of several generations have created a transportation network linking the nation's various regions and serving the needs of people and commerce.

4.2.2 Demographic features

Mexico's 85 million inhabitants rank it as the world's eleventh most populated country. Despite the decrease in its annual growth rate from 3.3 percent in the 1970s to 2 percent in the early 1990s, Mexico's population will reach close to 100 million by the year 2000.

Mexico is, without doubt, a young country. Approximately 40 percent of the population is under 15 years old, and some 80 percent is under 40 years old. As a result, only 25 million people (29.6 percent of the population) make up Mexico's labor force which increases by close to 500 thousand people per year.

Population growth coupled with increased economic activity has led to an increase in the number of medium-sized cities (those with populations between 100 thousand and 1 million). While in 1980 there were only 48 such cities, currently Mexico has 60.

4.2.3 Socio-economic features

Mexico is a Federal Republic, composed of 31 States and a Federal District. The capital of Mexico is Mexico City, historically the most important political, economic, commercial, financial and cultural center of the country.

Monterrey and Guadalajara are Mexico's next most important cities. In the North, Monterrey is known for its strong industrial and commercial development. In the West of the country, Guadalajara features a diversified industry as well as important agroindustrial businesses.

Along the Northern border, a strong industry has evolved, particularly in Tijuana, Ciudad Juárez, Nuevo Laredo and Matamoros. The oil industry, one of the world's largest, is concentrated along the Gulf of Mexico, mainly in the cities of Tampico, Coatzacoalcos, Poza Rica, and Ciudad del Carmen. Fishing and agricultural activities are also important in this area.

The Pacific Coast region boasts important tourist, agricultural, fishing and forestry industries. Activity in the center of Mexico is characterized by agriculture and cattle. Industrial areas have developed in central cities such as León, Torreón, Saltillo, Querétaro, Aguascalientes and San Luis Potosí.

Since 1988, annual per capita income in Mexico has increased yearly by 10 percent reaching US\$ 3,900 in 1992. Industrialization and urbanization are most prominent in three states (Nuevo León, Jalisco and the state of Mexico) and the Federal District, which together account for 50 percent of GDP and 39 percent of employment.

Agriculture and the services sector, which employ 54.5 percent of the country's labor force, generate only 24.4 percent of the Gross Domestic Product (GDP). In contrast, manufacturing, commerce and financial services, which employ only 28 percent of the labor force, account for 59 percent of the GDP.¹³

In conclusion, Mexico's history, geography, demography, and socio-economics, taken together with its current level of development, hold great potential for the country's future. That future, however, depends on increasing and modernizing the country's basic public infrastructure in the near future. It is estimated, that required investments will amount to US\$ 35 billion over the next 15 years.¹⁴ Therefore, one of Mexico's main challenges in the 1990s is to design the financial, legal and project-related mechanisms that will attract necessary investment in basic public infrastructure (transportation, telecommunications, water and sewer systems, and electric systems) as a fundamental step toward achieving improved levels of development.

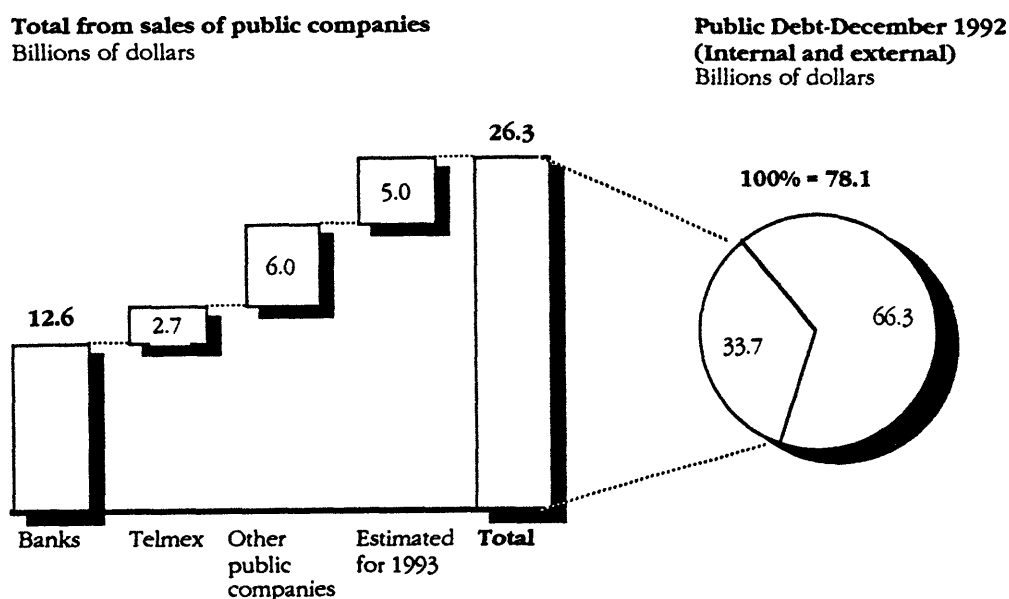
¹³Source: *Banco de México; OECD's Economic Surveys*. (Organization for Economic Cooperation and Development).

¹⁴*Opportunities for investment in Mexico's Basic Infrastructure*; SCT, 1993 (Secretaría de Comunicaciones y Transportes).

4.3 PRIVATIZING NON-STRATEGIC MEXICAN PUBLIC ENTERPRISES

A decisive element of Mexico's new economic strategy in the last two administrations (1982-88, 1988-94), consists of removing enterprises from the public sector, whether it is through sales, liquidation, mergers, or transfer to the States of the Republic or to diverse social sectors. Besides providing government revenues, the sale does away with the need to subsidize or invest in inefficient enterprises, which would otherwise drain the economy. Some of the biggest recent privatizations are those of Telmex and of the commercial banks, which generated government revenues of well over 15 billion US dollars (see Figure 6). The government recognizes that these revenues are non-recurring, and it has thus utilized these revenues mainly to amortize the domestic debt.

Figure 6 INCOME FROM PRIVATIZATION



Source: Banco de Mexico; Ministry of Treasury and Public Credit.

With the privatization of public enterprises, the Mexican State saw the need to establish a new regulatory framework, one that would enable buyers and investors to secure clear expectations. With the Telmex (Teléfonos de México) privatization, for example, rules were set in each different type of business, including long distance, basic telephony, and the cellular telephone business. In the case of commercial banks, government defined different shareholder participation schemes, which spread out capital contributions and proscribed certain relations between the financial and industrial sectors. The rules in this field are very similar to those in place in countries that boast highly sophisticated financial systems.

4.4 DEREGULATING KEY SECTORS IN THE MEXICAN ECONOMY

The former practice in the Mexican economy, of import substitution included protectionist measures that manifested themselves in highly concentrated business sectors, many of which were significantly inefficient. Today, Mexico has an open economy that encourage competition. This at times has forced certain enterprises to close down, while forcing others to shift their resources to different sectors where they can compete. Since Mexico's current economic policy fosters competition, consumers can benefit from competitive markets because national producers match the prices and profits of their principal trading partners.

The structural changes of the Mexican economy have included profound reforms such as: 1) the elimination of distortions that affected the efficient channeling of resources; 2) the creation of rules designed to improve the operation of the markets; and 3) the elimination of trade barriers that limited the mobility and flow of resources of important sectors, such as the agricultural sector. These reforms have redefined the government's role in the economy: the government has ceased to be the main participant (and the controlling force) in the economy. Instead, it has established certain conditions and instituted rules that will allow market forces to determine the course of affairs. Of course, it is very important that the government recognize market imperfections and attempts to rechannel major resources to the social sector.

The new economic strategic framework seeks to induce the private sector to assume a position of leadership in all investment arenas, including investment in public infrastructure, which traditionally fell under the area of the public sector. Important investments of this type have already been made: in highway roads, bridges and electricity. Other investments of this type are in progress: in the water sector, in the construction of ports, airports, railways and in telecommunications.

The impact of these structural changes, and the perception the markets have about them, can be measured by looking at foreign investments, both direct and through activity in the stock exchange. Foreign investments have risen dramatically over the last decade. Using 1991 dollars as a benchmark, foreign investments increased from 2.3 million dollars in 1985, to 22.6 million dollars in 1992.¹⁵ The resources derived from foreign investment are key to Mexico's economic development. Besides the United States, some of the principal investing nations are members of the European Community: United Kingdom, Switzerland, Germany, The Netherlands, and France, among others.

¹⁵Source: *Comisión Nacional de Inversión Extranjera*, CNIE (National Commission for Foreign Investment).

4.5 KEY ELEMENTS FOR THE DEVELOPMENT OF MEXICAN PUBLIC INFRASTRUCTURE

Public infrastructure serves both as the basis and prime mover of economic development. It plays much the same role as capital investment in a private company. Sufficient public infrastructure provides the starting point for projects which lead to increased levels of productivity and efficiency. Consequently, when a country invests in public infrastructure, the resulting development, measured in terms of GDP per capita, grows more than proportionally to the invested amounts.

Time is a fundamental factor in planning and undertaking public infrastructure investments. Such investments logically precede other productive investments since infrastructure is a necessary condition and principal driver of economic development. Infrastructure as such does not necessarily promote wealth generation. Rather it is a catalyst which induces increased investments in productive assets.¹⁶

The U.S. and some newly industrialized countries present a clear example of how well-planned infrastructure investments have been key to promoting economic development. Mexico's 1991 per capita GDP was close to 68 percent of Korea's, almost 50 percent of Spain's and 16 percent of the United States'. Mexico's relative level of public infrastructure in relation to that of other countries reflects great

¹⁶See *Opportunities for Investment in Mexico's Basic Infrastructure*; SCT, 1993.

differences which indicate the potential for public infrastructure development in Mexico:

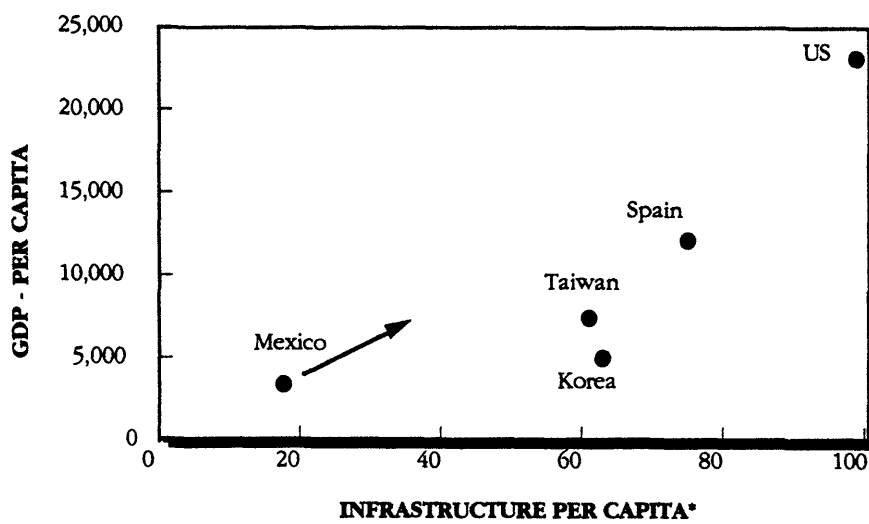
- The length of Mexican highways relative to the country's total surface, represents about 21 percent of Taiwan's and Korea's and 18 percent of Spain's and the United States'.
- The number of telephones per capita in Mexico amounts to 35 percent of those in Taiwan, 27 percent of those in Korea and 24 percent of those in Spain and the United States'.
- The consumption of electricity in Mexico, measured in kilowatt-hours per capita, reaches 35 percent of Taiwan's, 40 percent of Spain's and 12 percent of the United States'.

In sum, compared to these countries, Mexico's public infrastructure is proportionally less developed relative to its economic strength.

