Infrastructure Development in Lebanon: Public / Private Partnerships

by

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Abstract

Since the end of the Lebanese war in 1990, and the launching of the Middle-East peace process in 1991, a new era of stability and prosperity is foreseen for the region. Lebanon is expected to play a major role in the Middle-East reconstruction and socio-economic development as a result of its unique characteristics and geographic situation.

The available infrastructure facilities are not adequate to determine Lebanon’s economic success or even meet the well-being of its population. In addition, the financial and managerial constraints on the Lebanese public sector are preventing the government from rehabilitating and expanding the war damaged infrastructure facilities.

Since 1993, the government of Rafic El-Harriri has brought hope, and has implemented reforms to improve the level of infrastructure services. This thesis will examine the private sector involvement in the procurement of services for seven infrastructure facilities: Beirut International Airport, Free Zones, Public Transportation services, Beirut-Damascus highway and the Boulevard Peripherique, Electricite Du Liban, Awali-Beirut water conveyor, and the telecommunication networks.

Starting with a description of the political and economical situation in Lebanon, this thesis focuses on the actual measures taken to improve the investment environment in Lebanon, followed by an evaluation of “Solidere” the public / private partnership for the reconstruction of Beirut Central District. The discussion then moves to describe several kinds of public / private partnerships and the seven infrastructure facilities selected. The analysis section of this thesis consists of three main parts: a macro analysis dealing with the social, economical, and political atmosphere regarding privatization, a micro analysis assessing each project individually and its chances of success, and a quadrant analysis evaluating the actual procurement strategy of the government.

Finally, we recommend to slow down the actual pace of privatization in the country and propose a sequencing strategy based on: setting up a statutory regulation, providing an adequate environment, fixing a priority list of the needed infrastructure projects, and studying on a project by project basis the most suitable type of public / private partnership. We think that this thesis will assist the Lebanese government and its eventual partners in the private sector to facilitate a smooth transition toward the implementation of public / private partnerships for infrastructure development and provision.

Thesis supervisor: Ralph Gakenheimer

Title: Professor of Urban studies and Civil and Environmental Engineering
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To my Parents

For their love, care, support... for everything
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Chapter 1

Thesis importance and goals

1.1 Introduction

Lebanon’s location in the Middle East gave it a distinct role in the arab world until 1975. Its proximity to the Arab oil producing countries and Europe allowed the country to act as a bridge between the East and the West. The free banking system, bank secrecy laws, and the capitalist economy of Lebanon were attributes missing elsewhere in the region. These aspects made of the country the banking, commercial, and trade center of the Arab world. Most of the American and European firms seeking to do business in the Middle-East chose Lebanon as the base of their operations.

In 1975, hostilities erupted between the armed factions that had been present and politically active in the country since the late sixties. Demarcation lines were drawn between different areas of the country, separating neighborhoods and dividing the country in two. Due to the war, the infrastructure networks were seriously damaged. The war took its toll on the Lebanese infrastructure: damages resulted from the direct effect of hostilities in physical destruction and damages, and from the inability of public agencies to maintain the existing systems in operation. As a matter of fact, infrastructure facilities spared from physical destruction during hostilities have suffered from lack of maintenance, delayed plans for expansion, and inadequate services from the ministries and agencies responsible for them.

Lebanon currently enjoys a period of relative stability after seventeen years of civil war. It is presently believed that the country is entering a phase of reconstruction. Among the issues to address in the reconstruction phase are establishing a social reconciliation, regaining the last economic prosperity, and building the residential structure and the infrastructure systems destroyed by the war. Being a necessity in the existence of a social environment, infrastructure is
naturally one of the first areas of concern for the government. Rehabilitating and expanding actual infrastructure systems is needed to serve adequately the existing congested agglomerations, and to provide infrastructure services to new locations in order to encourage their growth. The government of Rafic El-Harriri has been trying, since November 1992, to initiate a reconstruction scheme and to attract loans related to infrastructure.

The poor performance of the Lebanese public administration in the past, and the high cost of reconstruction have pushed the Lebanese government, since the beginning of 1993, to start looking for a serious cooperation between the public and the private sectors. The private sector is perceived to generate help for the government administration, and to ease the burden on its finances. One large scale experience in the reconstruction of the destructed downtown district of Beirut has already started with the creation of Solidere. Several other projects now in the design phase, will follow the same pattern.

1.2 Privatization

Recently, privatization has become a worldwide trend, affecting the developed and underdeveloped countries. Through the privatization process, the governments attempt to reduce the budgetary strains, provide better services to the citizens, and permit the re-allocation of resources to more socially important public activities.

In developed countries, the growth of the public sector has created financial constraints and overstuffed public administrations. The cases of the initiatives taken by the British government under Thatcher’s administration in the 80’s and the French government under Balladur between 1993 and 1995, demonstrate the interest of the developed countries’ governments in the privatization process. In addition, the Eastern European countries (formerly socialist countries) have faced a privatization boom since the collapse of the former Soviet Union. Privatization has become more acceptable as governments have come to realize that many public services could be offered by the private companies at a lower cost and a higher level of quality.

Furthermore, a public/private partnership has to yield benefits to all the parties involved in the
cooperation (government, companies, and citizens). If any of these parties is not satisfied, the partnership will not be successful. As a matter of fact, deep analysis should be conducted regarding the type of the public/private partnership, and the kind of services that can be provided in each respect.

1.3 The problem

Developing countries have always faced severe problems in providing the basic needs to their populations. In that context, Lebanon is facing a dual challenge. Besides its situation as an underdeveloped country, Lebanon is emerging from seventeen years of war that had destroyed the country’s economy, demography and infrastructure. Doubts are raised about the capabilities of the government to monitor the reconstruction phase alone, while keeping the financial situation of the country healthy. As a matter of fact, a large question mark is raised about the capabilities of the Lebanese government to provide projects that are needed for the country’s future social development, subsequent well-being of its population, and future economic and competitive advantages, in a region that is facing drastic changes in its constitution. After five years at the end of the war, and three years at the beginning of the rebuilding process, some of the infrastructure facilities are still poorly provided. The water is scarce in all the cities, and the supply is under the healthy norms in certain suburbs. Privatized cellular phones have partially replaced the government’s networks that barely provide communication among the different regions of the country. Other infrastructure services throughout Lebanon share the same problems.

On the other hand, during the war, the private sector has been largely involved in many public oriented activities. Individual or group generators have partially replaced the electric power services provided by the government. Water tanks provide water to the agglomerations in order to compensate for shortages in the public services. So, while having a general overview, we notice, that even unofficially, the private sector has been involved in the infrastructure provision in Lebanon. Will these unofficial activities become official on a larger scale, or not? This may be a very important factor in establishing privatization and solving the country’s problems.
1.4 Research objectives

The primary objective of the thesis is to investigate the feasibility of privatization of the infrastructure facilities in Lebanon, and the possible privatization schemes that might achieve efficiency gains in infrastructure repair, construction and maintenance. The infrastructure facilities situation will be examined, and the possibilities of privatization in each one of them will be determined. The types of public / private partnerships, and possible types of contracts that most probably fit the proposed privatized projects will be specified.

Another objective of this research is to determine the role of the government in making this new experience in Lebanon successful. This might be tax reduction, change in regulation, or the creation of a public assistance for example.

1.5 Research questions

Privatization has been feasible and successful in many developed countries. The advantages of privatization are nearly guaranteed regarding the actual situation of the infrastructure facilities in the country and the financial situation of the government. As a matter of fact three questions are raised:

- Are the public / private partnerships feasible in Lebanon?
- In which services and to what extent privatization is beneficial to the infrastructure of the country?
- What is the role of the government in creating a successful privatization process and making the smooth transition?

1.6 Significance and importance of the thesis

This thesis will explore the new opportunities of privatization in the country. It will be of benefit to the Lebanese government, to the Lebanese population, and to the international and funding
organizations.

**The Lebanese government**

It should provide the Lebanese government with suggestions that make the public / private partnerships function as a very effective and efficient tool in providing the needed projects in Lebanon. Hopefully, this thesis will orient the government towards the possibilities of public / private partnerships in each infrastructure facility, and assist it in creating the needed environment.

**The Lebanese population**

On the other hand, privatization will improve the situation of the infrastructure facilities in the country, and provide better services. This will be of benefit to the Lebanese population in general.

**The international and funding organizations**

The international and funding organizations will be interested in acquiring such information about Lebanon in order to have a better understanding of the infrastructure needs, and to examine the possibilities of investments in this field.

**1.7 Research Methodology**

In order to answer the three questions addressed by this thesis, the research relies on three techniques: (1) Literature review; (2) On site investigation of the infrastructure facilities (3) Analysis and evaluation of the existing infrastructure services in Lebanon.

**Literature review**

A revision of the literature related to the concept of public / private partnerships and to its possible application to the infrastructure facilities. In that session, the objectives and goals of privatization,
and the kinds and models of public / private partnerships throughout the world are examined. Examples of successful public / private partnerships for the infrastructures provision in different countries are exposed. At the end of this part, an evaluation of the potential problems and advantages of privatization is examined.

*On site investigation and interviews on the infrastructure facilities*

This part will overview the historical role of the country in the region and correlate it to its actual and potential role after the end of the peace process. An investigation on the various infrastructure facilities situation after the war and on the involvement of the private sector, most of the time unofficially, in the major infrastructure facilities of the country is conducted. An overview of the countries actual needs and its future requirements are examined and compared to the actual infrastructure capacities of Lebanon (most of the infrastructure in Lebanon was built before 1975).

*Analysis and evaluation of the existing infrastructure situation in Lebanon*

Based on the previous two points, an analysis is conducted to determine the possibilities, the places, and the ways in which privatization can be successful. The further step will consist on the analysis of the government’s potential in providing and financing the needed infrastructure requirements for the next decade. During the war, unofficial privatizing activities expanded to different basic infrastructure needs; this phenomena has not disappeared after the end of the war due to the lack in the public supply. An evaluation of the steps of privatization already achieved, and the possibilities to expand these experiences are explored. At the end, an investigation of the socio-cultural attitude toward privatization in Lebanon is inquired to determine the attitude of the population (which is a major player in this process).

**1.8 Summary of thesis organization**

The second chapter of the thesis will review Lebanon’s economical, financial and political situation, and examine the major infrastructure problems that the country is actually facing. The
third chapter will examine the concept, model and use of privatization, with reference to some examples from all over the world.

The fourth chapter will explore the new public / private partnerships contracts awarded in the infrastructure services and evaluate the past experience of official and unofficial privatization experiences in Lebanon for seven infrastructure services selected: Beirut International Airport, the Free Zones, Beirut - Damascus highway, Public Transportation services, Electricite Du Liban (EDL), telecommunication networks, Beirut / Awali conveyor. Chapter five will provide a macro analysis of the major players (government, society, and private companies), as well as a micro analysis of the seven infrastructure services selected, and a quadrant analysis of the new procurement strategy of the government.

Based on the analysis conducted before, chapter six is dedicated to the determination of the role of the government to make the potential privatization processes feasible. I will examine the economic, political, social and regulatory frameworks to sustain private investments in reconstruction, and provide recommendations for the government.

The primary conclusion of this thesis is to explore the possibilities and feasibility of Public / Private partnerships in Lebanon, and assist the Lebanese government in making them feasible.
Chapter 2

Lebanon

2.1 Geographic, demographic and economic situation

2.1.1 The republic of Lebanon

Lebanon is a republic of 10,452 square kilometers on the eastern shores of the Mediterranean sea, with an estimated population of 3.5 millions formed of a heterogeneous ethnic and religious composition (In large, half of the population is Christian and the other half is muslim). Lebanon is bounded, by Syria from the North and the East, and by Israel from the South. The country is roughly rectangular in shape, becoming narrower toward the South and the furthest North, covering a total length of 210 Kms, and a width varying between 88 and 32 Kms; the average width is about 56 kms [Smith 69].

Beirut is the largest city of the country where the majority of the population lives and where most economic activity takes place. Other major cities as Tripoli, Saida, Tyr, Zahleh, and Baalbeck have key roles in the regions that surround them. Arabic, French and English are the languages spoken by a large part of the Lebanese population (at least two of these languages are spoken fluently by most of the population). The political system is democratic, parliamentary; the parliament is elected for four years, and the president is directly elected from the parliament for a period of six years. The commerce, banking and services are the principle activities in the Lebanese liberal system.
2.1.2 Historical background

The republic of Lebanon was created in 1920 under the French occupancy, with the agreement of the maronite patriarch (spiritual leader) and the French authorities. In 1941, the French Mandate over Lebanon officially ended. Independence arrived in 1943 when Bechara El-Khoury was freely elected president of the republic by the Lebanese parliament. Under the mandate, French and Arabic were both made official languages. The long struggle for complete independence and sovereignty was achieved on December 31, 1946. From 1950 to 1975, the Lebanese Republic has travelled quite a distance towards the solution of its knotty economic and social problems, while witnessing a remarkable average rate of economic growth.

2.1.3 The capital “Beirut”

Beirut is located on the sea coast of Lebanon, in the middle of the country, halfway between the North and the South. Ministries, embassies, and all the other governmental’s offices are located in Beirut (Lebanon’s constitution gives the capital a major role in running the economical and political activities of the country). Centrally located in a spacious area in the most developed part of the country, with easy access to all parts of Lebanon, Beirut became the focal point of regional trade, commercial and banking activities. Its role, both nationally and internationally, gained in importance as it became the connection for goods transiting between the East and the West through its port, airport and road networks activities. The capital has played a major role in the economy of Lebanon.

According to the latest demarcation, the Beirut Metropolitan Region is bounded by Nahr el Kalb from the North, Damour river from the South, below an average of 1,000 meters altitude. It does not include the entire influence of the Metropolitan Region (Jounieh, Aley...), but it nevertheless shelters the Bulk of it. Greater Beirut was populated with 1,165,000 inhabitants in 1994, with only 400,000 of them within Municipal Beirut. In 2005, based on the expected population growth, Greater Beirut will be populated by 1.6 million inhabitants [Team 95].
2.1.4 The role of Lebanon

Lebanon’s mountainous terrain, proximity to the sea, and strategic location at a crossroads of the world were decisive factors in shaping its history. The political, economic, and religious movements that either originated in the region, or crossed through it to leave an imprint upon Lebanese society give form to that history. The country’s role in the region, indeed, in the world at large, was shaped by trade [Smith 69]. Its geographic location and liberal system gave it a distinct role in the arab world until the year 1975. Between 1943 and 1975, Lebanon experienced an impressive economic growth with low unemployment and inflation rates. Its proximity to the arab oil-producing countries and Europe, allowed Lebanon to act as a bridge between the Middle-East and the West. Lebanon’s free banking system, bank secrecy laws, and its capitalist economy were attributes missing elsewhere in the region (where socialist governments are common). The liberal trade payments regime and the flexible exchange rate, combined with relative political stability encouraged the transfer of funds to the city, and made the country the banking, commercial, and trade center of the arab world. Most of the American and European firms seeking to do business in the Middle-East chose Lebanon as the base of their operations. Previously known as the Switzerland of the Middle-East, Lebanon was severely set back during the war that started in 1975.

2.2 Lebanon between 1975 and 1991

2.2.1 The war

The hostilities erupted officially in Lebanon on the 13th of April 1975 between the armed factions that had been present and politically active in the country since the late sixties (In 1967, the “Cairo agreement” was signed between the palestinians and the Lebanese authorities in order to reduce the tension in the country). What started as a series of independent clashes in Beirut’s area and some of the suburbs, quickly grew to become an all-out conflict that involved more than one foreign country and has continued to evolve into the very recent past (1991). The country was split into two main regions and the power was split between the hands of the different militias present in each of these parts. Demarcation lines were drawn between different areas of the capital
dividing Beirut into neighborhoods and segmenting it into two main sectors (referred to as the East Beirut and West Beirut). The economical and financial roles of the capital nearly disappeared during this period. The airport and the port were closed nearly all the time.

2.2.2 The economic situation

The inability of the government to collect custom duties and taxes deprived the state from large sources of revenue. But, despite all the problems, the economical cycle in Lebanon was acceptable till the middle of the 80’s. At that time the problems of the Lebanese economy in general and of the Lebanese central government in particular started to surface. The central bank reserves in hard currencies were nearly inexistent due to different political reasons.... The remittance of the Lebanese working abroad, specially in the arab countries, has fallen dramatically, and the arab aids have nearly disappeared. The government’s budget deficit and public debt soared. Unemployment have reached new record levels in 1986 (between 30 to 40% of the labor force), and many Lebanese have responded to this problem by emigrating. This brain-drain has caused a further reduction in the human capital that has long been the major asset of the country. [El-Khazen 85].

The war in Lebanon, and the political and economical changes in the Middle-East have driven the economy to a huge inflationary rate, and the government to the verge of the financial collapse. An evaluation sponsored by Lebanon’s Council for Development and Reconstruction (CDR) and studied by Lebanese E&C Dar El-Handassah estimated the costs of reconstruction to US $33 billion in 1985. This figure adjusted for the end of the war in 1991 prices yields us to $42 billion approximately [Commerce Du Levant 91].

2.2.3 The socio-cultural situation

The duration of the hostilities for a long period of time has its effect on the development of the country’s economic and demographic aspects. The geographic boundaries of the different regions were consolidated by socio-economic fragmentation. The labor market had been also fragmented along confessional lines which increased the cost of production, and decreased the external
competitiveness of the country by reducing the productivity and the efficiency of its industries. The growth pattern of the different cities and areas of the country where different from the ones previously existing. Some areas grew at a very fast rate, while other potential ones had major problems in their social development.

There were deep changes in the location of work, entertainment and education for most of the Lebanese citizens, as they were adjusting to the new condition created by the hostilities. The loss of some major economic areas, as the centralized business district of Beirut, brought a different geographic distribution of economic and business activities. This phenomena lead to the shift in the function of some areas from being totally residential to being mixed residential and commercial, or the inverse. A large part of the population was displaced under the effect of the confessional separation of the regions. Refugees, mostly originating from the South of Lebanon and the Shouf mountains, were particularly large in number and flowed mostly to Beirut and its surrounding suburbs. Many regions became over-crowded, while others became extremely under-populated. A misery belt created by refugee camps and illegal squatters surrounded Beirut from all the parts and threatened its economical growth.

2.2.4 The governmental situation

The division of the country between two parts has made less inter-dependence between areas of the same city or of the same neighboring regions. The governmental institutions were seriously damaged during the war. Political and geographical factors were the reasons for the total stagnation of the public agencies operation. Most of the ministries were totally paralyzed by the inability to remain operating across the demarcation lines. The human asset and the branch networks in the institutions were totally split out among the regions. Political allegiance were a reason for officials to favor certain locations over others in the allocation of resources, which resulted in an imbalance in physical conditions, with certain zones being served better than others. This dramatic situation of the public agencies has pushed the skilled and qualified people to live these institutions to the private sector. This brain-drain in the governmental agencies is one of the hidden damages of the war that is not easily quantified. This human resource problem should be given its adequate emphasis in order to ensure good technical performance at a time when it is
most needed in the reconstruction process. Furthermore, a good management in the public agencies will convince the foreign sources of investments to invest in the country, and to trust the capabilities and the potential of the public sector.

2.2.5 Social consequences of the war

The ideological and religious slogans used during the war have created a new way of thinking and analyzing in the mind of the Lebanese youth in particular and society in general. The society is divided based on age, confession and regions. An important part of the society aged between 25 and 35 has not acquired enough education due to the combats and problems held across the war period.

2.3 Lebanon’s actual situation

Lebanon currently enjoys a period of stability after seventeen years of civil war that ended up officially in 1990 with the “Taef peace agreement”. The war had its toll on the country’s infrastructure due to the atrocity of combats that took place in the capital. The government of Rafic El Harriri is trying to initiate a reconstruction scheme and to attract loans to rebuild the infrastructure. The government is trying to boost the banking, tourism, all other kind of services that used traditionally to constitute Lebanon’s comparative advantages.

2.3.1 The new government achievements

The government of Rafic El-Harriri major achievements were in creating a stable economical environment in Lebanon, by controlling inflation, appreciating the exchange rate parity of the Lebanese Pounds, and reducing the capital flight of the Lebanese investors. Furthermore, the security era in the country has encouraged many Lebanese expatriates from all over the world, to return to their homeland bringing capital and investments. But this positive attitude inspired by the new government has been faced by a large increase in the public debt.
2.3.2 International developments at the beginning of the 90’s

The collapse of the Soviet Union is expected to have negative effects on the governmental redevelopment plans. The new markets that have emerged in Russia and Eastern Europe are given first priority from the United States and the European community. Furthermore, the Gulf war from January-March 1991 has shifted the priorities and concerns of the wealthy arabic Gulf countries from helping other countries in their development, to their self-defence and reconstruction. These multitudes of factors have pushed the government to look for the Lebanese and international investments as the sole source of funds for the reconstruction phase. As a matter of fact, the Lebanese capital market is in a reactivation process, and bonds in local and foreign currencies are issued to finance the mega-construction scene.

2.3.3 The infrastructure challenge

All the developing countries have always faced severe problems in providing the basic needs to their populations. Lebanon is actually facing a dual challenge. Besides the problems that emerge from its position as an underdeveloped country, Lebanon is emerging from seventeen years of war that has destroyed the country’s economy, demography and infrastructure. With a high population growth rate, and with basic infrastructure facilities that were built in early 70’s, Lebanon is facing the challenge of not only maintaining and modernizing its facilities, but also creating and rapidly expanding new ones.

The Central Government is neither in a position to fully continue its future development process nor to implement the part of the development process that was supposed to take place between 1991 and 1995, without the aid of the international funding agencies and the private sector. The private sector’s investments are encouraged in order to provide investments for the important large projects needed in the country. An important experience has started in the early of 1993 with “Solidere” for the rebuilding of the central district of Beirut.
2.4 The infrastructure facilities

The government launched its first official Development Program for the 1965-1969 period compromising a list of infrastructure and social projects estimated at a cost of 1 billion Lebanese Pounds (320 million dollars), but progress has been slow [Smith 69]. The major reason for the lack in development has been the shortage of public investment funds, which is an outgrowth of the government lenient tax policy and its avoidance of public borrowing prior to 1967.

Due to the war, no serious Development Programs were adopted and the infrastructure networks were seriously damaged. The damage to infrastructure resulted from the direct effect of hostilities resulting in physical destruction and damages, and from the inability of public agencies to maintain the existing systems in operation. As a matter of fact, infrastructure facilities that were spared from physical destruction during hostilities started to suffer from the lack of maintenance and adequate services from the ministries and agencies responsible for them.

2.4.1 Fast overview of different infrastructure facilities

Previous projects, dating from the 70’s, provide the necessary transport, power, and water supply infrastructure of the country. Projects are underway in many fields of infrastructure have been started in 1991, after the end of the war.

1- Road systems

The roads systems in Lebanon cover over 4,000 miles of roads, the greater part of which are two-lane highways [Smith 69]. The system is developed in the form of a North-South / East-West grid of major highways, interlaced with smaller local roads. A coastal highway, and an East-West highway to Syria with its northern arm through the beqaa Valley, constitute the core of the system. Beirut and its surrounding territory are located in the area of the country that forms the nucleus of the grid. Beirut is now served by three major roads.

* Beirut-Tripoli
Beirut / North highway
* Beirut-Saida  
  Beirut / South highway  
* Beirut-Zahle-Damascus  
  East / West highway

Most of the other current roads currently serving Beirut are paved. Some, however, especially the one located in the southern suburban area of the city, are still unpaved. It is expected that in the reconstruction process of the capital that started under Harriri’s government in 1992, new highway connections will be designed, and an upgrading process of the existing ones will take place.

N.B
It is important to indicate that the recommendation for the boulevard périphérique has been recently presented through the Council for Development and Reconstruction (CDR) as part of a proposal to upgrade the entrances to the city of Beirut and to create a direct link between its northern and southern subs. This proposal with an estimated cost of $600 millions has been accepted by the Lebanese government and parliament.

2-Rail services

Rail services in Lebanon are government-owned, with 254 miles of track essentially running parallel to the main highways [Smith 69]. Beirut is bypassed by one rail service that goes from the North to the South. These lines, built during the French colonial period carry both passengers and goods. During the war, rail services were only provided from Beirut to Jbeil (for a 30 Kms distance), and for passengers use only. Nowadays, even this limited rail service is not provided anymore; there is no effective rail services in Lebanon. As it is seen, rail services in Lebanon are nearly non-existent.

3-Air services

There are two major Civil Airports in Lebanon, one international and the other for domestic use. The international air link between Lebanon and the other countries is provided by the major international airport “Beirut International Airport”, situated at 3 Kms on the South of the city.
[Smith 69]. The second Airport, at Kleiat, is located at 70 kms north of Beirut. Beirut Airport can receive all types and sizes of aircrafts, while Kleiat Airport can only receive small propeller aircrafts and some kinds of passenger aircrafts designated for domestic use. During the war, a third Airport was constructed in Halate, at 25 Kms on the North of Beirut, in order to serve part of the divided country. This Airport was never used for civilian purposes.

4- Maritime services

The geographic location of Lebanon has entitled it to have many ports that provide maritime services to the region. The most important sea port is the “Port of Beirut”. It is a major international port that used to serve all the arabic region, especially after 1948, through private concession operations. In 1948, with the creation of the state of Israel, the arabs stopped using Haifa’s port [Smith 69]. It starts working efficiently after the end of the war in 1991. Even though Beirut is surrounded by many rivers, all of them are not navigable neither in the warm nor in the rainy season. Proposed dams projects at several locations along the “Beirut River”, might make it navigable by increasing the flow during the dry season and decreasing floods during the rainy one.

5-Water services

The water resources of Lebanon had made the country a key player in the Middle-Eastern conflicts. Its geographic situation and its hilly nature have allowed it to have a flood in water supply for the region.

Beirut is currently serviced by the national grid. The dam of Nahr-El-Kalb river, at 7 Kms on the North of Beirut, provides the main source of water to Beirut. This dam is capable of storing large volumes of water, which can supply the forecasted future population of the capital. A water purification plant and a pipeline network are situated in Dbaye, at 2 Kms from the dam.

6- Power services

Electric power is supplied to almost all the inhabited areas of Lebanon. Black outs are very often,
and sometimes becoming popular. The power is mainly served from the fuel plant located in Jounieh (10 Kms on the north of Beirut), and from the Karaoun dam in the south of Lebanon. Other small hydroelectric power plants serve certain regions of the country. Since the end of 1995, electricity is provided for sixteen to eighteen hours a day, depending on the region, the financial situation of the government, and the technical problems of the generation and distribution networks.

2.5 Structure of the Lebanese economy

The Lebanese economy is based on private enterprises subject to few, although slowly expanding, government controls. It is strongly service oriented and depends heavily on income from abroad. Before the war, trade, banking, tourism, transportation, communications, and miscellaneous other services generated about two-thirds of the national income. Agriculture, industry, and construction accounted for the remaining third [Smith 69]. The direct participation of the Lebanese government in economic activities apart from its policy and regulatory functions is relatively minor.

Lebanon major revenues is mainly due to the trade, services and finance. This is a determinant reason for promoting infrastructure facilities in order to help the economic growth of the country and attract the foreign tourists and investors to it. The development of banking in the past has been facilitated by the stability of the Lebanese pound and by a law on bank secrecy which protects the identity of individual depositors. According to economists an estimated two thirds of the country's banking activities was for the account of non-resident [Smith 69]. Trade has been encouraged by generally low tariffs and a free port area, which accommodated a large volume of duty free transit trade and provided facilities for the warehousing and processing of imported goods before their shipment for final destination. Tourists have been attracted by the country's physical beauty and pleasant climate, and by the opportunities for entertainment to be found in Beirut.
2.6 Future perspectives

The current population of Lebanon is estimated to be around 3.5 millions and is supposed to grow at a high rate. Approximately, half of the population of the country lives in Beirut, the growth rate of the city is tremendously large and the flow of people to the city is also huge. Embassies and international organizations' offices are located in Beirut. There are no clear figures about the unemployment rates, the population growth or any other relevant figures for the economical development of the country, due to the absence of an efficient and well equipped statistical administration in Lebanon.

The existing and the underway infrastructure are not even designed to handle the existing population, so suspicions can be raised about its capability of handling the future needs. The Lebanese government should make deep financial, economical and social analysis of the projects underway, in order to make the best decision for the survival of the country from the war and for its future role in the Middle-East. This combination of circumstances has created a favorable environment for a deeper cooperation between the public and the private sector. But the Lebanese government, due to the failure of these partnerships under certain circumstances to meet the expectations in some countries and circumstances, does not want to embrace automatically the usual philosophy behind the public/private partnerships in which the perceived superiority of the private sector in the provision of services is almost axiomatic.