Consequently, it is critical to attract investments from the private sector that will assure the future of Mexico's public infrastructure in light of the country's expected growth. (see Figure 7)

Figure 7

**ECONOMIC GROWTH VS. DEVELOPMENT OF INFRASTRUCTURE (1991)
INTERNATIONAL COMPARISON**



* Index of railways (meters per km²), electricity (1,000 kWh per inhabitant), telecommunications (telephones/100 inhabitants); Index = 100 represents the higher index of infrastructure per capita

SOURCE: Organization for Economic Cooperation and Development (OECD).

To promote the required investment, Mexico has developed a series of mechanisms, based on the new economic partnership between the government and the private sector. The most important include:

1. Increased access for private investors.
2. New ways to conceptualize public infrastructure projects.
3. Innovative contracting and financial mechanisms.
4. Transparent privatization mechanisms.

Investment in basic infrastructure is no longer limited to the state as reflected in the first point. The need to promote domestic and foreign private investment in public infrastructure has led to three important changes in Mexican law: first, permitting the participation of Mexican private investors; second, facilitating access to foreign capital and technology; and third, updating the law to make it compatible with the current economic environment and to provide continuity and protection through clear rules for all players.

The new regulations are designed to function within the context of a free market, consistent with the opening of the economy and the strategy of attracting foreign resources. Moreover, these mechanisms specifically contemplate environmental protection, which itself creates the need for investment projects.

These fundamental changes in the Mexican economy and regulatory frameworks have produced the need to redefine infrastructure

projects, as implied by the second key element. This means re-conceptualizing public infrastructure projects by breaking them down into smaller, more focused tasks, which may include planning, construction, operation, billing, etc., and then identifying those with the greatest ability to supply the highest value added. In some cases, such projects will be financially sound, and therefore appeal to private investors. In other cases, however projects will offer primarily non-financial, social benefits, in which the government will continue to invest and actively participate in implementation and operation.

Consequently, project financing (the third element) has become a major challenge leading to innovative contracting and financial mechanisms. A stable economy, which provides clear expectations, is a necessary condition for attracting resources. All structural changes implemented since 1985 have allowed Mexico to meet this condition. Furthermore, the active participation of both domestic and foreign financial intermediaries is of key importance in order to:

- Even the distribution of project-pay backs.
- Minimize financial risks through diversification.
- Profit from intermediaries' experiences in financing similar projects.

The last key element refers to the processes and mechanisms designed to foster private participation in Mexican infrastructure

projects and public enterprises. These have been conceived to ensure a transparent, non-discriminatory environment for all potential participants. In this context, the ground rules, the project specifications and the required qualifications for entities wishing to bid, have been established and clearly communicated well in advance of the bidding processes. Contracts have to be awarded to the highest bidder (in terms of value) simply and fairly. In sum, the key elements designed to promote private investment in public infrastructure include:

- Project portfolios to allow, on the one hand, private investors to realize financial gains and, on the other hand, the government to promote social welfare.
- Transparent, non-discriminatory regulatory framework.
- Project structuring to allow specialists to manage technological, operative and financial risks, through innovative contracting and financial mechanisms.

Moreover, the above strategy is trying to be consistent with the new role of the Mexican government as regulator in a free market economy, investing and otherwise participating in projects justified solely on social grounds.

Chapter 5 PUBLIC INFRASTRUCTURE SECTORS IN MEXICO

5.1 INTRODUCTION

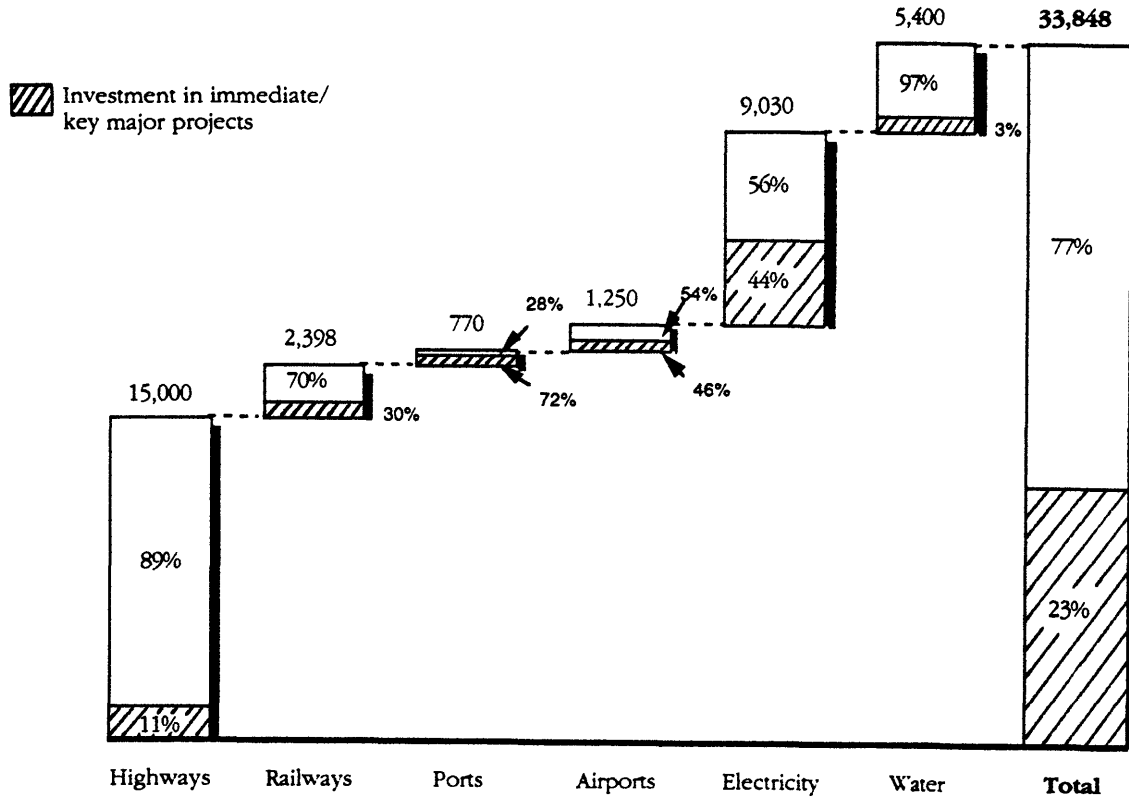
The continued success of Mexico's economy depends on increasing the participation of the private sector in developing the nation's public infrastructure (see Figure 8). This chapter describes some opportunities (for each infrastructure sector) for private investors, both domestic and foreign.

Moreover, this section provides a general overview of the most important sectors constituting Mexico's basic public infrastructure. Each sector is described in terms of its current conditions, recent experiences relative to investment of the private sector, projected future requirements and the opportunities available to private investors. The following sectors are described: roads and highways, railways, ports, airports, telecommunications, water, and electricity.

Figure 8

INVESTMENT IN PUBLIC INFRASTRUCTURE SYSTEMS 1993-2010

Million U.S. dollars.



SOURCE OF THE INFORMATION: National Commission for Foreign Investment, (CNIE).

The plans for modernizing, expanding and improving the efficiency of the public infrastructure and the establishment of its communication and transportation channels will require total investments of nearly US\$ 35 billion during the period 1993 to 2010. While a precise estimate is difficult, the share of private investment is expected to reach at least 60 percent.

5.2 PUBLIC INFRASTRUCTURE SECTORS: CURRENT STATE AND FUTURE PROSPECTS

5.2.1 Roads and highways

The road and highway network serves 98 percent of passengers and 60 percent of cargo transported in Mexico. During the last 6 years, demand for transportation, growing at 6 percent per year, has significantly outpaced general economic activity, which grew at less than 3 percent per year.

5.2.1.1 Existing infrastructure

The Mexican road and highway network, extending over 243 thousand kilometers, includes 155 thousand kilometers of dirt roads and 88 thousand kilometers of paved roads. Of the later, 46 thousand kilometers belong to the federal network and 42 thousand to state and rural networks. 16 thousand kilometers of the federal network make up the "priority network", which joins the main cities of the country, all states capitals and the sea and border ports.¹⁷

(see Figure 9)

¹⁷Source: Dirección General de Carreteras de la Secretaría de Comunicaciones y Transportes.

Figure 9 NATIONAL HIGHWAY NETWORK

- Major network length: 16,000 km.
- Concessioned highways: 4,500 km.
- Federal highways : 11,500 km.



Note: This network connects all the main cities and major ports of the country.

Source: Secretaría de Comunicaciones y Transportes. (SCT).

5.2.1.2 Private sector involvement to date

The Mexican highway construction program, awarded mostly to the private sector, is the largest in the world. From 1989 onwards, almost 2,800 kilometers of new, high specification, four-lane highways have been completed and are now fully operational. A further 1,800 kilometers are scheduled to be completed by the end of 1994.¹⁸

The investment required to construct these 4,600 kilometers of highways as well as seven (national and international) bridges

¹⁸Source: Caminos y Puentes Federales (Federal Toll Roads and Bridges).

amount to close to US\$ 12 billion, 90 percent of which has been provided by the private sector.¹⁹

The Mexican government, through the Ministry of Communications and Transportation (Secretaría de Comunicaciones y Transportes, SCT), grants to private investors the right to construct, operate and maintain toll-highways for periods of up to 30 years. SCT's role consists in providing the necessary specifications and construction norms, supervising construction progress, as well as operating and maintaining these highways.

Once SCT has defined a set of parameters including tariffs, traffic expectations, and others, contracts are awarded to those parties able to meet the given conditions within the shortest time frame. As more experience has been gained, the criteria to award contracts has become more sophisticated. Mechanisms have been designed to award contracts which result in lower tariffs for users. The financial sources for the above projects show an active role of the private sector, banks, financial intermediaries, foreign investors and the project's own cash flow. Moreover, private contractors have also profited from the program to upgrade and maintain the federal highway network. US\$ 500 million were invested in maintenance in 1992, and a similar amount in 1993.

5.2.1.3 Future prospects

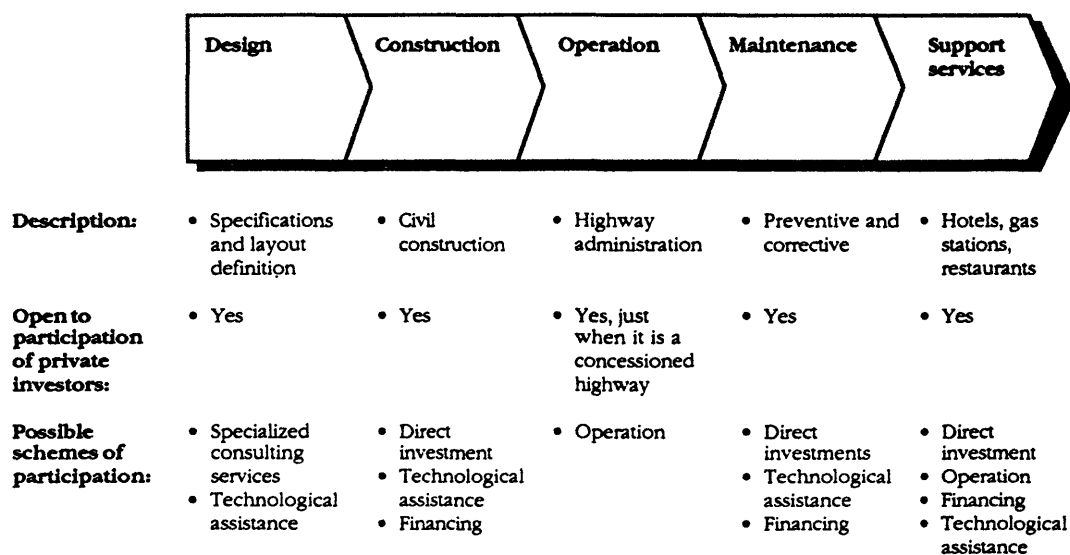
¹⁹See "*Mexico Privatization Needs Billions*"; Engineering News Record; ENR, March 23, 1992.