2.7 The Lebanese Private Sector

The Lebanese liberal system based on “laissez faire” principles, contrasted sharply with the neighboring arab countries where the public sector controlled the majority of the economic activities. Lebanon remained not affected by the socialist boom that invaded the Arab countries in the sixties and led to the nationalization of industry, agriculture and commerce.

The liberal economic system that Lebanon has adopted since the independence in 1943, allowed the private sector to develop lots of capabilities. These developments have made the Lebanese
private sector very strong with respect to its neighboring countries. Nowadays, after many recent developments, especially the destructive Gulf war (the invasion of Kuwait) at the beginning of 1991, the private sector is the most likely source of finance for the reconstruction of the country. In 1994, the private investments in Lebanon were estimated to be $1,545.1 millions, while the public ones $802.8 millions (65% of the investments were to the private). This is an important evidence of the major role that the private sector has to play in the reconstruction process in particular and in the Lebanese economy in general [ecochiffres 94/95].

The rich arab Gulf countries (Saudi Arabia, Kuwait, Irak, Bahrein...), that were committed to help Lebanon in the reconstruction process are destroyed and indebted, due the damages caused by the two consecutive wars in the region: Iran-Irak (for 8 years), and the Gulf War for 3 months. Therefore, the 1983 CDR study which relied primary (around 75% of the total cost) on Arab and foreign funds in the form of grants and soft loans to finance the reconstruction of Lebanon, is not realistic today. Some Arabic countries, especially Saudi Arabia which sponsored the Taef agreement in 1990, have promised to assist Lebanon in its efforts. But, since 1993, the Lebanese government cannot rationally expect that this assistance will be substantially enough to provide a solid base of finance for reconstruction. Criticisms have been raised for this issue from high Lebanese officials several times.

On the other hand, the government has created several agencies in order to initiate, supervise, direct and facilitate investment projects for the private international and national sector in Lebanon. One of these institutions is the Investment Development Authority of Lebanon (IDAL) that was established on December 1, 1994. In order to provide speedy access to information and decision-making in implementing projects to the investor, IDAL was set up to liaise at the ministerial level and reports directly to the Prime Minister. The main objective of IDAL is to offer the following services:

- Presentation of the investment climate in Lebanon and the incentives for private investors. During the implementation process, a full assistance is provided to the private company.
- Help in establishing private shareholder companies for investment in government projects, and advice on the legal requirements for company status and the kind of funding and investment guarantee schemes available in Lebanon [IDAL 95].
2.8 Beirut Stock Exchange

On the 6th of December 1995, the Lebanese cabinet approved a decree to organize the Beirut Stock Exchange and a new draft law for the exchange. On the 22nd of January 1996, Beirut stock exchange has reopened in the objective of attracting foreign capitals to the country, and to stop the flow of the Lebanese investments. The Beirut Stock Exchange has been reactivated under new regulations drawn up on international lines with the help of French experts. There will be three markets: the official (or senior) market, the second (Junior) Market (SM) and an Unlisted Securities Market (USM). To be listed on the OM, like the four stocks to be traded on the opening day, companies must have published three successive annual balance sheets, have $3 million capital and at least 100 shareholders. SM-listed companies must have $500,000 to $3 million capital and at least 100 shareholders. SM-listed companies must have $500,000 to $3 million capital and 50 shareholders but need not have published three balance sheets.

In order to be traded on the Unlisted Securities Market (USM), the only requirement is $500,000 capital. There are no regulations, and companies’ shares will be traded on their own responsibility. “It is really to avoid a black market” Mr. Sehnaoui (the president of Beirut Stock exchange) said of the USM. The Beirut Stock Exchange (BSE) supervisory committee will require that the number of public shares be at least 25 percent of the issued equity capital so that there is reasonable assurance of market activity in the securities. The committee must also make information available to the public. Therefore, companies will be obliged to provide information within specific and regular time limits, the BSE chairman said. Such information should include mid-year results, a preliminary final statement and annual accounts.

Companies should also notify the public about proposed dividends, changes in directors and/or shareholders of the company, and substantial corporate acquisition and realizations (including holdings in subsidiaries or associated companies). Only four companies have applied for listing so far, all along 42 listed before the stock exchange closed in 1983 at the height of the 1975-90 war. They are cement manufacturers - Societe des ciments Libanais et Societe des ciments blancs, piping maker Eternit and the famed Casino du Liban, which is preparing to reopen its gambling
halls next spring. Financiers put the combined capitalization of the four companies at $500 million to $600 million compared with estimates of Lebanon’s gross domestic product of up to $9.5 billion. Mr. Sehnaoui hopes that by the end of this year 15 to 20 companies will be listed on the stock exchange, a mixture of new issues and pre-1983 listings.

Lebanon’s booming banks, which need to increase capital rapidly, will seek listing on Beirut Stock exchange as soon as the parliament approves a pending bill to permit them to list up to 30 percent of their shares. It is not clear yet whether domestic treasury bills, which now total $3 billion will also be traded eventually. Nasser Saidi, deputy governor of the Bank of Lebanon, has said to expect up to half the $40 billion in reconstruction capital Lebanon needs to attract from abroad in the next 10 to 15 years will come through the Stock exchange [eco news, January 96].

2.9 An anticipated financial project: the Lebanon Fund

The development of the Beirut Stock Exchange has opened the possibility for different financial projects that create funding for the reconstruction process. Actually, there is a project of creating a Lebanese fund with a paid in capital of $100 million sponsored by the Investment Development Authority of Lebanon (IDAL) with the cooperation of the Lebanon Invest Group and Swiss Banking Corporation (SBC) Warburg. The great interest shown by Lebanese investors both residents and immigrants, and by Arab and Foreign investors in participating in financially feasible projects in Lebanon have pushed the political class to create this fund. The shares of the fund will be listed on the Beirut Stock exchange.

Lebanon Invest and SBC Warburg have prepared a program to invite a selected group of Lebanese, Arab and international financial institutions to establish the fund, and a selected individual and institutional investors from various financial markets to participate in the equity of the fund. Lebanon invest will market the fund’s shares in the Lebanese and Arab markets while SBC Warburg will market the fund shares internationally. The funding group will be responsible for the management of the fund assets. As described by the Investment Development Authority of Lebanon, the fund will participate in the infrastructure rehabilitation projects through:
- Engaging in corporate financing and restructuring of existing companies in need of increased capital and the listing of their shares on the Beirut Stock exchange.
- Launching new projects in need for seed capital and that also wish to be listed on the Beirut Stock Exchange.
- Active participation in projects initiated by the Lebanese government to be executed by the private sector on a BOT basis.

The fund will act as a bridge between investment opportunities in Lebanon and international investor appetite for investing in emerging market. It will thus meet the need for medium and long term funding in Lebanon, and will stimulate the development of the local capital markets [IDAL 95].

2.10 Statistical facts about Lebanon

The Lebanese budget deficit is estimated at $3,537 million dollars for 1993 as listed by the recent Ecochiffres of 1994 / 1995. The exportations were of $686 millions, while the importations were $4,292 millions. The total national income (PIB) is estimated to $8,589.2 millions for the year 1993. Even though the Lebanese government was counting on an important foreign aid to help the reconstruction process, the total sum of the foreign financial aids for 1993 were estimated at $508 millions ($173 millions from multilateral aids, $284 millions from bilateral aids, and $51 millions from non-governmental organizations) [Ecochiffres 94/95].

2.11 The first Lebanese Public / Private partnership - Solidere.

2.11.1 Beirut Central District

a - Necessity for reconstruction

The cultural, economical, and political roles that Beirut had played in the history of Lebanon have pushed the government to restore its status as soon as the war ended. Furthermore, the central
district of Beirut represents the symbol of Lebanese unity, which has urged the authorities to accelerate the reconstruction process in order to eliminate the adverse effects of the war on morale, and to encourage interaction among different groups living from each side of the sectarian line of the capital. In addition, the success of the peace process has created expectations of an economic recovery in the region, and especially in Lebanon, which will increase in the demand for office and commercial space. The development of the Central District will allow Beirut to compete economically and financially with other urban centers in the region [The path of history 95].

b - A general overview

The reconstruction and development of the war-destroyed Beirut Central District (BCD) will involve a surface area of approximately 1.8 million square meters that includes Beirut’s principal public squares, avenues and roads. Affected by the project are such landmarks as Martyrs’ Square, the parliament building, the serail, in addition to Beirut’s most remarkable and historic houses of worship. The project of reconstruction includes:

- The reconstruction and development of 4.69 million square meters of built up space parceled out to ensure a wide variety of activities and the restoration of 265 architecturally-significant buildings,
- the reconstruction of the traditional souks of Beirut over an area of 60,000 square meters. An international Architecture ideas competition, with entries from 42 countries provided the opportunity for general public input into this major development project,
- and the expansion and treatment of the landfill, and the addition of 608,000 square meters of quality urban environment to the BCD. This area will house two marinas, a tree-lined seaside promenade and a 80,000 square-meter green park.

c - Projects expected to end in the year 1998

Currently underway in the BCD are massive infrastructure works scheduled to be completed in 1998. Concurrent with these works, and the reconstruction of the souks, are the treatment and
expansion of the Normandy landfill, the construction of the sea defense lines and the development of a number of other projects.

The projects that will be ready by 1998 include the rehabilitation of the landmark Murr Tower, several office and housing buildings in the Saifi area, and a 5-star hotel project on the waterfront adjacent to Beirut's well-known major hotels, and the restoration of 265 buildings [The path of history 95].

2.11.2 Solidere

The Lebanese Company for the Development and Reconstruction of Beirut Central District S.A.L., SOLIDERE, was formed on May 5, 1994. A statutory general meeting of shareholders has marked the formation of the company, and has launched the largest urban redevelopment project of the 1990s.

a - Capital structure

Solidere was created as an association of property right holders and investors. The property right holders offered the land while the financial contribution of the investors has made possible the execution of the required infrastructure. The capital of the company is 100% equity financed. The equity is divided into two parts: shares of type A for real estate property value, and type B for cash contribution.

Type A

These shares are issued to property owners in the BCD and individuals or corporations with rights therein, against their real estate property contributions as evaluated by the appraisal committees. A higher Appraisal committee placed the final figure on all private real estate value in the Beirut Central District at $1.17 billion. The proportionate distribution of type (A) shares to former property rights holders in the BCD takes place through Distribution Committees appointed by the State.
Type B

These shares are issued to investors against cash subscriptions. The face value of the share amount for $100 at the beginning 1994, and is varying around $120 at the beginning of 1996. The exchange of these shares is restricted among the Lebanese and Arab citizens, by following this priority order:

- Property right holders in Beirut Central District
- Lebanese nationals and private companies
- Lebanese state
- Arab nationals and institutions

The internal regulations of Solidere limit the maximal amount of B shares to the amount of A shares. This means that the number of B shares should not exceed the number of A shares. Both of these types of shares are tax exempted for the first 10 years of the project. Furthermore, these regulations limit the individual or organization ownership in Solidere to 10% of the value of the company [The development and reconstruction of BCD 95].

2.11.3 Why Solidere?

Developing of the central district project focused on two options: either an individual development, or a large scale partnership. The second option was adopted for three main reasons: First, the necessity of rebuilding and developing the central district of the city has pushed the government to search for a quick and efficient solution for the reconstruction phase. The large scale partnership induces more coordination and bigger actions than the individual developers. Secondly, the huge number of individual owners of the central district has made the individual actions useless and impossible to exist efficiently. This large number of owners is mainly due to the inheritance rights residing from the death of a large number of the original owners since 1975. The third reason remains in the necessity to develop an urban environment in Beirut that will allow a better demographic development, more green spaces, and the preservation of the archeological features of the city.
2.11.4 The role of the company

Solidere has been created to fulfill three major responsibilities:

A - Solidere is responsible for financing and executing all infrastructure works in the BCD and the reclaimed area. It will install roads, tunnels, bridges, public spaces, gardens, all networks, pavements, light posts, and a high voltage transformer substation. In addition Solidere’s responsibilities in the reclaimed zone will be to install the infrastructure, treat the landfill, and establish the sea protection and two marinas with a total capacity of about 1000 tourist boats. Solidere will receive 292,000 square meters of land in the reclaimed area as payment for these works, and compensation for land in the traditional BCD, expropriated by the State for public spaces.

B - Secondly, Solidere will act as a real estate developer. The company will develop part of the available land, rehabilitate and restore 266 buildings not renovated by their former owners, and will sell the rest to other real estate developers. About 571,000 square meters of land will be amenable for new development in the traditional BCD and 262,000 square meters in the reclaimed area. This is a very important role for Solidere in order to insure to the public sector that Solidere is not only a land speculator interested in easy profit.

C - Thirdly, Solidere is responsible for the management of real estate properties, buildings and other facilities for a limited period of time.

2.11.5 The program

The reconstruction of the Beirut Central District is a major endeavor of historic proportions. It covers a total land area of approximately 1.8 million square meters including 608,000 square meters of reclaimed land on the sea front. Of the total area, 86.3 hectares will consist of Solidere development plots. The remaining area will consist of government properties, including roads, utilities, squares, and public gardens, and exempted lots.
Planning studies for the project were prepared on the basis of a BCD projected population of 40,000 resident and 100,000 day-time employees. The total floor area of the BCD project is tentatively distributed in the following manner:

Table 1: Total floor area of BCD

<table>
<thead>
<tr>
<th>Built-up area</th>
<th>square meters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offices</td>
<td>1,565,000</td>
</tr>
<tr>
<td>Residential</td>
<td>1,924,000</td>
</tr>
<tr>
<td>Commercial</td>
<td>623,000</td>
</tr>
<tr>
<td>Cultural facilities &amp; Gov offices</td>
<td>358,000</td>
</tr>
<tr>
<td>Hotels</td>
<td>220,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4,690,000</strong></td>
</tr>
</tbody>
</table>

2.11.6 Problems of Solidere

Even though Solidere presents the fastest and more efficient response to the development of Beirut Central District, the opposition to this project is significant in the Lebanese society. The feeling among the Lebanese society is that Solidere has captured freedom of choice from the individual owners by obliging them to participate in this partnership whether they like it or not. No other alternative has been proposed for them in order to conserve their rights or assets in the central district. The owners in particular and the Lebanese population in general felt that they lost control on the future of their capital. This emotional problem is related to the fact that the Lebanese community culture considers land and other physical properties as the safest asset. They are not acquainted in investing in portfolios, shares and bonds through financial institutions.

Furthermore the shares distribution on the property-right holders has been based on the assessment of the land value by two committees designated for this purpose. There is great
disagreement between the owners and the committees on the criteria and the methodology used for the evaluation of the properties. In some experts opinion, the total value of Solidere turns only around 2 billion Dollars (1000$per square meter), which is far away from the real value of the land assets in this region.

On the other hand, the unavailability of a stock exchange to trade the shares has obliged the organizations to trade Solidere’s stock on a Secondary Over-The-Counter market. In this kind of market the availability and rapidity of information flow is not as accurate as in the real stock exchange institutions.

At the end, Solidere was able to reduce but not to overcome the political frictions and power that have always existed in Lebanon. The lack of confidence in the “Lebanese political class” and in the stability of the country, have pushed many Lebanese away from investing in the project.

2.11.7 Anticipated phasing

The project will be developed in two phases:

Phase I: this phase marks the launching of the project and involves major expenditures on primary and secondary infrastructure, underground parkings, marine works, and landfill treatment. During this phase, over 650,000 square meters of preserved built-up area will have to be refurbished before the end of 1996. The development of new buildings will first focus on two major urban magnets able to bring life back to the BCD: the traditional souks area extending to Khan Antoun Bey, and the historic core with its traditional banks sector. The first-phase new developments will also include completion of the Hilton and Starco areas. At the end of this phase, the western marina, with a capacity for 750 boats, will also be available and the sea protection around the reclaimed area will be in its final stages.

Phase II: As landfill treatment works progress and are being finalized, the first years of this phase will be mostly dedicated to complete the development in the traditional area of the BCD. This will include the final renewal of the Martyr’s Square sector and areas surrounding the First Basin, as
well as the new hotel district near the western marina. The completion of the marine works and landfill treatment will allow Solidere to launch the new developments planned on the reclaimed lands [The redevelopment of BCD 95].

2.11.8 Conclusion

The major problems that Solidere will face are related to the archeological, financial, and social difficulties that the company will confront.

The discoveries made by hundred of archeologists and their assistants, with the technical help of the Unesco, have made the Central District of Beirut one of the world’s largest urban archeological excavations. Solidere has played a major role in the financing of the archeological rescue and in preserving the historic monuments. But, in order to conserve all the traces of the past history of Beirut, excavation has been conducted everywhere, even where infrastructure work is in process. Furthermore, the master plan has allocated space for an open archeological area, and a number of discoveries will be integrated into the architecture of new buildings or placed on display in public gardens. This event has slowed the frequency of the work in the BCD, and has changed the original plans for construction.

The financial problem resides from the speculation in the shares value since the creation of the company. In two years, the value of the shares has gone up to $170 per share, than down to $120, without any reasonable, economical, or financial explanation. This has created a fear in the social class from investing in such kind of stocks.

The third problem comes from the fear in the Lebanese population from the acquisition by non-Lebanese of an important part of the central district. This might be done through Lebanese individuals or organizations, due to the foreigners real estate rights law acquisition in Lebanon.
Chapter 3

Public / Private partnerships and Privatization

3.1 Background of Public / Private partnerships

Whether ideological or pragmatic, the dominance of the public sector was thought to make positive contribution to the cause of development and modernization. The experience and the studies made in the last decades are virtually unanimous in concluding that it is far from satisfactory [El-Naggar 89]. But, the poor performance by the public sector in most of the countries goes a long way toward explaining the heightened interest in privatization. It has forced the governments in both developed and underdeveloped countries to reassess the role of the state in economic life.

However, it is well recognized that under conditions of underdevelopment the state will continue to play an important economic role. This is unavoidable given the limitations imposed by small domestic markets, lack of factor mobility, weakness of the private sector, and other imperfections and bottlenecks. In many developing countries, there is evidence that the public sector is overextended and that privatization of a smaller or greater portion could produce only positive results in terms of improved efficiency, lower fiscal deficits, and better allocation of resources [Privatization and structural adjustments]. Privatization is seen as an important step in the direction of reducing imbalances and restoring acceptable rates of growth in developing and underdeveloped countries.

3.2 The public / private partnership concept

A public / Private partnership is a “cooperation” between the public and the private companies in order to provide services to the community. Based on John Gunyou, Financial analysis for public
private partnership, “a public / private partnership is any mutually beneficial activity undertaken by government and business to solve community problems that yield benefits to both the private interest and community at large”. The success of any partnership relies on the satisfaction, and the benefits it provides to the government, to the private companies, to the citizens, and to all the other parties involved in this cooperation. The citizens benefits rely on the good services provided to the community, the government interest is represented by the favorable economical impact and the citizens satisfaction, while the private sector benefits are mostly from the financial perspectives, and more precisely on the return on investment of the project. Each of the different public / private partnerships entail varying degrees of public and private involvement in the determined project.

But, when the market solution cannot be used to address corporate governance problems in the public sector, a structuring of the relationship between government and infrastructure providers is needed. In some cases, the explicit separation of infrastructure service providers from governments starts by changing a government department into a public enterprise in order to increase autonomy and efficiency. This is called “Corporatization”. In others, this may be accomplished by retaining all the decisions in the public sector through the “Performance agreement”.

3.2.1 Corporatization

Corporatization is defined in the World Development Report 1994 as “giving the public enterprise an independent status and subjecting it to the same legal requirements as private firms”. Corporatization means that the entity is subject to standard commercial and tax law, accounting criteria, competition rules and labor law and is less susceptible to government interference. In reality, this transformation is not easy, because public organizations do not face adequate competition or do not have solely commercial objectives.

For example, in Australia, and in recognition of the need to improve the efficiency, and increase the profitability of government business enterprise, the government has restructured them along more commercial lines [Davis 92]. In Indonesia, there are three formal stages in the adoption of
commercial principles. First, the government department is transformed into a government enterprise. Then the enterprise becomes a corporation that still has a combination of commercial and noncommercial goals (Corporatization). Finally the corporation is turned into a profit-oriented entity whose ownership can be shared with the private sector. The direct consequences of these reforms were the double growth in revenues as fast as expenses between 1987 and 1992 [WDR 94].

3.2.2 Performance agreements

"Performance agreement try to increase the accountability of employees and managers and to improve the focus of operations by clarifying performance expectations and the roles, responsibilities, and rewards of all those involved" [WDR 94]. The main purpose of this agreement is to spell out reciprocal commitments of government and managers. The most recent contracts are trying to focus on incentives in order to increase the performance and the effectiveness of these enterprises. Most often, performance indicators are selected to measure results against the trend and according to agreed targets that are set and assessed annually to increase accountability.

For example, Korea has been more successful with performance evaluation than most countries. The performance agreements are an outcome of the 1983 reform of public enterprises. These agreements are intended to permit comparative evaluation of the short and long-term performance of all managers, to ensure that information is available for the evaluation by independent auditors, and to link rewards to management and employees to their performance. Within three years the management performance of executive directors and department chiefs improved substantially in at least 60 percent of the enterprises [WDR 94].

3.3 Types of Public / Private Partnerships

There are different ranges of Public /Private partnerships. These are mainly characterized by the level of the mutual private and public involvement in the specified projects. The private entity involvement may vary from little involvement in a specified phase of the project, to total
involvement in all the phases of a specified project. In the following paragraphs, we will go on describing some of the most common kinds of public / private partnerships.

3.3.1 Management contracts

Management contracts “transfer to private providers the responsibility of managing and operating an infrastructure facility”. These types of contracts are aimed to increase the autonomy of management and reduce the risks of political interference in the day-to-day operations of the public entity. They succeed when a contractor is granted significant autonomy in decision making, and the incentives are based on performance. As a matter of fact, when the public agencies prevent a private contractor from controlling key functions affecting productivity and service quality, the contractor cannot be held accountable for overall performance, and generally the contract is not successful.

In Guinea-Bissau, a management contract signed for the power company is demonstrating that a management contract may work where many performance agreements have failed. Actually, introducing a five-person management team under a foreign management contract improved the national electric utility. The new management team succeeded in doubling electricity sales in just three years [WDR 94].

3.3.2 Lease contracts

Under a lease contract, the government or the private enterprise supplies the major investments for production facilities. The contractor, usually a private entity, then pays for the right to use the facilities in providing services. The contractor, either public or private, bears most of the commercial risks, but not the financial risks associated with large investments. The contract duration is about 30 years. The two types of lease contracts are Public to Private and Private to Public lease contracts.
3.3.2.1 Public to Private lease contracts

In this type of contract, the private sector rents the project from the public sector and is responsible for its operation and maintenance. The ownership remains to the government, at all levels and in all circumstances. There are different ways to determine the lessee rent necessary for the project:
- The private entity takes the project as a package and pays a lump sum to the government. This will reduce the income risk for the government and increase it for the private entity.
- The private company pays a certain percentage of the revenues of the income generated by the project to the government. This will position the public and the private sector at the same level of risk.
- A combination of the above two alternatives. It may a percentage of the revenues of the project with a guaranteed minimum.

The private sector may be interested in such kinds of contracts as it does not have big investments to make for the construction of the project. The private entity has a strong incentive in maximizing the profits from the project, consequently, achieving high efficiency in order to be well evaluated. In Lebanon, Public to Private lease contracts are signed for the developments of the Beirut International Airport facilities and the Free Zones; this issue will be developed in detail in part four of this thesis.

In Guinea, the private sector took over ownership of the urban water supply infrastructure and assumed responsibility for planning and investment in 1989. Under the ten years contract signed, the private company operates and maintains the system at its own commercial risk. Its remuneration is based on user charges actually collected and fees for new collections. From 1989 to 1993, the collection ratio for private customers has increased dramatically (from less than 20% to more than 75%), and technical efficiency and service coverage have improved. [WDR 94]

3.3.2.2 Private to Public Lease contracts

This type of contracts consists of a private financing and ownership of a certain project, and a
public operation. This type of Public/Private partnership will eliminate the cost of designing and building on the government budget. From the absolute point of view, this cooperation may seem interesting, but practically it is difficult to be achieved due to the inefficiency of the government agencies in most of the countries (compared to the private agencies), and to the high expected rate of return desired by the private sector. This type of partnership has been used for the public transportation services in Lebanon.

### 3.3.3 Private to Public sale

This type of partnership involves private financing and public ownership of the project. Most of the time, the transaction of these kinds of partnerships is done at the end of the completion phase. The private sector is not responsible neither for operating nor for maintaining these facilities. It is obvious, that for this type of contract to be beneficial, the interest rate of the credit secured by the private sector is more competitive than the one of the government. This is beneficial to the governments that have difficult current credit standing, but may be very risky to the private entities especially if they expect a high rate of return. A special kind of this private to public sale partnerships is the Build-Operate-Transfer (BOT) model, where the sole transaction occurs later in the life of the project.

### 3.3.4 Build-Operate-Transfer (BOT) (concession contract)

A concession contract incorporates all the features of a lease contract but gives the contractor the added responsibility of investments [WDR 94]. Concession contracts have time periods up to 30 years. The BOT contract is a concession contract with a determined period during which the promoter will own the project, operate it, and benefit financially from its cash flow, than transfer the ownership and management of the project to the public authorities at the end of the concession time agreement. The period of the concession may depend on the expected cash flow of the project, in order to make it feasible. The contract is signed between the host government and the promoter. The first implementation of a BOT project was in turkey in 1985, under Mr. Torgot UZAL, the Prime Minister.
3.3.5 Sale to Public / Leaseback

This type of partnership involves private financing and operation and public ownership. This kind of contracts may be interesting for a certain population that rejects the total private investment in the infrastructure projects and claims the ownership for the government. It may be also interesting for the projects of national security importance in order to allow the governmental control and supervision of this type of projects.

3.3.6 Public to private sale

Public / Private sales engage public financing and private ownership and operation. This type of partnership could be favorable in providing new facilities, but it was shown not to be the most favorable way of corporation. This type of contracts could be very difficult to implement in the countries that have budgetary constraints.

3.3.7 Service contracts

Under the lease or concession contracts, the government turns all operations over to the private sector. But by service contracts, “there will be transfer to service providers the responsibility for delivering a specific service at lower costs, or obtaining specific skills or expertise lacking in the public sector”. This type of services is becoming popular with public infrastructure as it provides a flexible and cost effective tool for increasing responsiveness to users and taps expertise too expensive to maintain permanently on public payrolls. It also permits competition among multiple providers, each with short and specific contracts. In major industrial countries, contracting-out has become the most popular method for providing services as garbage collection, street cleaning, catering for the elderly and government office cleaning [UN 93].

In Chile, meter reading and fee collection in the water supply and sewerage sectors have been handled through service contracts since the 70s. Santiago’s public water company even encourages employees to leave and compete for service contracts [WDR 94]. In addition to local services, considerably larger activities have been let out on contract. These include the operation
of plant mills in Cameroon, wells and irrigation projects in Pakistan, and hotels in Sierra Leone, Tunisia and the Caribbean countries [UN 93].

3.3.8 Leasehold or “affermage”

France has used the leasehold or “affermage” contracts methods with good results. The leasehold agreement as described by “Techniques of Privatization of State-Owned Enterprises by Charles Vuylsteke” works as follows: The private operator rather than the owner is legally responsible for the utility service, collects the fees from consumers and takes the operational risk. It might be required to build into the rates an amount to be remitted to the owner to cover all aspects of the financing costs of the assets utilized. The “affermage” often is concluded for periods of 10 to 15 years, whereas the “concession” is concluded for longer periods of 20 to 30 years. This is because under the concession the private party has financed the underlying assets and needs to regroup its investment. In Lebanon, Leasehold contracts represent one of the options for the private sector involvement in Electricite Du Liban; this topic will be discussed in detail in chapter four of this thesis.

In cote d’Ivoire in 1973, country yard operation and maintenance of the water supply sector was entrusted by such a leasehold arrangement or “affermage” to the Societe de Distribution d’Eau de la Cote d’Ivoire. Leasehold contracts are also extensively applied in Spain (over 80 percent of all water distribution is handled under such arrangements) and are existent in Casablaca (Morocco).