In order to sustain Mexico's expected economic growth, the highway construction program will continue into the foreseeable future, through the awarding of projects to the private sector. The programs to maintain the road and highway network will also continue.

Between 1995 and the year 2000, Mexico plans to build 6 thousand kilometers of new highways, requiring total investments amounting to US\$ 15 billion.²⁰ A large portion will be awarded to the private sector. Also, the mechanisms to allow private maintenance of the federal network are being finalized.

The activities related to highway construction have been divided into several business units to allow the identification of specific projects within each one (see figure 10).

Figure 10 BUSINESS UNITS IN THE HIGHWAY SYSTEM



SOURCE OF INFORMATION: Secretaría de Comunicaciones y Transportes (SCT).

²⁰See *Opportunities in the Mexican Highway system*, Secretaría de Comunicaciones y Transportes, (SCT), 1993.

While designing highway specifications is considered to be a government responsibility, private sector specialists are expected to perform the engineering-design tasks. The whole engineering-design function is open to private participation in order to optimize economic benefits in the construction phase. The private sector has already participated in construction and operation, and has utilized advanced technologies. Nevertheless, particularly in the operation of highways, Mexico seeks to learn from the knowledge and technologies of more experienced countries.

To upgrade and maintain the federal network investment in the order of US\$ 700 million are needed over the next 15 years. In order to attain these levels, new financing and organization mechanisms are being studied to involve the private sector.

Highway infrastructure in Mexico also offers important opportunities to create support infrastructure, in particular, supplementary and complementary services, including: service stations, tourist facilities, resting areas and so on. Required investments are estimated at around US\$ 72 million. Furthermore, significant investments are needed to link the highway network to other transportation facilities, (e.g., railways, ports and airports) and to improve the access to urban centers (e.g., peripheral rings, expansion of main roads and so on). The implementation of these projects should create new opportunities and thus lead to other projects, as well as to other investment strategies for the private sector.

5.2.2 Railways

5.2.2.1 Existing infrastructure

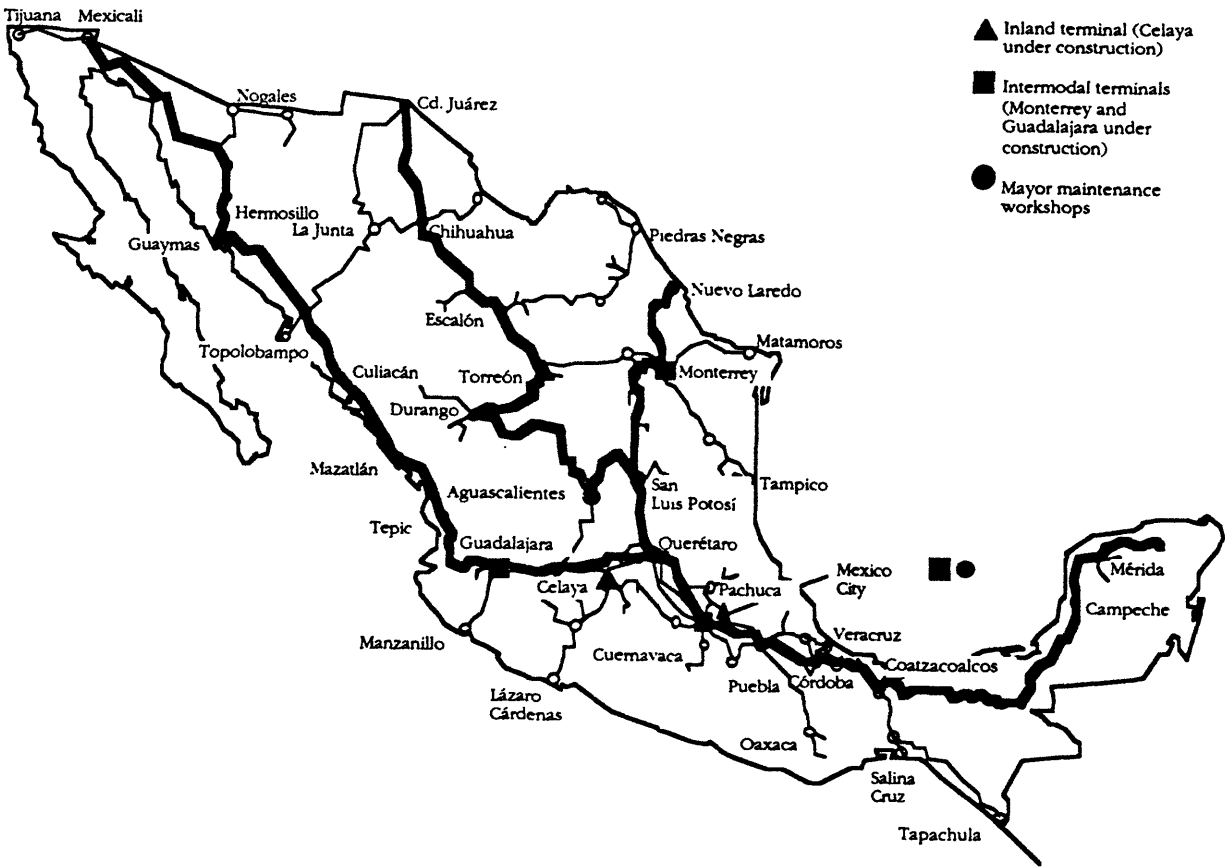
The Mexican railway system is managed by a decentralized entity, Ferrocarriles Nacionales de México (FNM), operating a 26 thousand kilometers network which joins the country's main cities. The network contains three main axes running from North to South: the first along the Pacific coast, the second through the center of the country, and the third, in the north-west. Furthermore, in the central-southern region another axis runs from Mexico city to the Yucatan Peninsula (see Figure 11). All these axes converge in Mexico City and are complemented by less important transversal railways.

The evolution of the railway system reveals an important opportunity for development. This is due primarily to the limited infrastructure investments made over the last four decades. Furthermore, the cargo-volume transported by train (48.7 million net tons) barely amounts to 13 percent of total cargo transported in Mexico. Taking into account the railway's relative cost advantage compared to highways, particularly over large distances, the attractiveness of modernizing this infrastructure becomes apparent. Finally, 50 percent of cargo transportation is heavily concentrated in three routes which represent only 9 percent of the network's extension: Mexico City-Veracruz, Mexico City-Nuevo Laredo and

Querétaro-Guadalajara-Manzanillo. Thus, with the plans of the government of providing other sectors of the network with an infrastructure equivalent to that available in the above routes should contribute to increasing significantly their share of cargo handling.

Figure 11

NATIONAL RAILWAY NETWORK

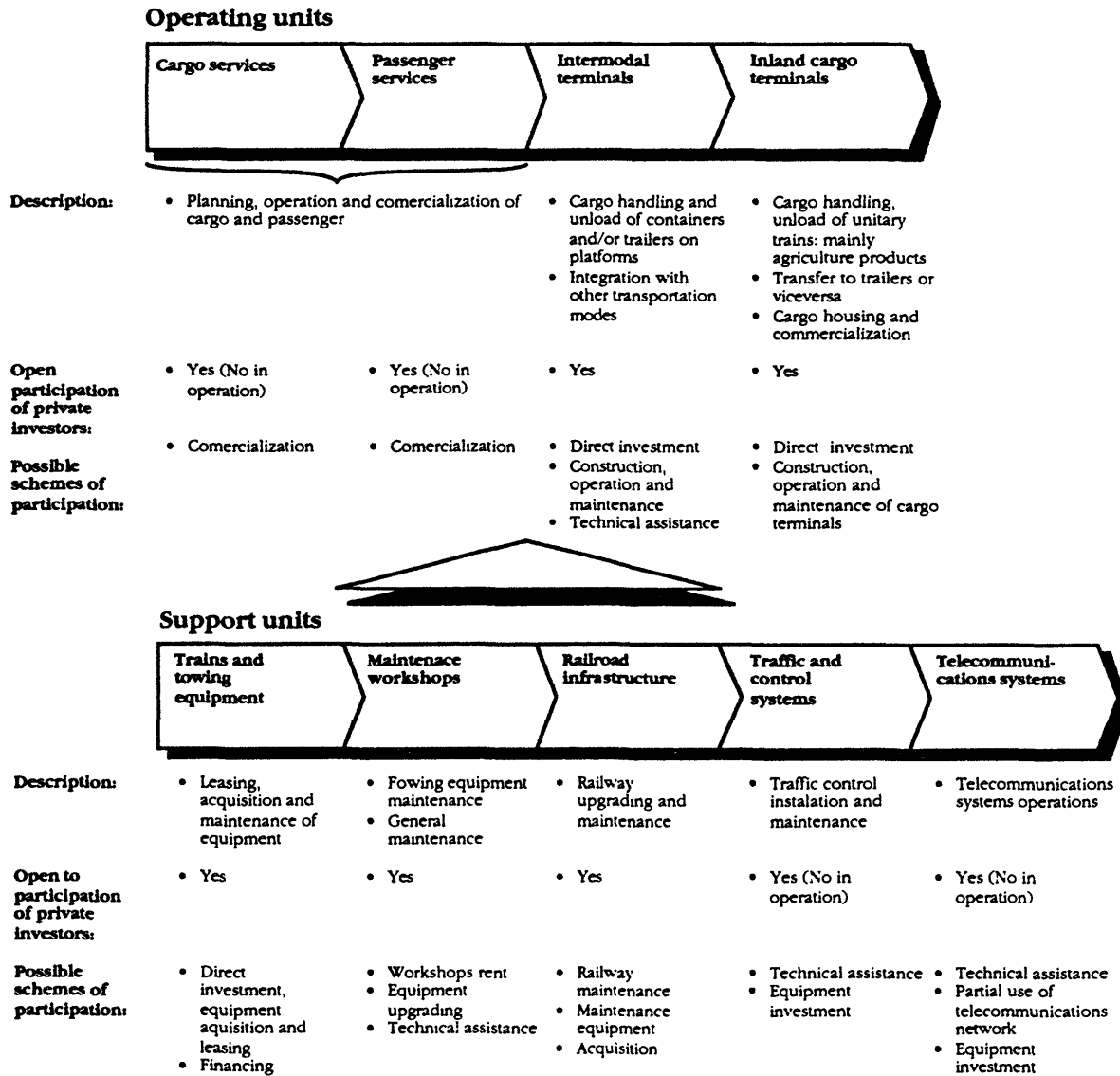


SOURCE: Ferrocarriles Nacionales de Mexico (FNM).

5.2.2.2 Private sector involvement to date

In recent years, private contractors have been invited to perform maintenance and rehabilitation work on close to 800 kilometers of railway, as well as on inter modal cargo terminals in order to expand the system's container handling capacity. Private investors have also participated in leasing and maintaining towing equipment and developing telecommunications systems. The operation of wagons is also allowed, and locomotives owned by FNM are leased to the private sector. (see Figure 12).

Figure 12 BUSINESS UNITS IN THE RAILWAY SYSTEM



SOURCE OF INFORMATION: Ferrocarriles Nacionales de Mexico (FNM).

5.2.2.3 Future prospects

To advance the modernization of this sector, investments amounting to nearly US\$ 2.3 billion will be required over the next 5 years.

Contributions by the private sector, both domestic and foreign, are expected to reach 50 percent across the different business units.²¹

In operative business units (see Figure 12) private investors may participate by commercializing cargo and passenger services, as well as in the construction and operation of intermodal terminals and inland cargo terminals. As far as support units are concerned, private investors may lease locomotives from FNM, own cargo-wagons, provide maintenance and technical support. The private sector is also allowed to collaborate in the development of traffic control systems and telecommunications.

Finally, the development of network tracts to integrate the railway system with the port network is being studied by the government in order to respond more effectively to expected growth. For example, the railway capacity currently reaching the Lázaro Cárdenas port is limited, even for today's cargo handling requirements. The port of Ensenada also requires the construction of new railroads. Moreover, projects are being evaluated to improve the efficiency of the cargo movement between the Pacific coast and the south east of the United States, for which the current railway and intermodal infrastructure has to be reinforced.

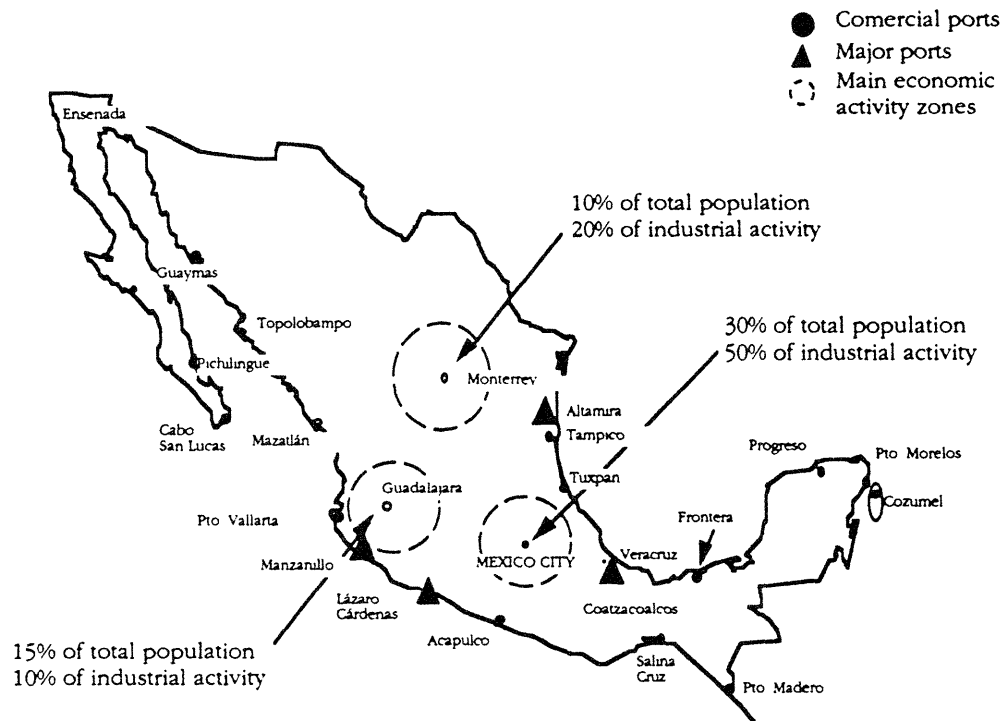
²¹See *Opportunities in the Mexican Railway System*; Secretaría de Comunicaciones y Transportes (SCT), 1993.

5.2.3 Ports

5.2.3.1 Existing infrastructure

Mexico's 10,000 kilometers of coastline have necessitated the country's vast port network which includes 22 commercial ports managed by a state-owned company (Puertos Mexicanos), as well as 18 oil terminals, 34 fishing terminals and 20 tourist marinas. This network handles about a third of Mexico's total cargo volume. The commercial ports of Manzanillo and Lázaro Cárdenas in the Pacific, and Altamira and Veracruz in the Gulf of Mexico, stand out since they handle 60 percent of total marine cargo.

Figure 13 MAJOR PORTS AND ECONOMIC ACTIVITIES ZONES



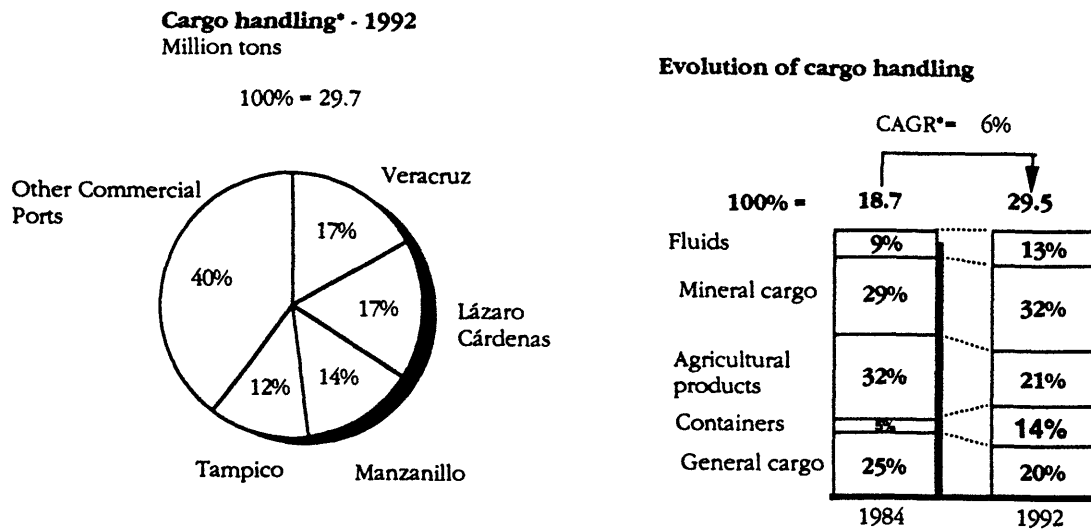
Source: Puertos Mexicanos.

These ports are important due to their proximity to large urban and industrial centers, their infrastructure and their relatively high productivity in handling cargo (see Figure 13). Although the handling of containers is close to achieving world-class standards, it is equally important to raise the efficiency in handling other cargo types (e.g., minerals, agricultural products, fluids and others).

Cargo handling grew on average 6 percent per year during the period 1984-1992, reaching almost 30 million tons in 1992. This activity occurred primarily in the ports mentioned above (see Figure 14).

Figure 14

CARGO HANDLING IN MAJOR PORTS AND EVOLUTION 1984-1992



CAGR= Compounded Annual Growth Rate.

* Just includes 22 ports administered by Puertos Mexicanos; does not include oil, salt and gypsum.

Source: Puertos Mexicanos.

Most cargo movements toward the country's interior occur through automotive transportation, since junctures with the railway system are insufficient. This area of public infrastructure thus offer a large growth potential for the private sector involvement. Similarly, container handling provides interesting investment opportunities, particularly with a strategic view toward increased internal trade.

5.2.3.2 Private sector involvement to date

The private sector has participated in port related activities through concessions granted by the Mexican government, mainly for constructing and operating 79 cargo terminals, 17 tourist marinas associated with real estate developments, and terminals for cruises. Until 1992 US\$ 1 billion have been invested, and further investments of US\$ 500 million are expected.²² A more intensive participation of private investors is expected following the publication of the new general port laws, which constitutes the legal framework for implementing the decentralization of port management activities, as well as promoting an active role for private investors. The new law establishes the possibility of the private sector participation in managing, operating and building ports, as well as providing complementary port services. Foreign investment in companies granted the above permits is allowed up to 49 percent, if the company constructs and operates terminals, and up to 100 percent if

²²See *Opportunities in the Mexican Port System*; Secretaría de Comunicaciones y Transportes (SCT), 1993.

it supplies port related services (see section 6.3.3 port's legal framework).

5.2.2.3 Future prospects

Following are the priorities which guide Mexico's short to medium term ports development according to Puertos Mexicanos:

1. Promote investment and operative efficiency within the new regulatory environment.
2. Modernize and expand the facilities of the most important ports.
3. Favor the movement of merchandise via containers.

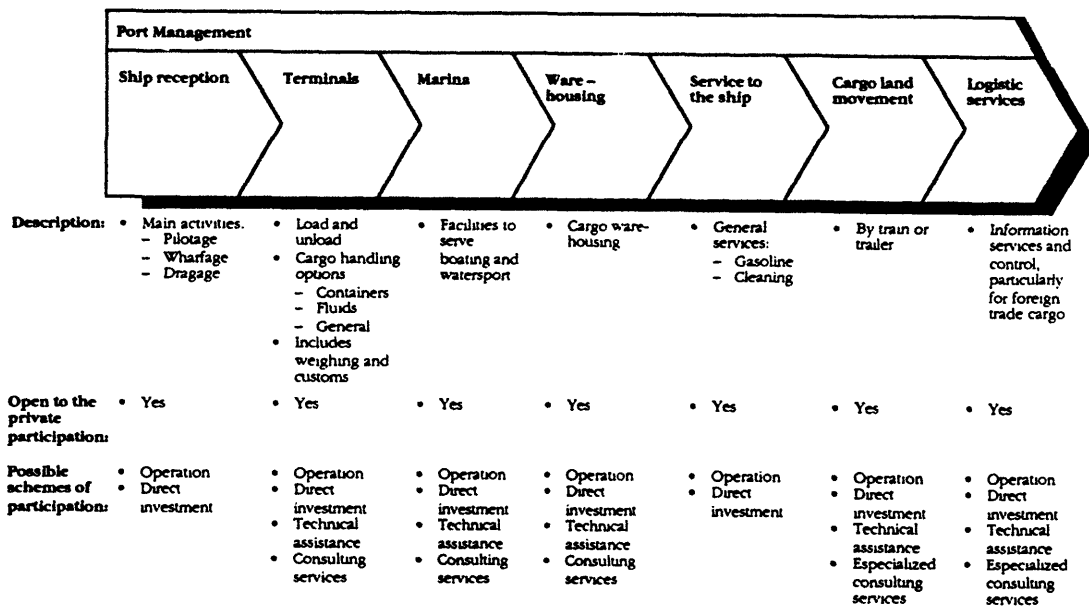
The investments forecasted in the port system over the coming years amount to more than US\$ 770 million. These funds will be applied predominantly in the four main ports (Manzanillo, Lázaro Cárdenas, Veracruz, and Altamira) which will require close to US\$ 560 million. Five other ports (Puerto Madero, Cozumel, Progreso, Ensenada, and Topolobampo) will require at least US\$ 210 million.²³

These investment are required in all business units comprising port-related activities and they correspond to three principal kind of projects (see Figure 15). The first includes investments for building or upgrading basic public infrastructure (access roads, urbanization, docks, and so on). A second group includes projects to expand or build specialized cargo terminals, warehouses, inter modal terminals and commercial and tourist facilities. The third group includes other

²³ Source: Puertos Mexicanos.

support projects for the efficient development of port activities (equipment, relocation of electrical lines, water treatment plants and so on).

Figure 15
BUSINESS UNITS IN THE PORT ACTIVITY



SOURCE OF INFORMATION: Puertos Mexicanos.

In order to facilitate investment in the port system, concession mechanisms will be implemented to provide access to cash flows generated by the use of a port's infrastructure. In this way other businesses may be expected to be awarded, such as terminals and other facilities. Each concession will be called "Integral Port Management" (Administración portuaria integral, API) and will be responsible for managing and supervising a port's operation.

5.2.4 Airports

5.2.4.1 Existing infrastructure

Mexico's airport network includes 62 airports and covers all cities with more than 500 thousand inhabitants.