3.3.9 Privatization

This form is the most used form of all the public / private partnerships. It allows maximum of private involvement and minimum of public one. Any project, of public use which is designed, constructed, financed and operated by the private sector, or sold as whole or in part by the public authorities to a private operator is called a privatized project. The responsibilities in the privatization process as described by Goldman and Motives in “the privatization book” relies on the following steps:
- The government has a contractual relationship with the private organization to establish and
operate the facility for public use.
- The public has to pay a service fee in return. From the other side the public’s interests are to be protected by the private organization’s contract with the government.
- The private sector company provides the services to the public and undertakes a major parts of the risk involved in the process. i.e. also responsible of managing, operating, and maintaining the facilities, while making a reasonable profit

3.4 The Public / Private partnerships in Lebanon

3.4.1 The applicability

The leading purpose for the Lebanese government to look for a Public / Private partnership in this period of time is to ease the burden on the governmental finances. The public sector is unable to provide financing for all the needed projects in the country. Accordingly, all the types of contracts that involve public finances might be very beneficial to other countries or regions in the world, but at this time, not for Lebanon. Furthermore, it will be very difficult to implement public / private partnerships that require financing from the private sector and operation from the Lebanese government (for example, Private to Public lease contracts), to two main reasons:

1) The Lebanese public sector performance and efficiency is very low. The private sector will surely not be interested in investing money in projects managed and operated by inefficient public agencies.

2) Due to the different risk factors in Lebanon that will affect the financial and risk sharing sections of the contracts, the private sector owning the project will seek a high rate of return that will be translated into relatively expensive lease payments.

As a matter of fact, privatization or Build-Operate-Transfer contracts may be the most suitable solution for the needs of the Lebanese government and for the benefit of the whole country in general.
3.5 Privatization

3.5.1 Concept

Privatization, a relatively new word in the development terminology, is used to explain a variety of ideas. The word Privatization depicts either the transfer of ownership or management of the public enterprises to the private sector or the dilution of public ownership via increases in private financing of new projects. Currently privatization is becoming a worldwide trend, and it is used by more than 60 countries. The application of this concept has increased enormously in the last decade, while many countries have implemented privatization programs as part of their domestic policy. Although infrastructure markets with numerous suppliers are rare, competition among a few rival providers can lower costs and prices. The theory of contestable markets says that even where economies of scale and scope favor a single provider, the existence of potential rival suppliers that can contest the market limit the risks of monopoly abuse [WDR 94].

The political consequences of Privatization as well as the labor displacement issue involved in the implementation of such programs, are the two main sources of fear of the privatization movement in some countries of the world.

3.5.2 Statistics on Privatization

The eighties marked the age of privatization. According to Privatization International, the total proceeds of divested state-owned enterprises worldwide in 1988 were approximately $29.5 billion. This figure went down to $24.7 billion in 1989 and to $25.3 billion in 1990 [Privatization Yearbook 92]. Due to the collapse of the former Soviet Union and of the Eastern bloc in the late eighties, privatization became an even more strategic development technique. Consequently, the total proceed of privatization reached $53.2 billion in 1991. In 1992, a similar result was evidenced, with worldwide Privatization transactions of over $53 billion in total value [Privatization Yearbook 92].
3.5.3 Governmental evaluation

The government evaluation of a current losses in a public enterprise or for a given project, are not a conclusive argument for privatization. It is often argued that efficiency is not the sole criterion by which the public sector should be judged. There are other considerations which are no less important; prominent among these is redistribution of income [El-Naggar 89]. The financial evaluations of projects are not the critical factors in the governmental decisions. This is due to the role of the public enterprises in the society as creating employment, helping in the regional development, or reaching certain national goals. As a matter of fact, the financial costs caused by the public operation of such facilities is not a good argument for justifying privatization. Indeed the economical costs, which include all the economical and social variables, may be used for evaluation, but with extreme care. Furthermore, a government may take a decision to liquidate a certain public company, when the original objectives for which the public enterprises were achieved, or if the public help is no more necessary.

3.6 Objectives of Privatization

3.6.1 Reduction in the governmentally budget of Public funds

Most of the developed or developing countries governments have faced an enormous increase in their public debt. By adopting a privatization program, a government can hope to improve its own financial and operating positions in various ways. One main aim is to relieve burden on the state treasury [UN 93]. Needed sources of financing for the development of the countries' facilities may increase the governmental debt, unless alternative sources of funding are created. Tax increase proposals have been very unpopular especially in countries where the income taxes are already very high. Increasing debt financing may provide a temporary solution for the government, but on the long run, this may not be applicable. Furthermore, in most of the countries, the governmental borrowings are put under strict control to reduce the inflation.

Therefore, the privatization of selected public enterprises or projects could provide the alternative source of funds, by injecting new private capital equity in the public mechanism. The public
enterprises that are making losses, and require continuous subsidies from the government may be the first candidates for privatization. The privatization process may be the key success factor for the development of a more dynamic economical and social development of a country, while reducing the needs for public funds.

In Lebanon, the GDP of 1994 was 50% less in 1973. Lebanon came out of the war financially weakened, so the success of any privatization project relies mainly on its private financing, as the government lacks the financial power to undertake the rebuilding process alone. The Lebanese state has to invest in lot of public projects that overcome its budget constraints. Furthermore, any increase in the tax policy will not have any effect, as the Lebanese government, due to the obvious reasons prevailing after the war crisis, is unable to collect tax effectively. As a matter of fact, raising taxes for the rebuilding of the infrastructure networks is not an adequate solution in Lebanon.

3.6.2 Increasing efficiency

Increase in production efficiency signifies that a higher output will be derived from a given input, or fewer inputs are needed to produce a given output [El Naggar 89]. The government’s bureaucracy and unproductive control systems represent the reasons for the inefficiency of the public enterprises managers. On the other hand, public institutions are rather slow at implementing projects. The government wishes that the production output of the public company, given inputs of capital, labor and intermediate material, will improve by transferring its ownership to the private sector. The underlying notion is mentioned by Gomez-Ibanez in the Journal of Transportation Economics and Policy as that “the private sector is inherently more efficient than the public sector, and, therefore can build and operate facilities at less cost than the public sector”. The reduction of the political interference in the managerial decisions of the privatized companies, as well as the private managerial incentives would produce profit seeking managers that will control the employees and reduce the expenditures with respect to the profit.

It is also believed that, through the privatization process, the new enterprises will have the ability to dismiss employees and reduce the weight of the labor unions inside the company. This will
most probably lead to an increase in efficiency in the use of labor and to less pressure on the management towards wage-inflation.

3.6.3 Allow competition

My impression is that the increase of efficiency in the operation due to privatization is mainly due to competition in the industry. In “The Privatization Decision: Public ends, Private Means”, the author argues that “public vs. private matters, but competitive vs. non-competitive usually matters more”. In my opinion, any private monopoly will not have a better performance than a public enterprise. Actually, there is no competition in the public sector due to the increase in the artificial entry barriers set by the government, and to the infinite financial support of the government by the subsidies. Through privatization, and even if the operations are maintained by a single company, the destruction of these entry barriers, and the collapse of the governmental financial support may create the threat of takeover by new entrants that increase the efficiency of the enterprise. From the internal point of view, the employees and the management of a private company are more concerned about their performance and their responsibilities. These fears in the private sector come from the insecurity of employment that may lead the dismissal of the inefficient employees. The threat of dismissal may lead to an increase in efficiency.

Systematic evidence of efficiency gains from greater competition comes mainly from the United States, which, after years of regulation, has introduced a number of major deregulatory initiatives over the past two decades. In virtually all sectors, greater competition has led to lower prices or better services for consumers, while efficiency gains and new technologies or business practices have led to sustained profitability. In Sri Lanka, competition has stimulated both innovations and cost reduction in the public transport and in the telecommunications networks. [WDR 94]

In Lebanon, due to the war, the public enterprises has lost the most of their qualified employees. This is mostly due to the deflation in the Lebanese pound. In 1982, one Dollar worthed one Lebanese Pound. Nowadays, one Dollar worths 1600 Lebanese Pounds. Furthermore, the wages of the governmental employees are evaluated in the Lebanese pounds (L.P). The parity effect has made the wages of the public sector ridiculous with respect to the hard currencies, even though
there has been large wage increases. Unfortunately, till now, the government, due to its wage and remuneration systems, is unable to attract high level of expertise to increase the public agency performance and allow the technology transfer opportunities. A Lebanese or foreign private enterprise may be able to attract the necessary expertise by providing motivation through high financial incentives and well defined career path.

3.6.4 Reduction in the political intervention

All the public agencies over the world have direct interference from the government in the decision making process. This influence may vary between the developed and the developing countries, and has different levels in each category. By divesting its share from the company, the government will no longer interfere in the daily managerial decision process, and will loose its direct influence. In the developing countries, politicians expect considerable benefits to their own constituency from the infrastructure facilities. Even by privatizing such enterprises, the influence will not totally disappear. But in that case the final decision remains between the hands of the manager of the private company that acts on behalf of the company’s benefits.

The political and sectarian interventions in the public agencies have always existed in Lebanon since the independence. From the conception of the Lebanese society, it is obvious that sectarian disputes over political power and search for financial benefits of each sector over the others are expected to hamper the progress of the reconstruction plans. Furthermore, the ridiculous wages of the governmental employees, and the different political and military influence over the daily work of the public sector have made the Lebanese public institutions considerably abused by corruption during the chaotic war period. Therefore, in order to conduct successful projects, a restructuring of most of the Lebanese institutions is needed. This is a lengthy and costly procedure, and could not be done to all of the institutions at the same time. Furthermore, the reduction of the political intervention may increase the national and international credibility of the government in managing and delegating the power to its infrastructure facilities.
3.6.5 Attract foreign capital

The privatization of projects will help to attract foreign investors to the country, and to reduce the flight of the domestic capitals to other countries. Needless to say, there are numerous benefits for mobilizing capital into a country ranging from providing hard currencies to fueling up the whole economy.

At last, the privatization process will free up the officials resources to focus on their main tasks in governing the country, and creating social stability.

3.7 Problems of privatization

3.7.1 Quality of the services provided

The main objective of a private company is to maximize its profits. As the fares are fixed by the government in most of the privatized infrastructures, the companies try often to cut costs. By following this strategy, the levels of service quality and safety standards may be reduced. As a matter of fact, the level of service quality and the safety standards should be monitored by the government. Efficient public control agencies with the sole objective of controlling the private operators, are crucial to ensure the quality of services, enforce the contracts constraints and guarantee the success of any kind of partnership.

Furthermore, the services should be controlled by the public authorities to ensure that the poor will have access to it. The government may entail subsidizing only those users that are too poor to pay market level prices.

3.7.2 Private risk

The private company may change the objectives of a privatized firm in order to meet its objectives. The private company may change the scope of operation, and may abandon some unprofitable operations. It may go bankrupt or have serious financial problems. As a matter of
fact, the government should keep control over the firm’s assets and operation to secure adequate provision of the infrastructure services deemed indispensable to the society. In addition, the private companies should be selected carefully, based on their financial situation and past performance, in order to reduce the private operator risk.

3.7.3 Social concepts

The involvement of external companies and the abandonment of the infrastructure services by the public enterprises may reduce social welfare significantly. In most of the countries, the public enterprises are often expected to pursue social objectives. Therefore, they are frequently used to assist certain defavorised regions, promote income redistribution, create employment, and benefit the consumers by subsidizing the price of their products. This social problem is purely ideological, and ranges in the idea that public enterprises should be organized for services and not for profit. On the other hand, the public employees unions try to block any kind of reform, including privatization, from the fear of job losses. These special social concerns should be confronted to overcome the different problems and provide a solid ground for privatization.

3.8 Financing Privatization

Techniques for financing privatization have implications for the broadening of share ownership on stock markets and for the general development of capital markets. The most common of these techniques is the bond market.

3.8.1 Bond market

Bond can attract to infrastructure financing a whole new class of investors, such as pension funds and insurance companies seeking long-term, stable returns. Government bond issues establish the benchmarks for bond markets overall. In developing countries, the use of bond financing is in its early stages. Revenue bonds (used for greenfield projects and paid back from the project’s revenues) are new in infrastructure finance in developing countries. Corporate or municipal bonds, based on the credit of a company or a government authority, have been used by
infrastructure entities, but the bonds have often been placed on international markets because domestic bond markets are underdeveloped.

3.9 Risk analysis of infrastructure projects

3.9.1 Risks during construction phase

The risks that the private company is running during the construction phase, may be due to external and internal problems. The external problems are related to the environment, mainly to the governmental and political regulations and changes, and to the economical and financial problems. The internal problems are mostly related to technical problems or ones related to the company health as whole.

3.9.1.1 Regulations

Any uncertainty concerning changes in government regulation, particularly during the developmental stages of a project, increases the riskiness of the project. A persuasive political risk exists in that the government can change the ground rules at any stage of a project [Davis 92].

3.9.1.2 Inflation and interest rates

The volatility of inflation rates represents a real risk to equity investors as it increases the uncertainty of the revenue and cost cash flow streams and adds to the risk of the project. This may be a determinant parameter for investing or not in hyper-inflationary countries. On the other hand, changes in interest rates often come about through government monetary decisions, and affect the net worth of the project through the discount rate used to calculate the net present value. Thus interest rate risk can also be affected by regulatory risk.

3.9.1.3 Technical construction risks

Construction risks are assumed solely by the company, and not by the equity investors, in typical
infrastructure projects. The company may suffer from severe penalties if construction is not completed on time or is subject to cost revenue. Technology, project size, project management competence, regulation and contractual arrangements are some of the variables affecting cost escalation [Davis 92].

These risks may lead to increase in the construction overruns and to delays in the completion of the project (which may cause also an increase in the construction costs or delays). Other more serious consequences may be the non-completion of the project, or the non-conformance to needs or specifications. The company may bypass these risks by concluding detailed contracts, hedging the external problems by insurance policies, and controlling the variances between the real and the schedule costs.

3.9.2 Risks in the operation phase

Similarly the risks that a private company may face are related to external and internal problems. The same political and economical risks are faced, while other internal risks should be challenged. This is mainly due to the bad estimation of the revenues and of the costs. The small margin fixed by the government for the infrastructure facilities makes these projects very sensitive to their revenues. Any variance in the revenues may lead to the total collapse of the project.

3.9.2.1 Operational risk

The private sector faces the problem of obsolescence of the technology involved, if he must operate the plant over a long period of time. This should be amortized over the projected life of the project, when handing it back to the government. Furthermore, there are the usual operational risks associated with owning and operating plants and equipments.