The most important airports include those of Mexico City, Monterrey, Guadalajara and Tijuana, as well as those in tourist centers such as Puerto Vallarta, Acapulco and Cancun (see Figure 16). They account for most of the related activities and interconnect regions which generate some 56 percent of the nation's GDP.²⁴

Figure 16 NATIONAL AIRPORT NETWORK



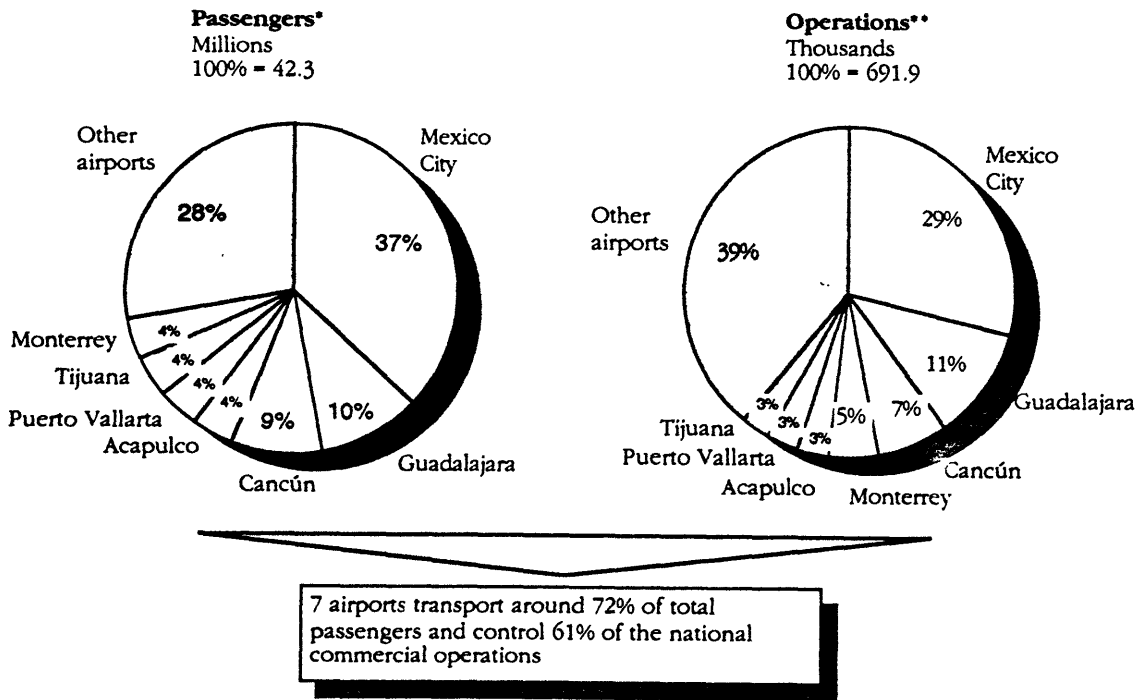
Source: Aeropuertos y servicios Auxiliares, (ASA).

²⁴ See *"La Economía Mexicana en Cifras"*; Nacional Financiera, 1993.

Demand for airport services has increased significantly during recent years, from 312 thousand operations in 1988 to 692 thousand in 1992, an annual increase of 22 percent. In terms of passengers, growth averaged 10 percent per year over the same period, reaching 42 million people by 1992. (see Figure 17)

Figure 17

ACTIVITY IN MAJOR AIRPORTS



* Includes only commercial aviation

** Includes commercial and regional aviation

Source: Aeropuertos y Servicios Auxiliares, (ASA).

As far as cargo is concerned, activities are still limited. Despite an annual growth rate of 7 percent over the same period, total cargo handled amounts to 0.1 percent of that transported via highways. This last indicator confirms the huge opportunity available to the private sector involvement to take advantage of existing airport infrastructure to increase handling, at least in the case of certain types of merchandise.

5.2.4.2 Private sector involvement to date

The private sector increased its share in the expansion of certain airport areas from 3 percent in 1989 to 38 percent by 1992, equivalent to an investment of more than US\$ 280 million.

Private sector projects include the expansion or construction of terminal buildings, hotels, parking lots, as well as the concessions granted in all airports to provide ground and platform transportation. The upward trend of private investment is expected to continue with positive results for the public, airlines and investors.²⁵

²⁵See *Opportunities in the Mexican Airport System*, Secretaría de Comunicaciones y Transportes (SCT), 1993.

5.2.4.3 Future prospects

Airport activity in Mexico is expected to continue to be highly concentrated in the seven main airports, thus leading to saturation problems within the next two years.

In the airport network, according to Aeropuertos y Servicios Auxiliares (ASA), the following investment stand out:

- 1. Build a complementary airport to the current one located in Mexico City, at an estimated cost of US\$ 300 million, and expand the capacity of the current airport by investing some US\$ 150 million.**

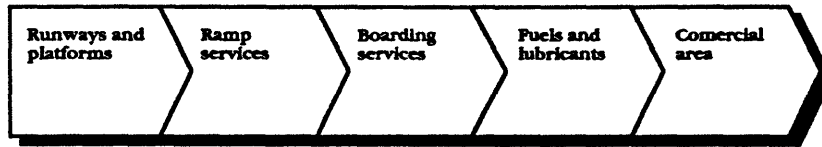
- 2. Expand ground and/or runway capacity in order to solve congestion problems in the other six most important airports through investments estimated to amount to US\$ 800 million.**

- 3. Modernize the infrastructure and promote more efficient general airport operations by delegating decision making to local airport authorities.**

The various business units comprising airport activities will require investments estimated at around US\$ 1.7 billion (see Figure 18).

Figure 18

BUSINESS UNITS IN THE AIRPORT SYSTEM



	Runways and platforms	Ramp services	Boarding services	Fuels and lubricants	Commercial area
Description:	<ul style="list-style-type: none"> Includes all the infrastructure related to runways, taxiing and platforms Includes the following services: <ul style="list-style-type: none"> - Landing - Right of use of platform of passengers 	<ul style="list-style-type: none"> Includes all services to planes: <ul style="list-style-type: none"> - Mobile stairs - Cargo - Water - Luggage 	<ul style="list-style-type: none"> Includes: <ul style="list-style-type: none"> - Gateways - Mobile Gateways 	<ul style="list-style-type: none"> Includes control and supply of fuel and lubricants 	<ul style="list-style-type: none"> Includes leasing or concessions of shopping areas: <ul style="list-style-type: none"> - Real estate - General aviation
Open to participation of private investors:	<ul style="list-style-type: none"> Yes in platforms, no in runways 	<ul style="list-style-type: none"> Yes 	<ul style="list-style-type: none"> Yes 	<ul style="list-style-type: none"> Yes 	<ul style="list-style-type: none"> Yes
Possible schemes of participation:	<ul style="list-style-type: none"> Operation Direct investment Technological assistance 	<ul style="list-style-type: none"> Operation Direct investment Technological assistance 	<ul style="list-style-type: none"> Operation Direct investment Technological assistance 	<ul style="list-style-type: none"> Operation Direct investment Technological assistance 	<ul style="list-style-type: none"> Operation Direct investment

* Does not include traffic control, since it is reserved to operation by the Federal Government

SOURCE OF INFORMATION: Aeropuertos y Servicios Auxiliares, (ASA).

Investments to upgrade the rest of the network are not included in the amounts mentioned above. Some of the more important among these are leveling off runways, maintaining taxiways, platforms and other zones of operation. These tasks are generally performed by Aeropuertos y Servicios Auxiliares (ASA), the state-owned entity in charge of airport operation and maintenance. ASA invested US\$ 35 million in these activities in 1992.

Air traffic control needs to be modernized and will also require investments. However, these investments will be made by the public sector due to their strategic nature. The participation schemes for the private sector in the construction of terminals are still being defined. Some regulatory aspects regarding antimonopoly laws and the search for maximum utilization of existing capacity are under study.

On a different front, studies have suggested the creation of local airport authorities in order to modernize and improve the efficiency of the network. Similarly, other options are being reviewed regarding the expansion or improvement of access ways, the utilization of better air traffic control and safety equipment, the renovation of terminal buildings and car garages, the expansion of runways and landing strips, and the construction or expansion of warehouses and depots. Although it is difficult to estimate the total investments required for the whole network, it is certain that the private sector will have many attractive opportunities for involvement.

5.2.5 Telecommunications

5.2.5.1 Existing infrastructure

Mexico lags behind in the development of its telecommunications network. Mexico has only 8 telephone lines per 100 inhabitants, placing it as the 70th (seventieth) country in the world in terms of telephone density. In light of this, the Mexican government decided to invite the participation of the private sector beginning in 1988. Its purpose was to promote the introduction of new services and cutting edge technologies. In line with this new policy, the government privatized the Mexican phone enterprise Teléfonos de México (Telmex). In addition, other private enterprises have provided various value-added services and have introduced a cellular telephone industry. The existing infrastructure in the areas of basic telephony is described below.

Basic telephone service

In 1990, 5.2 million lines were connected. Today, there are 7.4 million lines connected in Mexico, representing a sustained annual growth of 12 percent since the privatization. This places Telmex as the telephone company with the greatest growth in the world (see Figure 19). Telmex expects to continue this trend.

Figure 19

TELMEX NUMBER OF TELEPHONE LINES

Millions



* Estimated.

SOURCE: Teléfonos de México, (TELMEX)

This remarkable growth results from the country's recent economic development, and from finally meeting repressed demand which had accumulated a deficiency amounting to almost 700,000 telephone lines, in residential as well as commercial sectors.

At the same time, the number of telephone conferences has increased at an annual rate of 29 percent, reflecting greater use of the existing infrastructure.

5.2.5.2 Private sector involvement to date

In the area of Mexican telecommunications, three areas stand out where the private sector has participated in developing its infrastructure.²⁶

1. Teléfonos de México (Telmex)

Telmex was privatized during the Salinas' administration (1988-94). Although its control remains in Mexican hands, foreign investors participate with capital and technology. The Telmex privatization is a good illustration of a company's segmentation into its natural business areas. Even though Telmex was sold as an integrated company, governmental regulations were issued according to the most appropriate industrial structure in each area. For example, participation in long distance service will be permitted in the near future. Other sectors, such as cellular telephones and directory information, were opened up to competition once the privatization was completed. The concession and title agreement established specific rules with regard to prices and permissible investment levels. If the rules are not followed sanctions are imposed.

The new owners of Telmex pledged to invest US\$ 12.5 billion toward the modernization and growth of the enterprise. They also pledged to increase the number of telephone lines from 5.2 million to 7.4 million by the end of 1993, 8.2 million in 1994, and 9.6 million in 1995.

²⁶ Source: Telecomunicaciones de México, (Telecommunications of Mexico)

They also planned to achieve a density of 9 lines per 100 inhabitants by the end of 1993, 10 by 1994, and 11 by 1995. Finally, they vowed to replace 650,000 telephone lines that were obsolete, and to improve service quality.

In the Telmex scenario, it was the government that sold the control of the company, while the remaining shares were auctioned off in global financial markets in the United States, Europe, and Asia. Issuance of Telmex shares in the New York Stock Exchange has been the largest of any foreign company's in the United States.

2. Radio transmissions

In order to promote the development of telecommunication infrastructure, the Mexican government in 1990 awarded regional concessions to nine independent cellular phone enterprises, all competing with a Telmex subsidiary in each region. Less than two years after the concessions were awarded, the service already covers over 70 cities, and boasts over 270,000 users, exceeding expectations. To date, investments in this sector are estimated at US\$ 440 million. According to SCT, the expansion of the concession-holders' networks will make space for an additional 400,000 users by the end of 1994.

3. Other services

In addition, the Mexican government is promoting the participation of the private sector in many other areas where private participation is still incipient, including the provision of paging services, cable-TV, satellite networks, and value added services. Currently, there are 48 paging service concession licenses throughout the country, including one at the national level; 40 private enterprises operating value added services; 130 private cable-TV networks with over a million total subscribers; and 180 private VSAT-Technology networks with a total of 2,000 local stations.

5.2.5.3 Future prospects

The private sector can participate in five telecommunications services, contributing to the modernization and development of Mexico's infrastructure: 1) long distance service; 2) paging services; 3) value-added services; 4) cable-TV; and 5) VSAT- Technology satellite networks. The outlook for each of these business areas is presented below.²⁷

²⁷See *Opportunities in the Mexican Telecommunications system*; Secretaría de Comunicaciones y Transportes (SCT), 1993.

Long Distance

Until 1996, Telmex will continue to be the only public service long-distance carrier. In order to prepare itself to compete successfully, Telmex will modernize its microwave network, renovate the network it acquired from the government, and finish constructing its basic fiber-optics network and satellite communications stations with national links. In August 1994, new concessions and licenses in these same fields will be awarded to different private companies, which will be able to compete against Telmex starting in August 1996.

Paging

Currently, the Mexican government is in the process of granting concessions and licenses for 18 mobile radio communication networks with regional and local coverage and specialized fleets. This service promotes the efficient use of the radio electric spectrum, permitting various users to share frequencies with greater privacy and quality than that offered by private radio communication services. Due to its great value to productive activities, this area will also offer good opportunities for development in the short-term. The government is also in the process of regulating 43 concessions that will authorize the modernization and expansion of paging service operators. A concession for this service has already been

awarded at national level, and two similar licenses are currently being processed and reviewed.

Paging, which registers 22 million users globally, has enormous potential in Mexico, where there are currently only 70,000 subscribers. According with the promotion program that the SCT (Ministry of Communications and Transportation) is performing, it is expected that there will be 250,000 users by the end of 1994, and 500,000 by the year 2000.

Value-added services

This field is of particular importance given that it constitutes an input that directly influences enterprises' productivity and competitiveness. Because of this, the government has tried to establish a flexible regime with regard to both the granting of licenses and the reception of foreign investments. Currently, around forty enterprises operate in this sector, supplying data-processing services, electronic mail, money transfers, packet switching, video text, tele text, audio text, and video conferencing. There are many market opportunities, and a growing demand for such services in various areas of the country. The profitability of current suppliers may attract substantial investment from the private sector in the future.

Cable TV

The Mexican Television industry is highly developed. There are eight TV channels, six of which are private. These TV enterprises represent the producers of the most popular Spanish programs in the world. Nonetheless, Cable TV is in its beginning stages in Mexico. Expansion plans include an increase in the number of channels. The government has also granted licenses and concessions for high-resolution TV. According to SCT, it is estimated that the market potential for Cable TV in Mexico is five times the current installed capacity.

Satellite networks

By using Mexican satellites, owned and operated by the SCT, the private sector will be able to establish private networks, using VSAT technology.

5.2.6 Water

5.2.6.1 Existing infrastructure²⁸

The territorial distribution of water resources in the country is highly disproportionate. Almost 70 percent of the population lives in zones where water is scarce. In addition, regional distribution is uneven, as growing demand in certain areas is met at the expense of other localities. Basic services are concentrated in the urban sectors, and particularly in the largest cities. For these reasons, drinking water was available in 1989 to only 70 percent of the population, while drainage was available to only 49 percent of the population. Residual water treatment was available to even fewer segments of the population: less than 10 percent of residual waters were treated in 1989 before being diverted to rivers and other bodies of water. To solve these problems, the National Drinking Water and Water Treatment Program was created in 1990. Among its objectives, it seeks to increase the availability of drinking water and drainage by 3 million inhabitants per year, to treat all residual waters of domestic origin in urban centers, and to create self-sufficient operators in every city of more than 50,000 inhabitants.

5.2.6.2 Private sector involvement to date

The private sector has become more and more active in the development of infrastructure, particularly in the construction and

²⁸ Source: Comisión Nacional del Agua, CNA, (National Commission of water).

operation of residual water treatment plants. Over US\$ 400 million in private sector funds, both domestic and foreign, have already been invested in this field.

Under the current participation scheme, each municipality organizes public bidding processes for each project. Once the project is assigned, the private sector can participate by financing the project, by providing project engineering, or by operating the infrastructure for a set amount of time, and according to the tariffs set at the public bidding.

The private sector has participated in many other ways. In some cases, it has contracted services or specialized functions, such as the electromechanical maintenance of large pumping installations. In other cases, the private sector has obtained total concessions for the apportionment of water services, as was the case with the Tourist Center in the City of Cancun.

Finally, the private sector has been involved in the development of large hydraulic works, like water dams. A case in point is the construction of the Huites dam, located along the border of the States of Sonora and Sinaloa in the Northwest of the country. Around US \$ 550 million were invested in the Huites project.

5.2.6.3 Future prospects.

The opportunities for participation of the private sector in drinking water systems, in drainage systems, and in systems for the treatment of residual waters will require investments of about US\$ 5.4 billion over the next 18 years: ²⁹

1. Projects for the distribution and apportionment of water to large cities will require investment of US\$ 2 billion, including the following:
 - The fourth stage of the Cutzamala project, which will increase water distribution and supply capacity from 19 to 24 cubic meters per second in Mexico City. Estimated investment requirement: US\$ 250 million.
 - To increase the water distribution and supply capacity in the city of Guadalajara, a project has been instituted that will augment capacity to 5 cubic meters per second in the first stage. Estimated investment requirements: US\$ 240 million.
2. Projects to upgrade and expand the drainage network required in various cities throughout Mexico will require investments of US\$ 2.4 billion.
3. Projects for the collection and treatment of residual waters will consist of building treatment plants and oxidation lagoons in every city in Mexico and will require estimated investments of US\$ 1 billion.

²⁹ See *Opportunities in the Mexican Drinking Water and Sewage Systems*, 1993.

5.2.7 Electricity

5.2.7.1 Existing infrastructure³⁰

The Comisión Federal de Electricidad (CFE) is the state-owned company responsible for the generation, transmission and distribution of electric power in Mexico. Installed capacity currently stands at 27 GW after a 3.2 percent annual growth during 1987-1992. The transmission grid has lines totaling 65,000 kilometers. Of the installed capacity, generated by 33 plants, 30 percent is hydroelectric while 65 percent is based on carbon, gas, and combustible oil; the remainder is generated by nuclear and geothermic plants.

The transmission grid consists of three separate subsystems, all of which are interconnected. The largest one covers most of Mexico, while the two others provide energy to the Baja California and Yucatan peninsulas. Compared to other countries, the transmission grid is less dense, a reason why this area represents a high investment priority.

The distribution grid services 92 percent of the population. Two state-owned enterprises participate in the distribution of electricity: the CFE, defined above, and the Compañía de Luz y Fuerza del Centro,

³⁰Source: Comisión Federal de Electricidad, CFE, (Federal Commission of Electricity).

which services principally the urban areas of the Valley of Mexico and accounts for 25 percent of the total number of users.

The industrial and commercial sectors account for 54 percent of total energy demand, the largest demand by sector, followed by the residential sector, which account for 24 percent of total energy consumption.

5.2.7.2 Private sector involvement to date

The participation of the private sector in the development of the electric power infrastructure has increased dramatically in recent years. Moreover, the private sector has penetrated areas previously reserved for the public sector, such as construction of generation plants. There are 3,720 MW of additional generating capacity and several transmission projects currently being built with private sector participation. The private sector has also been involved in the construction of electric power generation plants, and high voltage lines.

Various approaches have been utilized to incorporate private investments. The majority of projects have consisted of turnkey contracts, awarded through international public auctions. Most contracts have included "Build-Lease-Transfer" financial mechanisms.

New modifications to the Law dealing with electric service allow private sector to participate in new areas of the development of this public sector. [see section 6.3.6 Electricity (the regulatory framework)].

5.2.7.3 Future prospects

In order to satisfy the growing demand for electric power, Mexico will need to increase its generation capacity by approximately 1,700 MW per year.³¹ It is estimated that in the period from 1993 to 2001, fifteen thousand MW will be installed (see Figure 20). This would require an investment of US\$ 9 billion. The private sector through Independent Power Producers will likely play an important role in these plans.

In the area of transmission, selective contracts for the layout of high voltage lines and for the construction of electric power generation plants will continue. Estimated requirements for the period 1994-2000 stand at 25,000 kilometers of high voltage lines, and 57,000 MVA of added power generation capacity. The required investments will be US\$ 1.5 billion and US\$ 1.4 billion, respectively.

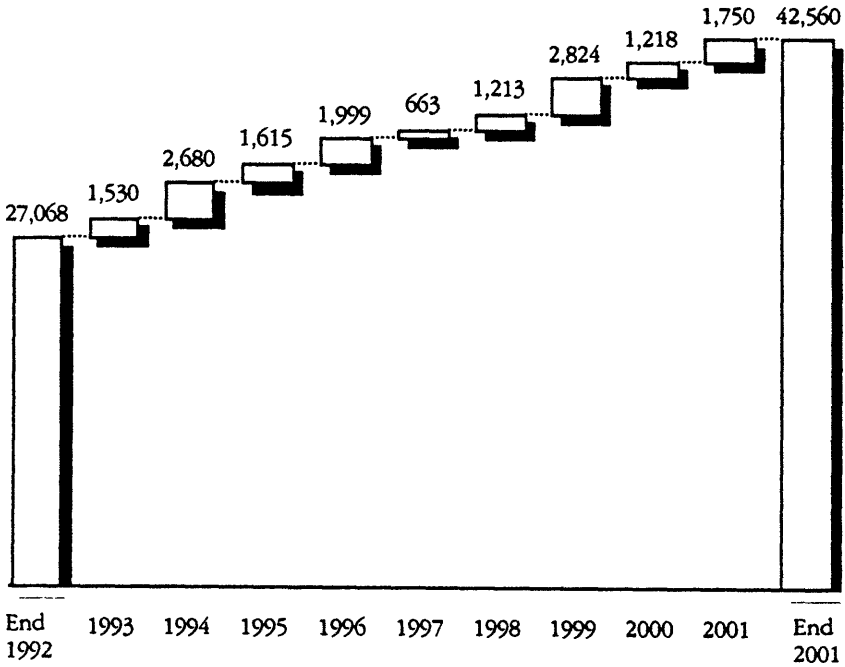
In the area of energy distribution, direct private investment will not be permitted, although the private sector will be able to participate in specific projects for the layout of networks, the construction of

³¹ See *Opportunities in the Mexican Electric System*, 1993.

low-tension power generation plants, and as a supplier of specialized equipment. In this case, it is estimated that US\$ 5 billion in investment funds will be required from 1994 to the year 2000.

Figure 20

INCREASE IN ANNUAL GENERATION CAPACITY 1993-2001
(MW)



SOURCE OF INFORMATION: Comisión Federal de Electricidad, (CFE).

Chapter 6 THE CURRENT REGULATORY FRAMEWORK

6.1 INTRODUCTION

Starting in 1988, the Salinas administration implemented a number of measures designed to attract private domestic and foreign investment in order to fulfill the required investment in public infrastructure. The government strengthened its regulatory functions to modernize and stimulate the economy through a legal framework that adequately protected investors.

Investment projects in public infrastructure are grouped under a set of laws that define rules for investment, operation and tariff setting. This set of laws has been gradually expanded to allow an increasing participation of the private sector, both domestic and foreign.

Due to the importance of the legal framework, this chapter describes the current regulations and the entities responsible for promoting projects and encouraging investment. Specific regulations are outlined for each sector.

6.2 STRUCTURE OF THE REGULATORY FRAMEWORK³²

Private sector investment in Mexican public infrastructure is governed by a two-tiered regulatory structure. First, infrastructure projects are regulated by federal laws. These include the Mexican Constitution, the Foreign Investment Law, which establishes ownership criteria for foreign private investors, and the Public Works Law, which specifies the requirements for infrastructure development and equipment supply.

In order to comply with the Constitution's article 134, the privatization of state-owned enterprises has been undertaken invariably by means of a public bidding process, in order to ensure the best sale conditions for the state benefit, regarding price, opportunity, and other circumstances.

Articles 25 and 28, of the Constitution establish the strategic areas and the guidelines for the state, jointly with the public and private sectors, to identify and organize the priority activities for development. Similarly, the organic law of the federal public administration, according to the Constitution's article 90, establishes the basis for the organization of the federal public administration.

³²This Section is largely extracted from: *El Proceso de Enajenación de Entidades Paraestatales*; Unidad de Desincorporación de Entidades Paraestatales de la Secretaría de Hacienda y Crédito Público, (SHCP), October 1992.