3.9.2.2 Information and maturity

The private provision of infrastructure is a new area of activity, and with little experience to go on
there is reduced information and by definition increased risk [Brunker 92]. This uncertainty will lead to an increase in the variability of cash flow about expected return. It is likely that infrastructure projects will be treated in caution until the several projects that are currently under construction and in varying stages of operation have demonstrated their viability to potential investors. Furthermore, infrastructure projects have orientation differences with the capital market. If the market has a short term orientation, while infrastructure projects are typically long-term oriented, investors will demand a risk premium to compensate them for the fact that their maturity preference is not satisfied.

3.9.2.3 Revenue risk

Revenue is one of the major risks for the private providers of infrastructure. Demand and price of the output determine the future cash flows of the projects. Forecasting the customer base and allowing for uncertainty in these forecasts are needed to measure the demand risk. The under estimation of the operating costs should be handled by the private entity due to the price constraints fixed for most vital infrastructure projects by the government. Take-or-pay contracts between the government and the private company up to some specified level to underpin the revenue flow, should be concluded. Furthermore, there may be some technical failures as equipment collapse, or construction failure, that may be due to the bad quality control and management.

3.10 Strategic planning criteria for privatization

3.10.1 Levels of privatization

Once a government has taken the decision to follow a privatization process, the question becomes how to achieve it in the most effective and efficient manner. As defined in “Privatization: the financial implications”, a privatization strategy can be seen to exist at three levels:
- first level: in the global sense of a government seeking to optimize a privatization program for a range of industries over time.
Second level: at that level, of a government considering privatizing a particular Government
Business Enterprise.

At the global level there is the question of which sector or industry should be privatized first based on its relative levels of Corporatization, and the respectiveness of its employees, management and the general public to such a shift. At this level of strategic thinking could also be applied the questions about the method of privatization to be applied over time.

3.11 Strategic planning forces

The strategic planning model for privatization is best resumed in the ‘six P’s Framework’: Politics, People, Privatization Strategy and Performance described below.

Politics: There must a political will to pursue a strategy of privatization, and to explain the inefficiency arising from government ownership of businesses enterprises.

People: In any privatization strategy it is vital to secure the support of the major interest groups of the population. These groups are the owners, consumers, prospective investors, employees an managers.

Policy: The government can influence the product market outcome through its policy settings. Government policy will ideally seek to create a competitive market framework by dividing that monopoly into efficient and economically viable independent firms.

Pricing: Finance and politics are inextricably linked with one another in privatization. There is a strong connection between politics and market price.

Privatization Strategy: There are many components in the implementation of the privatization strategy which emerge from the government’s consideration of competing goals and interests, and the constraints imposed by the product and capital market. Of these strategies for example is the people that are going to manage these enterprises, the transactions costs, and the resulting redistribution of wealth in the community should be acceptable.

Performance: The main components of the expected performance evaluation is the price, transaction cost, employment levels and environmental impacts.
3.12 Readying enterprises for privatization

Before launching a privatization program, an overall master plan should be drawn up that is congruent with the government's long-run political, economical and social goals. Action plans are than developed from the master plan, taking into consideration the implications for resources as well as investment and consumption outlays. At the third level there is the plan for the privatization of a particular state-owned enterprise or a group of them [UN 93].

The planning and management of an individual privatization involve three stages: feasibility,
assessment, preparation, and implementation.

3.12.1 Feasibility assessment

The first candidate chosen by the government should be as attractive as possible in order to provide a favorable climate for subsequent transfers of ownership. It is the most difficult and most important decision to take, especially if it is the first privatization application. After the selection process, an assessment of the overall situation takes place based on the general business climate, the section of the market affected, the level of potential investors interest, the availability of financial resources, and the financial and operating profile of the potential companies. The main objective of this assessment process is not only to select the privatized candidate, but also to find out the most appropriate privatizing techniques to be adopted.

3.12.2 Preparation stage

When the decision for the selection is taken, the state owned enterprise is made ready, legislation is prepared, initial valuations are made, and certain key decisions should be taken in order to make the ownership transfer as smooth as possible. The required legalities will depend on the privatization method to be followed and the market environment affected. For example, if the public enterprise is a monopoly, characteristics inherent in the market for the privatized enterprise goods and services, a new regulatory framework needs to be put in place and an oversight body empowered to protect consumer interests, while at the same time minimizing possible regulatory threats to enterprise efficiency [UN 93]. A restructuring in the capital structure is needed in order to be able to fully or partially privatize. This could involve refinancing debt, reorganizing operations to reduce or eliminate unprofitable activities, slimming down the payroll or bringing in new management.

The final major step in the evaluation process is the evaluation and pricing. There are opposite attitudes in this phase that can be explained in the following couplet:
If a government enterprise is making money, the government won't sell it:
If it's losing money, the private sector won't buy it.

[Selling public enterprises 1990]

This may not be applicable in practice, as assets are sold when buyers and sellers value them differently, thus creating a positive-sum game where both parties can gain. Hence, the sale of a public enterprise is easier than of the sale of a private one, as government preference and management styles differ considerably from those in the private sector, which make differential valuations likely to be large [Jones 90]. Even though the pricing techniques could be difficult, two key determinants of valuation may be selected: the potential market response and the entreprise’s history of profitability. Setting a fair price that is within the range of the targeted buyers will be challenging if the entreprise’s profit history is poor or weak because prices are linked to potential earnings capacity. An aspect of the market interest is the consideration of the buyer motivation, particularly in the light of the particular market involved, as well as general business conditions. Higher prices can be commended if buyers perceive opportunities for improving enterprise efficiency, as well as achieving certain market dominance with a minimum of regulatory interference. As a matter of fact, buyer interest has to be stimulated through special fiscal and financial concessions as tax holidays, lower interest rates and so forth. It is therefore critical that government fiscal policies and privatization policies be coordinated tightly through the preparation phase [UN 93].

3.12.3 The implementation phase

In the implementation phase, a detailed calendar of events has proven to be the most valuable for the essential coordination of people, activities and events so that the process may unfold in logical and timely progression. Drawing up such a document can help to cut down misunderstandings and confusion that necessary arise when a complicated task is undertaken, and match the best resource inputs and performance outputs over the allowed and available time period.
Chapter 4

The infrastructure in Lebanon

4.1 Introduction

In early 1990s, the Lebanese government recognized the necessity of major efforts to upgrade, change, or expand many aspects of the infrastructure facilities in the country to ensure continued services well into the next century. To this end, a redevelopment program has been established at the end of the war to provide better infrastructure services for the citizens. Based on this redevelopment program, the government recognized that it was in its best interest to privatize as much of the infrastructure services as possible. In addition, the government was not only lacking the financial capabilities, it was also losing political support due to the Lebanese infrastructure history of inefficiencies. As a matter of fact, different facilities have undergone the privatization process while others are underway. Several of these services will be examined in this thesis of which: Beirut International Airport, the Free Zones, Beirut - Damascus highway and the boulevard peripherique, the public transportation system, the electric power (EDL), the telecommunication systems, and the Beirut / Awali water conveyor.

4.1.1 Objectives of this Public/Private partnerships

In general, the Lebanese government objectives are similar to the other governments involved in public / private partnerships. The goals have financial, economic, operational, social, political and environmental aspects, however the Public Authority’s primarily objective focussed on the financial aspects. These main goals are:

Financial: The Lebanese government wants to ensure a reliable base line for revenue streams, yet minimizing or eliminating their financial risks and any capital participation, including issuing debt obligations backed by the government. Charges to the users of these facilities should be kept
at a reasonable rate comparable to the actual cost of such services.

**Economic:** The Public authorities wish to maintain the infrastructures current impacts on industry and commerce for the affected regions and provide high level of employment at these infrastructure facilities. Furthermore, the government wants to promote high income levels for those working at the privatized facilities and minimizes user costs. It imposes a maximum level of employees dismissal and credits the proposal in which minimum turnover of current employees is addressed. This limits the independence of the private company vis-a-vis the public authority.

**Operational:** The developer should build new facilities or expand old ones which meet the needs of the public users, the country and the private developer. These new developments should be designed appropriately to satisfy all the players involved in the process.

**Social:** The social objectives are to maximize the accessibility of the infrastructure facilities to the region they serve and optimize the access to the overall infrastructure facilities in the country. Furthermore, infrastructure facilities are used to alleviate unemployment and spread the benefits and disadvantages of the infrastructure evenly across the country.

**Political:** The ultimate political and strategic goals of the authority in upgrading, changing and expanding many aspects of the infrastructure in the country are to ensure good transportation and financial services into the next century and to better serve the public interests. These infrastructure facilities should be of reputable international standard to serve the country’s objectives.

**Environmental:** The Public authority’s interest in this arena is to hold the private company fully responsible for all the environmental compliances related to its premise and its use as imposed by the Lebanese Ministry of Environment laws.

Based on these objectives, and on the benefit / risk occurring from the public / private partnerships, the Lebanese government considers using the Build-Operate-Transfer (BOT), the leasing and leasehold contracts, as the best tools for serving its infrastructure facilities
4.2 Beirut International Airport

4.2.1 Importance of air transportation

The importance of air transportation to the social and economic life of the nation stems from its dual nature, as an economic resource which makes possible other social and economic development, and as a productive entity which competes in the market for resources.

The unique contribution of air transportation is Speed. Speed enables what must be done to be done more quickly, and when the value of time is reckoned as a cost, to be done more cheaply, despite higher money costs associated with air transportation. The air transportation system involves:

a - Ground transportation sub-systems which brings persons, cargo and mail from the starting point of the trip to the originating airport terminal building, and from the destination airport terminal building to the final destination of the trip.

b - Airport terminal sub-systems which affect the transfer of passengers, cargo, and mail between the ground transport vehicles and aircraft.

c - The airspace sub-systems which actually transfer person, cargo and mail from one airport to another.

Each of the mentioned sub-systems has its effect on the efficiency and economy of the complete system. Any advance in any one of them if not coupled with parallel advance in the others, may lose much of its potential advantages.

4.2.2 Beirut International Airport

The airport disposes actually of two runways of 3,200 meters each. It was constructed originally in the early 1950’s. In 1958, the runways were extended from 2,400 to 3,200 meters in order to receive the Boeing 707. The terminal was however remodeled and enlarged many times since then till 1975. During the war, the expansion plans and the maintenance routines were not respected at all.
Beirut International Airport contains all the necessary services in its sub-system (Free Zone, Catering, Duty Free...), but these services were not managed nor maintained properly due to the political and military instability in the country.

The possibility of re-selling the International Airport has been considered many time than disregarded. One of the major reasons for this decision was the proximity of the present site to the capital, which constitutes a very important element in the economical and political favorable conditions of Lebanon. Beirut is in need of its Airport which in return needs it.

4.2.2.1 Need for the Airport

Since the end of the war, there is a political and economical will to modernize and develop the Airport. A study conducted by the Investment Development Authority of Lebanon (IDAL) has been approved in order to expand and modernize the Airport and its services. Seven sub-projects have been analyzed and proposed.

4.2.3 Description of the projects

Seven major activities at the International Airport of Beirut have been on way for a private partnership based on the Beirut Airport expansion plan designed for a capacity of 6 million passengers per year. The seven activities include the free zone, 4 star hotel, Airport car Park, Airport Catering & Restaurants, Airport Duty Free, Airport cargo handling and building and Airport fuel facilities.

4.2.3.1 The Free Zone

The free zone at the Beirut International Airport has access to the air side and to the land side of the airport. The free zone will be developed to accommodate the 150,000 square meter (floor area) of building units, intended for duty free zone including bonded stores, light industry and trading. The units will be in modular form, capable of division into smaller units or combination
into larger units to be finished and equipped by the operator.

The operator will manage and operate the facility or sub-let the unit to other operators for similar operations. He shall adapt the building units to his needs and expenses by following the security, health and safety restrictions imposed by the contract. The estimated budget of the project is 6 million dollars.

4.2.3.2 4 Star Hotel

The hotel at Beirut International Airport comprises the top three floors of the Terminal building. The facility will be built by the owner as the part of the Beirut Airport expansion contract awarded on the basis of a 6 million passengers per year capacity. It is intended to be as a 4-star hotel, having 94 bedrooms, a panoramic restaurant, public bars, lounges and conference/functions area. The hotel will be handed over to the operator in ‘shell’ form. The operator will have to complete the finishing fitting out and engineering installations, and provide the furniture furnishings loose equipment, table linen, crockery and cooking utensils etc...

As for the free zone’s operator, the 4 star hotel operator will manage and operate the facility or sub-let the unit to others for similar operations. The operator will adapt the building units to his needs at his own expense subject to the basic health security, safety, and pollution restrictions. The estimated budget of this project is of 15 million dollars.

4.2.3.3 Airport Car Park

The Airport Car Park is located in front of the terminal building and has 2,350 car spaces. It is formed of an open air ground floor and a two story basement. The estimated budget of this project is of 18 million dollars.

4.2.3.4 Airport catering and restaurants

The catering building at Beirut International Airport has a total floor area of 12,000 square meters.
The restaurants in the terminal building comprise: a land side restaurant for the visitors, a staff restaurant, a land-side kitchen, an air side restaurant for the travellers, an air side kitchen and a snack bar. The estimated project size is of 18 million dollars.

4.2.3.5 Airport Duty Free

The duty free areas are in the terminal of the building on the air side. They are on the ground, first and second floors. The total area of the duty free is of 6,200 square meters. The estimated project size is of 4 million dollars. The rental rate for the facilities per Square meters per year will be for $5 for the land, $40/$50 for the warehouse, and $100 for the offices. The estimated project size is of 4 million Dollars.

4.2.3.6 Airport Cargo Handling building

Two buildings are to be let for the Cargo Handling services. A new building of 6,900 square meters, containing cargo storage halls, operators’ offices for letting to airlines and shipping agencies. The existing building will be remodeled to contain 10,300 square meters area for cargo storage, offices and other facilities and an additional area of 5,200 square meters for use by the customs authorities. Storage racks and mechanical cargo handling equipment will be supplied. The estimated project size is of 10 million dollars.