The federal law of state enterprises, defines the fundamental premises that regulate the relationships between the government and the public enterprises' sector, in a framework of more action autonomy.

The President of the Mexican Republic, promulgated the regulations for the federal law of public enterprises in January 26, 1990 in the Federation official daily ("Diario Oficial de la Federación"), with the objective of regulating this Law "regarding the constitution, organization, functioning, control, and extinction of state-owned enterprises".

The process of privatization of state-owned enterprises must be adjusted with foresight to the provisions of the Federation's Budget of Expenses, and in the cases of state-owned enterprises created by law or decree of Congress, the previous authorization of the latter would also be required.

It must be determined precisely that the process of privatization, in addition to being based on Laws and regulations mentioned before, is supported in the procedures established by the inter secretarial commission on Expenses- Financing, ("Comisión Intersecretarial de Gasto Financiamiento"). This commission is an entity integrated by the Ministries of the Treasury and Public Credit ("Secretaría de Hacienda y Crédito Público"), Social Development (" Secretaría de

Desarrollo Social"), General Accounting of the Federation ("Contraloría General de la Federación"), Commerce and Industrial Development ("Comercio y Fomento Industrial"), Work and Social Welfare ("Trabajo y Previsión Social"), as well as the Bank of Mexico ("Banco de México").

Second, the legal environment includes federal laws specific to each infrastructure system (see Figure 21 regarding the regulatory bodies for every infrastructure system), such as the General Communication and Transportation Law for highways, trains, ports, airports and telecommunications. In addition, each sector has its own particular rules.

The following laws are particularly important: the Organic Law for Railways, The Law of Ports, the Airfields and Civil Airports By-laws, and the Telecommunications By-laws. The electric system is governed by the Electric Power Public Utilities Law and By-Laws; the water system by the National Waters Law and the Federal Waters Rights Law. Each of these laws takes precedence over the Foreign Investment Law.

Figure 21

REGULATORY BODIES

System	Regulatory / Operating Body
Highways	<ul style="list-style-type: none">• Secretaría de Comunicaciones y Transportes, (SCT) / Dirección General de Carreteras.
Railways	<ul style="list-style-type: none">• Secretaría de Comunicaciones y Transportes (SCT) / Ferrocarriles Nacionales de Mexico (FNM).
Ports	<ul style="list-style-type: none">• Secretaría de Comunicaciones y Transportes, (SCT) / Puertos Mexicanos.
Airports	<ul style="list-style-type: none">• Secretaría de Comunicaciones y Transportes (SCT), / Aeropuertos y Servicios Auxiliares, (ASA).
Telecommunications	<ul style="list-style-type: none">• Secretaría de Comunicaciones y Transportes, (SCT).
Electricity	<ul style="list-style-type: none">• Secretaría de Energía, Minas e Industria Paraestatal, (SEMIP) / Comisión Federal de Electricidad, (CFE).
Potable water and sewage	<ul style="list-style-type: none">• Comisión Nacional del Agua, (CNA).

6.3 DESCRIPTION OF THE REGULATORY FRAMEWORK BY SECTOR

The following is a description of the current state of the regulatory framework for each sector,³³ including likely future modifications. It is important to note that independent of their expected investment share, all foreigners interested in investing in Mexico will have to establish a commercial company, according to existing laws.

6.3.1 Highways

The national highway system is regulated by the Secretaría de Comunicaciones y Transportes ("SCT", Ministry of Transportation and Communications). The private sector has opportunities to participate in the design, construction, operation, and maintenance of toll roads and federal highways.

As it concerns the private licenses, the SCT is the public body charged with the enforcement and implementation of pertinent legislation. As such, it selects projects and defines construction standards according to international established practices, including environmental concerns. SCT also provides right of way privileges, and supervises construction and maintenance efforts. The SCT also guarantees a minimum traffic volume and an annual growth of

³³This section is based on information from: Comisión Nacional para la Inversión Extranjera, CNIE, (National Commission for Foreign Investment).

traffic. If gross income is lower than projected, the licensee may collect tolls over a longer period of time. If gross income is higher than projected, the marginal income is shared with the Federal Government. As mentioned, initial toll rates and the duration of the license are the determining variables of the bidding process. Toll rates can be adjusted for inflation and they constitute the source of payment for the investment.

This regulatory framework can be applied to the different business units in the highway system, as shown in Figure 22. Each business unit offers investment opportunities to the private sector.

Figure 22

SITUATION OF THE REGULATORY FRAMEWORK IN THE HIGHWAY SYSTEM

System	Business Unit	Access to private participation		Law	Comments
		Current	Expected		
Highways	• Design	●	●	• Communications Law/ Foreign Investment Law	• Foreign investment can participate with 49% without the special permit from CNIE* and up to 100% with the permit and by detaining the concession from SCT
	• Construction	●	●	• Communications Law/ Foreign Investment Law	• It is required to obtain a concession from SCT. It allows Foreign Investment up to 49% of the firm equity without a special permit from CNIE*. With the permit and concession from SCT, 100% will be granted. Beyond 1999, 100% private participation will be allowed without the permit from CNIE. Maximum term is 30 years
	• Operation	●	●	• Communications Law/ Foreign Investment Law	• Foreign investment can participate up to 100% with a concession from SCT. Maximum term is 30 years
	• Maintenance	◐	●	• Communications Law/ Foreign Investment Law	• Maintenance of concessioned highways is defined by the terms of the concession. In the maintenance of the federal highway system, Foreign Investment can participate up to 100%. SCT will decide on which segments maintenance contracts will be given through bids
	• Support services	●	●	• Communications Law/ Foreign Investment Law	• No restrictions applies for private or Foreign Investment in this concept

- Allows private participation
- ◐ Some restrictions to private participation still apply
- Private participation not allowed

SOURCE OF THE INFORMATION: CNIE (National Commission for Foreign Investment).

6.3.2 Railways

The railway system is regulated by the *Ley Orgánica de Ferrocarriles Nacionales de México*, the Organic Law on Mexican National Railroads, and by the General Communications and Roads Law. The Ministry of Communications and Transportation ("SCT", Secretaría de Comunicaciones y Transportes) is the authority charged with overseeing FNM.

Private sector participation in this area has been limited thus far. Yet, there are ample opportunities for future involvement, particularly in support services. Foreign investors can now own up to 100 percent subject to approval by the Foreign Investment Commission.

The main opportunities for private investment are:















- Marketing of cargo and passenger service;
- Intermodal terminal services and operation, and in some cases ownership of the terminal;
- Locomotive leasing and ownership of cargo equipment;
- Maintenance of rolling equipment, is under study, through a lease to private investors of maintenance facilities;




- Track maintenance;
- Equipment supply and technical consulting for traffic control and telecommunications. "Build-Lease-Transfer" schemes for new facilities are under study.

Also under study are modifications to the new railway law which would allow significant private participation in the nine business units which comprise the system (see Figure 23). These business may be classified in two groups: operating units, which include passenger and cargo service, and intermodal and interior cargo terminals; and service units, which include towing, maintenance, tracks, and control and telecommunication systems.

Figure 23

SITUATION OF THE REGULATORY FRAMEWORK IN THE RAILWAY SYSTEM

System	Business unit	Access to private participation		Law	Comments
		Current	Expected		
Railways	• Cargo and passenger service			• Political Constitution of Mexican United States/ Communications Law/ FNM By-Laws/Foreign Investment Law/ Organic Law of FNM	• Private investment is not allowed. The only means of private participation is cargo commercialization
	• Intermodal terminal and interior cargo terminal			• Communications Law/FNM By-laws /Foreign Investment Law/Organic Law of FNM	• Foreign Investment is allowed up to 49% in operation and maintenance without permit from CNIE* and up to 100% with the permit. In the near future, 100% will be allowed without permit
	• Locomotives			• Communications Law/ FNM By-laws/Organic Law of FNM	• Locomotive leases to FNM are allowed, but not its purchase/sale. Wagons may be private property but may only be rugged by FNM. It's expected that in the future there can be larger private participation in locomotive operation and ownership
	• Repair and maintenance workshops			• Communications Law/ FNM By-laws/Organic Law of FNM	• Foreign investment is allowed up to 49% in the rent of workshops and up to 100% with the permit of CNIE*. In the future, 100% will be allowed without permit
	• Railway infrastructure			• Communications Law/ FNM By-laws/Organic Law of FNM	• Railway construction by Mexican firms is allowed. In the future, foreign firms will be able to participate in the contracts
	• Traffic control systems and telecommunication systems			• Communications Law/ FNM By-laws/Organic Law of FNM	• Private participation is allowed in technical assistance and as equipment supplier, but not in the operation. In the future, some Foreign Investment will be allowed
	• Fuels and lubricants			• Communications Law/ FNM By-laws/Organic Law of FNM	• Foreign Investment is not allowed. In the future, 49% will be allowed without permit and 100% with permit from CNIE*

-  Allows private participation
-  Some restrictions to private participation still apply
-  Private participation not allowed

SOURCE OF THE INFORMATION: CNIE (National Commission for Foreign Investment).

6.3.3 Ports

On July 1, 1993, the *Ley de Puertos* (the new port law) was enacted. This law basically aims at decentralizing port management, and at encouraging the active participation of private investors in the management, construction, and operation of ports.

The objective of the decentralization process has two intentions: first, to promote the self-sufficiency of ports by subjecting them to free market forces; second, to enhance the value of ports services to its users, by relying on improved quality and increased efficiency.











Under the new port law, the Mexican Government created a new management entity: the Administración Portuaria Integral ("API", Integral Port Management). This entity is the holder of a license granted to private licensees by the Federal Government for a maximum period of 50 years. The API license is granted on the basis of public bidding. An API is responsible for the financing of operations, strategic planning, promotion, and construction of public infrastructure. Foreign investors are allowed to participate with up to 49 percent of the total investment.




Mexican corporations whose equity includes foreign investors are allowed full participation (i.e., 100 percent participation) in the construction and operation of port terminals and facilities, as well as in the provision of port services.

This new regulatory framework applies to all port-related affairs. As Figure 24 shows, private investors are now welcome in every business associated with ports.

Figure 24

SITUATION OF THE REGULATORY FRAMEWORK IN THE PORT SYSTEM

System	Business Unit	Access to private participation		Law	Comments
		Current	Expected		
Ports	• Port authority			• Law of Ports/ Foreign Investment Law	• Concessions are granted to the Integral Port Administration (API), in which Foreign Investment can participate up to 49%. API's can grant sub-concessions of all port services. In the ports where an API is not created, concessions will be granted for construction and operation of port facilities, in which Foreign Investment can participate. Maximum term of the concession: 50 years
	• Vessel reception			• Law of Ports/ Foreign Investment Law	• Transportation and tugging services in the interior of the port allow 49% Foreign Investment • Maritime transportation services for international trade allow up to 49% of Foreign Investment and 100% with the permit from CNIE*. In the future 100% will be allowed without permit. For domestic services, no foreign investment is allowed
	• Services to shipments to carry out internal navigation operations, pilotage, dockage and wharfage			• Law of Ports/ Foreign Investment Law	• Foreign Investment: not allowed up to 49% and to 100% with permit from CNIE*
	• General services to vessels: cleansing, potable water, communications, electricity, trash collection, elimination of waste water and stevedoring services			• Law of Ports/ Foreign Investment Law	• Foreign Investment is allowed up to 100%
	• Construction			• Law of Ports/ Foreign Investment Law	• Foreign Investment allows up to 49% and to 100% with permit from CNIE*, beyond 1999 no permit will be required

-  Allows private participation
-  Some restrictions to foreign participation still apply
-  Private participation not allowed

SOURCE OF THE INFORMATION: CNIE (National Commission for Foreign Investment).