4.2.3.7 Airport Fuel Facilities

The fuel farm is a facility to store and feed aviation fuel needed for Beirut International Airport. It consists of three storage steel cylindric tanks, each of 6,000 cubic meters capacity, tank supply pumps complete with hosing systems to fill tanks feeding pumps to supply the fuel hydrants through the existing fuel network an administration building, an electric generator / transformer station, and foam fire fighting network including fire pumps and a water reservoir. The estimated project size is of 29 million dollars.
4.2.4 The public / private partnership

The public / private contracts to develop these seven facilities are an Operate and Transfer (O.T) type of contracts. Some of the facilities have already been contracted, while there are request for proposals out at the present time for the others. The contracts are based on a 15 years lease starting in October 1998. The contracted values of the lease are to be paid in 4 equal yearly installments beginning on contract signature date or better. During the 15 years of the lease agreement, a percentage of the gross profit based on the annual number of passengers is paid yearly. The amount is fixed for an estimated 1.5 million passengers (or less), and will increase for each 0.5 million increment [Dr. Shoucair - Interview January 96]. The duration of these lease agreements is of 15 years, and they are under the supervision of the Investment Development Authority of Lebanon (IDAL). The government of Lebanon will remain the exclusive owner of all these facilities at any time of the partnership. Furthermore, in an attempt to encourage the foreign investment in the country, there is no restriction of any kind on the involvement of the foreign operators interested.

4.2.5 Selection criteria

The successful OT bidder will be chosen on the basis of his business plan, with particular reference to his capability to attract businesses and his ability to efficiently manage the facilities. Each bid package is proposed separately. It is interesting to notice, that the actual Lebanese law allow the privatization of such facilities [Dr. Boutros Labake, Vice-President CDR - Interview January 96].

4.2.6 Reasons of the Airport’s privatization

The main reason for adopting the Public / Private partnership for these projects is the lack of financial resources in the public sector. The government is unable to finance the reconstruction of the Airport without the help of the private sector. The amount of money paid by the private firm while signing the contract and the three annual payments that will follow, will afford the financial needs for building the necessary properties. The value of each of these seven projects was
evaluated, and the expected value of the 15 years lease range between 1.5 and 2 times the value of the asset. The ownership of the facilities will remain for the government in all the stages of the partnership. The operate and transfer contracts are expected to provide more efficiency in the management of such projects and to oblige the private companies running the facilities to integrate the governmental employees affected by these contracts in their staff. Some of the contracts including the fuel facilities and the duty free shops are already signed [Dr. Youssef Shoucair - Interview January 96].
4.3 The Free Zones

4.3.1 Introduction

The coming Middle-East peace process is going to boost trade throughout the region and no country stands to benefit as much as Lebanon. The complete rebuilding of the country’s infrastructure, combined with the strategic location and historic trading links make Lebanon’s free zones an ideal location for business looking for profitable growth. The growing markets in the region have always depended on Lebanon for a large portion of their imports. Actually, a link is still missing in the complex line of goods transport. These links represented as the goods logistic platforms (Free Zones), that are used to consolidate store and deliver the goods, are presently scattered and distributed on a very fragmented basis. Any Free Zone activity is mainly formed of warehouses where merchandise free from the country’s custom is stocked before being distributed to other countries.

The new free zones that are planned will provide first class infrastructure, utilities and telecommunications. They are ready to use warehouses, factories and offices for long or short term rentals that provide easy and rapid distribution network to the Middle-East and Europe. These sites will have the added advantage of grouping related industries and services supporting them in one location, accessible to good transportation links, and to regional and international markets.

Seven free zones sites will be created: Tyr, Saida, Saalta, Northern Metn, Al-Qleaat, Riyak, and Beirut Airport (refer to the map). The location of these areas near existing and future urbanized areas, as well as their direct access to primary road networks and their possible branching off to the railway service, have made them ideal to provide the needed logistic link. Five of these zones (excluding Northern Metn and Saalta) have been subjected to deeper studies in order to determine the specifications and the kind of Public / Private partnership recommended. The Beirut Airport free zone is examined in the Airport infrastructure facilities section of this research. Two sites already exist at Beirut and Tripoli Ports; Al-Qleaat, Riyak, and Beirut Airport sites will be available for end users by mid 1996, and the rest will be available by late 1997. The free zones
management can be divided into two parts: Beirut and Tripoli Free Zones will be managed by the
ports administration, while Riyak, Al-Qleaat and Beirut Airport free zones will be managed by
private operators through a bidding process. The government will keep the control of site
selection and primary servicing.

4.3.2 Al-Qleaat and Riyak Airport Free Zones

4.3.2.1 Description of the projects

Free Zone at Al-Qleaat Airport

This project requires investing $24 million over a period of 5 to 10 years ($13 million investment
in infrastructure and an optional $11 million superstructure cost over a period of 5 to 10 years).
The Al-Qleaat free zone will include trade, industry and services and is located at a distance of
about 24 Km north of the city of Tripoli and 7 Km south of the Lebanese-Syrian border. The site
covers an area of about 0.5 million of square meters. The free zone activities will include trade,
industry and services. The site has access to an international highway, a coastal road, and to the
Tripoli seaport.

Free Zone at Riyak Airport

This project will require an investment of $22 million over a period of 5 to 10 years. The Riyak
free zone activities will attract trade industry and services and is located on the North-East of
Riyak airport, 8 Km east of Zahle. The site covers an area of about 500,000 square meters. The
site has access to an international highway system linking it to Beirut and Damascus.

4.3.2.2 Type of Public/Private partnership

The 25 years Build Operate Transfer (BOT) type of contracts will be adopted in these two
projects. The BOT contractor establishes, operates and maintains the required infrastructure, the
administration building and other facilities, and provides selected services for site users. The
contractor recovers the investment and operating costs, and makes a profit by retaining a major portion of the rent received from land and building tenants, and from fees charged on services to tenants. The contractor will manage and operate the site in accordance with the Free Zone regulations applied with the support of the Investment Development Authority of Lebanon (IDAL). Upon expiry of the contract, the site will be returned to the Lebanese government with an option to negotiate a new public/private partnership contract.

4.3.3 Beirut and Tripoli Port Free Zones

4.3.3.1 Description of the projects

Beirut Port
The free zone at Beirut Port has access to the marine-side and land-side of the port. The site covers 25,000 square meters of land, 25,000 square meters of buildings, and an anticipated future buildings of 75,000 square meters. The free zone activities will attract trade and industry. The site has access to an international highway system linking it to Damascus via the Bekaa Valley, and to the coastal road passing from the South to the North.

Tripoli Port
The Free Zone at Tripoli Port has access to the marine-side and land-side of the port. The site covers an area of 173,000 square meters. The free zone’s activities will attract trade an industry. The site has access to the international coastal highway of Lebanon.

4.3.4 Rental costs
The rental cost of these services per US $per square meters per year of these facilities is provided in the following table:
### Table 2: Rental cost of the different free zones services

<table>
<thead>
<tr>
<th>Location</th>
<th>Land</th>
<th>Factory / warehouse units</th>
<th>Office</th>
<th>Utilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beirut port</td>
<td>T.B.A</td>
<td>$95 per gr. floor $60 upper floors</td>
<td>-</td>
<td>1 Kwh: 200 LPB Water: 134,000 LPB/m(3)/year</td>
</tr>
<tr>
<td>Tripoli port</td>
<td>$8</td>
<td>$12</td>
<td>-</td>
<td>Same</td>
</tr>
<tr>
<td>Riyak</td>
<td>$5</td>
<td>$40/$50</td>
<td>$100</td>
<td>Same</td>
</tr>
<tr>
<td>Al-Qleaat</td>
<td>$5</td>
<td>$40/$50</td>
<td>$100</td>
<td>Same</td>
</tr>
<tr>
<td>Beirut Airport</td>
<td>$5</td>
<td>$40/$50</td>
<td>$100</td>
<td>Same</td>
</tr>
</tbody>
</table>

Source: Investment Development Authority of Lebanon (IDAL 95)
4.4 Road networks

4.4.1 Introduction

The main objectives of the mass transit system in Lebanon are to ensure the connection between Greater Beirut and its national and international surroundings, improve the accessibility of Beirut suburbs, and serve the large development poles of greater Beirut area (Airport, Port, Beirut Central District...). This will contribute in a stronger manner to recover the former role of Beirut as a gate to the Middle-East and a link between the East and the West. Actually, a number of road axes surrounding the cities experience an important traffic volume and a severe overloading that may reach 180,000 vehicles per day on some highways as the coastal highway from Antelias along the North [Team report - 1994].

4.4.2 Components of the road network

The long-term road network is a hierarchical and meshed network composed of motorways, expressways, and urban boulevards. It is organized around a major axis: Beirut Peripherique Boulevard.

The basic future road network is 248 kilometers which includes the Boulevard Peripherique (from Khalde to Antelias) of 18 kms long, a network of expressways of 23 kms long, an urban boulevards of 122 kms ensuring the secondary servicing of Greater Beirut area, and five long distance motorways linking Beirut to the rest of the country: two to the North, one to the East (Damascus motorway), and two to the South, existing coastal motorway and a new mountain highway linking Choueiffate to Damour.

The proposed road network is splited-up among already existing roads or an upgrade of existing ones, and among entirely new roads. The investment cost of the long-term road network has been evaluated at $4 billion, 75% of which will be devoted to motorways. Land expropriation is costly, and might represent half of the total cost of the program. The government is not able to provide the funding for all these projects and may ask for the financial cooperation of the private sector.
But, this kind of public/private partnership can be applied only to the highways that have alternative existing routes. Nevertheless, a number of roads might experience severe overloading, above the saturation rate of 1.06, while the others operation is supposed to be satisfactory and the average saturation rate of road networking during the peak hour will stay under 1 [Team report 94].

4.4.3 The short-term project: Hadath - Syrian border highway and the péripherique boulevard

4.4.3.1 History of the studies

In 1969, the Lebanese government hired a number of Lebanese and international consultant firms to conduct a study for a highway project connecting Beirut to the Syrian border in two steps: first to study the economic and technical feasibility of the project, than to propose a project based on the feasibility study. In 1974, the final studies were achieved. In 1980, the final execution plans of the part relating Beirut to Chtaura were finalized, while the studies for Chtaura to the Syrian border ended in 1986. During the recovery period of 1982-1984, the government gave the final approval on the project.

4.4.3.2 History of the project

The project of the Beirut-Syrian border highway is the main road system that connects the Mediterranean sea to the Red sea, going from Beirut through Damascus, Amman, Akaba and Jeddah, and to the Persian Golf through Damascus, Bagdad, Kuwait and the United Arabic Emirates. This highway starts in Hadath in the Southern suburbs of Beirut, passes the West part of Mount-Lebanon before reaching the Bekaa-Valley that leads it to the Syrian border.

The work was supposed to start in 1985 with an estimated cost of 1.2 billion Lebanese Pounds, which was the equivalent of 300 million dollars. But the deflation rate of the Lebanese Pound at that time, and the unstable military and political situation postponed the starting date of the project. In 1993, under the law code number 246, the project has been reactivated and the bids
were awarded to international firms by the end of 1995. Among seventeen road proposals, the actual project was chosen due to its economical and technical advantages.

4.4.4 Description of the project

The expected high cost of the project, the low financial capabilities of the public to finance all the needed infrastructure facilities, and the urgent need of a new Beirut - Damascus link have pushed the government to opt for the BOT concession contracts. The estimated construction cost of the highway is of $800 million including all the lighting equipments and the two tunnels, each of 750 meters. The contracting firm is expected to throw 12 million cubic meters of excavation and to pour 300,000 cubic meters of concrete in difficult geological conditions.

The mountainous geographical location of the highway makes it pass from zero to 2,500 meters of altitude in 30 kms. The total length of 61,813 Kms is studied for a basic speed of 80 Km / hr. Four lanes of each side are expected for the portion between Hadath and Jamhour on a total length of 5,325 Kms. For the last 56,448 Kms between Jamhour and the Syrian border the design expects three lanes from each side. A lane for emergency stops is designed with a width of 2,70 meters. The width of the other lanes varies from 3,75 to 3,50 meters. For the two tunnels, the nine interchanges and the 29 bridges that serve the highway, the European regulations and specifications are required.

Due to the problems of expropriation, the total duration of the project is estimated to vary between 7 and 8 years on two phases. The first phase will take four years to be achieved and covers the portion between Hadath to Bhamdoun, and the second phase will also require four years approximately and covers the part between Bhamdoun to the Syrian border.

4.4.4 Objectives of the project

The actual international highway that relates Beirut to Damascus is one of the major roads network of Lebanon from the economical and political perspectives. But, besides the restoration and maintenance works achieved in the last couple of years, the rapid increase in the traffic flow
in Lebanon, the traffic interruption during the winter season, and the steep slope of 8% on the major part of the existing highway, have made the realization of a new highway that replace the old one a necessity.

The objectives for the realization of this project can be resumed in the following three points:

a - Reactivate the import - export activities in Lebanon, and the transit between the arabic countries and the international markets through Beirut port without interruption in the winter season. The specifications imposed by the project should insure the continuity of traffic flow in all the climatological situations.

b - Reencourage the tourism in Aley, Bhamdoun, Sofar, and Hammana that were important touristic centers before the war. The actual touristic recession in this area is due to the war and to the traffic jams encountered on this international road.

c - Create a Free and Industrial Zones in the Bekaa valley, in the perspective to develop the transit through Lebanon. The geographical location of this valley between the sea and the Syrian border is ideal for such kind of activities.

4.4.5 Feasibility of the project

This project is not feasible unless it is capable of draining the circulation from the South of Lebanon to the Bekaa, and it is used by the transit service through Beirut port. As a matter of fact, the two parts of the road belonging to the boulevard peripherique that relate the South of Lebanon and the Beirut Port to the Hadath interchange are integrated in this project:

a - Hadath - Hazmieh - Beirut river - the Port

b - Hadath - Lebanese University - Beirut Airport - Beirut Central District

4.4.6 Financial aspects

4.4.6.1 Financial structure

The total estimated cost of the project is of $1.2 billion, where $400 million is expected for land
expropriation and $800 million for construction. A committee has been designated by the
government to study the financial feasibility of the project. After deep analysis, and in order to
make the project feasible for the contracting firm, the committee recommended the payment of
the lands expropriation. The equity structure of the project will be formed of:
- 20% from the capital of the international contracting firms,
- 50% from the financial institutions,
- 30% from the shareholders.

In case there are not enough subscriptions for the stocks, the contracting firm will have to finance
the remaining 30% of the needed budget from its own capital.