6.3.4 Airports

By authorizing private investments of up to 100 percent in the construction and operation of all business units, the new regulatory framework has played a critical role in increasing private investors participation in the development of airport infrastructure.









The legal framework does not set any restrictions on the operation of infrastructure. The co-investor is free to operate the project as long as the quality of service to the user does not suffer.




Finally, the regulatory framework dictates that the tariff structure for services rendering to ASA will be set at the time of signing of the corresponding agreements and their determination will be based on the operating and capital costs incurred by the investor. These tariffs will be reviewed after a predetermined period.

Figure 25 illustrates the key business units for airports activities, and indicates those where private sector investment is allowed.

Figure 25

SITUATION OF THE REGULATORY FRAMEWORK IN THE AIRPORT SYSTEM

System	Business unit	Access to private participation		Law	Comments
		Current	Expected		
Airports	• Runways operation			• Commu-nications Law/ Foreign Investment Law	• Private Investment is not allowed
	• Construction and maintenance			• Commu-nications Law/ Foreign Investment Law	• Foreign Investment is allowed up to 49% without permit from CNIE* and up to 100% with the permit. In the near future 100% will be allowed without permit
	• Plataforms, ramp services, boarding services; and commercial area			• Commu-nications Law/ Foreign Investment Law/SCT By-laws	• Concession from SCT is required. Allows Foreign Investment up to 49% of the firm without a special permit. With permit from CNIE* 100% will be granted. In the future 100% will be allowed without permit. Maximum term is 30 years with the possibility of extension
	• Fuels and lubricants			• Commu-nications Law/ Foreign Investment Law	• Private Investment is not allowed. In the future, 49% will be allowed with CNIE* permission

-  Allows private participation
-  Some restrictions to private participation still apply
-  Private participation not allowed











SOURCE OF THE INFORMATION: CNIE (National Commission for Foreign Investment).




6.3.5 Telecommunications

New regulations allowing private enterprises to invest in previously state-run businesses paved the way for the privatization of the Mexican telephone company (TELMEX). Most non-strategic activities are already open to private investors, and it is likely that the remaining regulated activities will soon be opened to private investors (see Figure 26).

Figure 26

SITUATION OF THE REGULATORY FRAMEWORK IN THE TELECOMMUNICATION SYSTEM

Sector	Business unit	Access to private participation			Comments
		Current	Expected	Law	
Telecommunications	• Basic and long distance telephony			• By-laws for Telecommunications/Foreign Investment Law	• For basic telephony 49% of Foreign Investment is allowed. From August 10th, 1996, foreign private firms might be able to associate with Mexican companies in up to 49% in order to get a concession for long distance service
	• Cellular telephony and paging			• By-laws for Telecommunications/Foreign Investment Law	• Foreign Private Investment is allowed up to 49%, however, all regions in the country are already concessioned. In the future, 100% Foreign Investment will be permitted without previous authorization of the CNIE*
	• Telecommunications by satellite			• By-laws for Telecommunications/Foreign Investment Law	• Activity exclusively reserved to the Nation
	• Land stations			• By-laws for Telecommunications	• Foreign Investment is allowed up to 49% without previous authorization of the CNIE*
	• Voice, data, imaging, packet switching, electronic mail and value added systems			• By-laws for Telecommunications	• Foreign Investment will be allowed up to 100% except in video text and packet switching, where the limit is 49%. From July, 1995 on such participation will be 100% without previous authorization of the CNIE*

-  Allows private participation
-  Some restrictions to private participation still apply
-  Private participation not allowed

SOURCE OF THE INFORMATION: CNIE (National Commission for Foreign investment).

6.3.6 Electricity

The Mexican Constitution establishes that the supply of electricity to third parties is reserved for the State due to its strategic importance.

Recent modification to the Law on the Electric Service (Ley del Servicio Público de Energía Eléctrica) allow private sector involvement in power generation through independent power production, in addition to cogeneration and self-supply. Energy bought by CFE under any of these schemes will be subject to a cost-of-fuel adjustment clause to protect the investor from swing in fuel prices.

In the case of independent Power Producers (IPPs), the most likely pricing arrangements will provide for capacity payments, even when no energy is bought by CFE. CFE will provide reserve capacity to the system. In addition, the construction of new power stations and all major purchases are required to be open to international bidding. The Law also requires CFE to allow wheeling through its transmission lines, but the pricing mechanism is still being completed.

Finally, the Law provides for the establishment of a National Energy Regulatory Commission to balance the interests of every participant in the industry (see Figure 27).

Figure 27

SITUATION OF THE REGULATORY FRAMEWORK IN ELECTRICITY

System	Business Unit	Access to private participation		Law	Comments
		Current	Future		
Electricity	• Generation	●	●	• Electric Power Public Utility Law and By-laws	• Private Investment is allowed in the independent power producing, self supply, cogeneration, generation for imports and exports for particular use, and small producer. Permit shall be granted for a maximum term of 30 years for independent producers, and other activities still have an indefinite term. Foreign Investment is allowed up to 100%
	• Transmission	◐	◐	• Electric Power Public Utility Law and By-laws	• Private sector can participate in the construction of infrastructure, but not in the operation
	• Distribution	○	○	• Electric Power Public Utility Law and By-laws	• Private sector can participate in the construction of infrastructure, but not in the operation

- Allows private participation
- ◐ Some restrictions to private participation still apply
- Private participation not allowed

SOURCE OF THE INFORMATION: CNIE (National Commission for Foreign Investment).

6.3.7 Water and sewage

The new National Water Bill, passed in December 1992, states that the promotion of participation of the private sector in the financing, building and operation of hydraulic infrastructure is of public interest, and consequently, defines various mechanisms to encourage it. These range from the traditional public works contract, to contracts with recoverable financing and licensing schemes for infrastructure and related services.

Within this framework, the private sector has participated in diverse ways and under different financial schemes. The Build-Operate-Transfer (BOT) scheme stands out in the construction of sewage water treatment plants. In this area, operations totaling approximately 400 million US dollars³⁴ have been agreed upon which is in itself meaningful because it shows that national and international private investors and financial markets are willing to participate in these schemes.

The bidding processes are conducted by municipalities with technical support of the Mexican Water Commission for basic engineering, development of the bidding rules and evaluation of proposals. When the BOT scheme is applied, private sector participation includes project engineering, full project financing and operation, and control during a certain period of time.



³⁴ See *Opportunities in the Mexican Drinking Water and Sewage Systems*, 1993.




The recovery and returns of the private investment relies solely on the charges that the treatment plant collects from the drinking water operating entities. These charges are determined by the public bidding process and are, in turn, translated to the end-user.

Other financing mechanisms to promote the development of hydraulic infrastructure have been explored, given the new opportunities that the National Water Law offers. An example is the construction of the Huites dam, currently underway. The dam implies an investment of 550 million US dollars and a capacity of 4,000 million cubic meters. Along with the dam, the project includes building a 400 MW hydroelectric plant and irrigation potential for 70,000 hectares. Recovery of more than 70 percent of the investment is associated to sales of hydroelectricity (see Figure 28).

Figure 28

SITUATION OF THE REGULATORY FRAMEWORK IN POTABLE WATER AND SEWAGE

System	Business Unit	Access to private participation			Comments
		Current	Expected	Law	
Potable water and sewage	<ul style="list-style-type: none"> Water extraction, supply lines to urban areas, potabilization, distribution and operation of the system, residual water recollection, treatment and deposit in oxidation lagoons 			<ul style="list-style-type: none"> State and Municipal Water Law 	<ul style="list-style-type: none"> Private participation is beginning to take place under different schemes. Water legislation of 20 states already accepts private participation. Foreign Investment will be able to participate up to 49% and up to 100% with permit from CNIE*. In the future, it is expected that no permit will be required

-  Allows private participation
-  Some restrictions to private participation still apply
-  Private participation not allowed

SOURCE OF THE INFORMATION: CNIE (National Commission for Foreign Investment).

Chapter 7

CONCLUSIONS

An efficient public infrastructure is important to the competitiveness of any economy. Because of Mexico's critical need for stabilization in the 1980's, expenditures on public infrastructure development had to be slashed, and it is now important that the level and quality of infrastructure services be restored. The private sector is being given an increasingly important role in the building, operation, and in some cases ownership, of such infrastructure.

Private sector participation in the development of the public infrastructure in Mexico has important implications not just for current and future public sector finances but also, and more importantly, for resource allocation, economic efficiency and social equity. Private sector involvement should not be driven by short-term budgetary considerations but by efficiency and welfare objectives. It is my view that the primary objective of private sector participation should be to maximize the current and future welfare of consumers and other users of infrastructure services. Basic questions which need to be asked by the government are as follow. Can the private sector produce infrastructure services more efficiently, and if so, is it desirable from the point of view of consumers and infrastructure users in general that the private sector

provides (as well as produces) these services? It is possible, for example, even if the private sector is efficiency-enhancing, that the lack of an adequate regulatory framework (in those cases in which competition is not/cannot be introduced) could make consumers worse off? In short, I also conclude that, competition policy and efficient regulation are the crucial complements of efficient private sector participation. An objective of this last chapter is to draw conclusions about the experience of the private sector involvement in the development of the Mexican public infrastructure from the perspective of the consumers or users of the privatized service.

Welfare improvements can come about from better quality and cost effective services which are responsive to population and economic growth needs. Although, some times in the Mexican economy, an improvement in production efficiency, is not necessarily translated into increased social welfare, e.g., if the privatized firm is an unregulated monopoly which does not lower prices following productivity gains (CFE, TELMEX, etc.). Note that I refer to the objective of private sector participation, which should be to maximize not only current but future welfare of consumers or final users, because underpricing may favor current consumers/users at the expense of future consumers/users. For example, underpricing, which could result from excessive regulation, could lead to underinvestment thus affecting the future availability and quality of services.

In the Mexican economic context, at first, and in at least some public sectors, the driving force behind the increasing private role in the development of infrastructure was the tight public sector budget, where the private sector was viewed as a means of financing public infrastructure which would eventually revert to the public sector. However, my conclusion on this aspect, is that the proper aims should be (and to some extent have been) efficiency and the general public welfare as was mentioned before. This means, on one hand, that infrastructure services, which had traditionally been provided by the public sector, can be provided more efficiently by the private sector. The aim should be to establish a framework within which there are incentives for the efficient provision of the infrastructure services required, and where risks have been disaggregated and then allocated to that party (within the public or the private sectors) which is in the best position to manage that risk. On the other hand, it also means that, adequate regulations have to be established to ensure that consumers, and final users of infrastructure can benefit from efficiency gains.

Since many public infrastructure activities have some natural monopoly characteristics, there is a need to establish a clear regulatory framework. Within this general framework, there will be cases where the public system might be in the best position to provide the infrastructure services required most efficiently, as well as cases where the private sector would be in such a position.

In the previous chapter, I discussed the regulatory framework and only touched upon the regulatory bodies currently established in Mexico. The Mexican government currently has a conflict of interests in being both the privatizer of public assets and the regulatory agency which is overseeing the process of privatization.

As a privatizer, the government's objective is to receive the greatest economic benefit for the assets it is selling. In contrast, as a regulatory agency, the government needs to protect the consumer's interest over the long-run.

The common theme across infrastructure sectors (especially in private sector chambers) in which there is increased private sector participation, is the need to develop technically, administratively, and politically independent regulatory agencies that set and revise processes for regulation, arbitrate disputes, and more generally, structure and administer the framework conducive to competition. The overall uncertainty to which firms, government and the regulator are exposed, implies that it is difficult to design efficient concession contracts in general. It is precisely in this context that an independent regulator, with a well established reputation, can play a crucial role. The asymmetries that naturally exist between the regulator and the firm can, of course, only make regulatory issues more complex. However, I believe, that the regulator is not alone in this battle. Financial development, technological innovation, public awareness of regulatory issues and, above all, competition and experience are its best allies.

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