4.4.6.2 Toll collection

The highway is designed to experience the tunnel effect. A car can only live the highway on
interchanges. A toll collection on the interchange at Hadath is for the use of the boulevard
peripherique coming from the port of Beirut and the South of Lebanon. The charge will be 5 cents
per Km, which makes the maximum fare for using the Peripherique and the highway from the
port of Beirut to the Syrian border equal to $3.4. (5 cents *(5.5+62 Km)). The credit card system
will be used in order to collect tolls. The card should be put on the bottom right of the car in front
of the seat next to the driver to be read at a distance. If the card is still charged, the barrier will
open and the car can pass at a speed of 60 Km per hour, if not, the car will be drained to an exit
where it pays the necessary fee for living the highway. In order to control the maintenance and the
administrative activities of the highway, the government will create a special committee that will
be financed by a determined percentage of the toll collected.

4.4.7 Type of Public / Private partnership

The Build-Operate-transfer (BOT) type of concession contracts have been proposed by the
Lebanese government. The companies that are awarded the contracts have to invest $800 millions
to construct the highway, while the government will pay the $400 million needed for
expropriation. The construction and maintenance of these facilities are supposed to be entirely
paid by the US dollars tolls to eliminate the inflation risk. The main reason for creating this partnership, as described by Mr. Shehadeh, is the financial need of the government and the lack in the managerial and technical abilities of the public employees. The project will be under the supervision of the “Conseil Executif des Grands Projets”. During the concession time, the government will not authorize any concurrent route to be built by any other private firm.

Two French companies, Bouygues and Dumez, won the bid to build the motorway from Beirut to Masnaa and its complementary 11 Km toll ring road around Beirut. The project, drafted by Public Work minister Ali Harajli, was approved by the cabinet on Wednesday, the 6th of December 1995.
4.5 Public Transportation

4.5.1 Introduction

The Public Transport system in Lebanon consists of publicly and privately owned and operated conventional bus system, and private cars called “service”. They were not designed to handle the new demographic changes that have occurred after the war. The seventeen years of hostilities have changed the spatial distribution of activities due to the displacement of thousands of families and to the destruction of certain financial, commercial and touristic centers of the country. After the end of the war, the government is trying to initiate a new transportation plan in order to reduce the severe congestions in the cities and provide a better flow of people and goods.

Automobile use is prominent with 90% share of the total trip market, 71% for private cars and 19% for taxi-services. Unfortunately, less than half of trips are served by the Lebanese public transportation company [Team study -1994].

4.5.2 Importance of Public transit

The factors that affect the urban transport systems and contribute to the urban transport problems are numerous; They might be social, technological, political, or economical factors. But the government should overcome these problems because public transit is a necessary and viable alternative to an auto-based system in Lebanon for different factors:

First, A good public transport is supposed to reduce the car use, and thus the traffic congestion in the cities. One of the major problems facing the Lebanese metropolitan regions is the severe congestion that the travelers experience in these areas. This is due to the demographic changes that have pushed more people to migrate from rural areas to the cities which have increased the overall trip making levels in urban areas. Furthermore, the concentration of the trips at certain times of the day is a primary cause of traffic congestion in Lebanon’s major cities. This traffic congestion results in the deterioration of the quality of urban living, in the waste of time and fuel,
and in the increase of the business cost of the transportation facilities in the country. A conventional bus transit if properly used may help to remove an important part of autos from roadway. The public transit has a major and crucial role to play in congestion relief and propose a necessary alternative that has to be adopted especially during peak hours.

Second, the public transportation is supposed to provide mobility for the low income citizens. Transportation systems in most of the urban areas in the world (Paris, Bangkok...) provide high and efficient level of mobility for all the medium and low income travellers in particular, and to the too young and too old citizens to drive a car. The travellers that suffer the most in Lebanon from the current transportation situation are those who have no cars and live in the city or its metropolitan areas that are poorly served by the public transportation systems. A good transportation system will provide a better urban agglomerations and will provide a better mobility for the city.

Third, the consumption of energy by highway vehicles per person is much more important than the bus per passenger. The car transport system is the least energy efficient mode of urban travel system. Besides the overall cost that affects the economy, the negative environmental impacts of such consumptions may destruct the environmental wealth at a time when the government is more concerned about such issues and has created a ministry for this purpose since 1992.

As a matter of fact, urgent measures regarding the public transportation should be taken to reestablish acceptable traffic conditions in Lebanon in order not to annihilate the first benefits of the reconstruction works. The new plans should be designed by a long term policy that will enable the country to meet its future need.

4.5.3 Travelling conditions in the major Lebanese cities

The mass transit network in Lebanon has been deeply damaged by the war. The roads are congested by bottlenecks that can paralyze some vital thoroughfares of the city for hours. The chaotic parking in central areas of the major cities reduces the capacity of the street network and makes the pedestrian trips more frequent. Travelling in these regions of Lebanon is exceptionally
costly and time consuming. “These bad traffic conditions form a stumbling hurdle against developing interaction and they seriously handicap the restarting of the economy” [Team report 94]

4.5.3.1 Causes of traffic congestion

Traffic congestion is a phenomenon experienced by all drivers and travellers in any major Lebanese city. Traffic jams are a daily occurrence not only in the central areas of the cities but also in the suburbs and at the main entrance points of the capital. The Lebanese government has taken lots of measures to solve the congestion problems. Some of these measures had bad impacts on the economic activities as, for example, regulating the flow of goods and trucks by restricting it to specified hours in the day. Nevertheless, these measures did not solve the problem due to the numerous and varied causes of congestion:

First, the lack in road signs and traffic control devices has aggravated the congestion problems in the cities. Furthermore, the shortage in parking space, the high use of autos in the cities at certain times of the day, and the lack of discipline of the drivers have downgraded the quality of urban life in the cities.

Second, the seventeen years of war have deviated the governmental interest in the development of an efficient urban planning integrated with an efficient transportation system. Each day, there is a heavy inflow of vehicles from the suburbs due to the dependence of these areas on activities and services offered by the capital and the lack of plans for the development of various regions of the country.

Third, the street networks in Lebanon forms a shared infrastructure serving overlapping with each other. The electricity, water, telephone and sewer systems use the under space of the streets. The maintenance and expansion needs constantly involve turbulence on the streets that lead to unexpected congestions in the areas affected.

Fourth, and most important reason, is the inefficient and limited capacities of the Lebanese public
transportation systems that have resulted in the widespread use of the private vehicles as a major use of transportation in the country. A study conducted by Team international, Laurif and Saufretu has shown that in the Greater Beirut area one quarter of the households have no car, half of them own one car, and the last quarter owns at least two cars. Motorization rate in Lebanon is quite high, even if contrasts can be observed among different social classes of the country. As a matter of fact, the high capacity and vehicle occupancies of the public buses can play a significant role in the reduction of the daily congestion.

4.5.4 Transportation services in Lebanon

The transport system in Lebanon consists of three kinds: publicly or privately owned conventional buses, and private cars called “service”. Dr. Imad Nawam, the director of the public transportation in Lebanon, indicated while I interviewed him in January 1996 that the only publicly owned mode of transportation in Lebanon for the moment, is the bus transit in Beirut. But he added, with the new development plan, different cities of the country, as well as among cities services will be publicly served in the near future. The bus system in Beirut is a typical product and service of the public sector that is supposed to represent the citizens’ interests exclusively. In the interview Dr. Nawam said: “This system is heavily subsidized by the government. The public authorities cover 60 to 80% of the cost of the bus transit, which makes the annual expenses on the government budget of subsidizing the public bus transit estimated at around twelve billion Lebanese pounds. This high price paid by the government is exclusively to help the poor people”.

4.5.4.1 Public transportation in Lebanon

The public authority bought 220 Berliet buses from France in 1978 to reactivate the public transport that has been deeply affected by the destruction of most of its buses at the early stage of the war. However, many of these new purchased buses were eventually destroyed or stolen due to the hostilities that occurred between 1978 and 1991. Actually, there are 70 public buses of the French berliet/Renault which can take up to 97 passengers with 28 seats that carry each day 35,000 passengers (500 per bus - Dr. Nawam) and serve Municipal Beirut and some of the closer
suburbs from two main garages: Furn-el-chebak and Bir Hasan. This obviously constitutes a very small fleet compared with the other developing or developed cities in the world. Unfortunately, the captive users of public transport, usually arising from the low class of the society, are today confronted with a quite restricted transport supply. These buses function on a network consisting of 11 routes at a uniform fare of 250 Lebanese Pound (L.P). The private buses collect a double fare for the same trip, but surely with better services and more reliable time schedule. The unsuitable road condition for bus operation in some areas of the city, and the conception of the route transit and network in the capital that are radiating from the Central District have made the public sector unable to provide adequate service for the population.

4.5.4.2 Private transportation

The private transportation system in Lebanon consists of buses and private cars “service” that provide services in the major cities as well as among the different regions of the country. Currently a number of privately operated buses provide transport services on major routes of the city, but without any coordinated planning or any system coherence. The sole advantage of these private buses is a better level of services that compensate their more expensive prices (double). At the end of 1995, the first major private bus company was formed in order to provide services for the Beirut Metropolitan Region. The actual fleet is of 40 buses and is supposed to expand in the near future to reach 100 buses. But, either private or public, the conventional buses provide a relatively low service level over a restricted network, compared to the private cars called “service”.

The “service” cars represent a special aspect of the Lebanese culture and are widely and extensively available. They substitute and compete with buses for customers, and complement them in the competition with automobiles. More expensive and a source of permanent congestion due to their anarchical and uncontrolled operational mode, “Services” have quickly grown in number. The “service” system is totally private based on buying a red plate from the government, that allows the user to operate on any line at any time. The system is financially independent, unsubsidized by the public sector. Due to the war, the regulation has not been enforced which has opened the market to a number of illegal “services” which perform the same function as the legal
ones. The main competitive advantage of this system is the flexibility of the services these cars provide to the passengers. The users could deviate from the routes and get on and off anywhere regarding there convenience. Actually, the “service” cars provide the main supply for mass transit.

4.5.5.2 Future needs

The actual main concern of the Lebanese authorities is to plan good transportation system for Beirut Metropolitan region in order to revive the city as a large international metropolis. In a study conducted by the Council for Development and Reconstruction (CDR) and the consulting firm Team International, Greater Beirut will be populated with about 2 million inhabitants in 2015, who will benefit from an income level and a vehicle ownership rate higher than today. By that date, Beirut Central District would have been rebuilt and it would have recovered its former role of largest service and business center of Greater Beirut Area. The success of the peace process will re-establish the exchanges with all the neighboring countries, creating an intense goods and people flow.

“Trip frequency rate of Greater Beirut residents shall grow by more than twice during the next 20 years and reach an average value of 1.75 daily motorized trips per person in 2015, without however reaching the trip frequency rate currently observed in large metropolis of the developed countries. Combining all these trends, trip demand should reach nearly 5 million daily motorized person trips in Greater Beirut area by 2015, that is more 3 times than the present value. Half of these trips will be internal to the dense urban agglomeration (inside future Beirut Peripherique Boulevard). A third of which will concern exchanges between Beirut Urban agglomeration and the external area.” [Team report 94]

This proves that with the absence of a modern transit system, meeting the capital’s future needs will remain an illusion. The mass transit shall be devoted to serve the dense areas of the capital in the first step, than expand to Beirut Metropolitan Region.
4.5.5.3 Conception of the Transportation system in Lebanon

The Public Transportation in Lebanon is heavily subsidized by the government (60 to 80%). The yearly cost of this system is 12 billion Lebanese Pounds. The private sector provides the prominent part of the Public Transportation at a higher fares (500 LP against 250 LP for the public), nevertheless controlled by the government with a certain marge of flexibility.

There are no rules in Lebanon that prevent the private sector from interfering in this service. Any individual or company can buy a “red plate” and work on any desired line. The cost of the red plate for the small cars is of 5 million L.P ($3,200), and the one for buses is of 10 million L.P ($6,400). The Lebanese government acts as a regulator of the Transportation system. In a liberal system as of Lebanon, the authority can follow a policy of regulating the competition by lowering the fares of the public buses that prevent the other private firms from manipulating their own fares.

As a matter of fact, we can conclude that the Transportation facilities in Lebanon are already relying on the private sector that can participate actively at any time on any route. The government objective is to regulate the fares, and to provide the minimum level of services to the poor more than to create an efficient transportation mode.

4.5.6 Short-term actions

The Public Transportation in Lebanon serves less than 1% of the trips in the Metropolitan Beirut area. The government has adopted a plan on the 12th of September 1995 to increase the level of services of the public sector to 10% of the total trips by creating new lines, serving other Lebanese cities, and creating inter-cities links.

The project consists of:

- Buying 140 buses from the “Alba for the Middle-East” company at an overall price of $8,190,000 ($58,500 each). The buses are composed of an American G.M.C engines while the
chassis are constructed in Lebanon. These buses will start to be delivered on the 30th of November 1995, at an average rate of 10 buses per month till the 30th of January 1997.

- Purchasing from the French company Renault 250 buses fabricated in its factories in Tchecoslovakia. The length of these buses is of 11 meters and confirms to the specifications required by the Council for development and Reconstruction (CDR). Of these buses 200 are designed to the use inside the cities, while 50 for the transportation among the different cities. The price of the bus for the inside city use is of $100,800 and of the inter-cities one is of $110,800, which make the total value of the contract equal to $25,700,000. Furthermore, Renault will provide as a grant, 18 renewed buses and three vehicles for maintenance. The 250 inter-city buses will start to be delivered on the 16th of January 1996 at an average rate of 30 buses per month for the first three months, and 15 buses per month till the 15th of January 1997. The other 150 buses will start to be delivered on the 15th of April 1996 at a rate of 15 buses per month till mid January 1997.

- Purchasing from the German company Mercedes-Benz 250 buses fabricated in its factories in Turkey. Of these buses 100 are for the inter-cities use and 150 are for the intra cities services. These buses will be financed by the Islamic Bank for Development that has proposed to give a loan to the Lebanese government in condition that it buys the buses from a list of specified countries.

These buses and their spare parts will not be eligible to the Lebanese customs’ invoices at any port of the country.

4.5.7 Type of Public / Private partnership

Despite the Mercede-Benz buses that will be financed by the Islamic Bank for Development, and owned by the government, the other buses will be leased by the public authorities. The lessees might be private firms or banks (Speculations have mentioned the names of the Saudi firm Dal-el-Barakeh and the French Bank - Societe Generale). These private entities will buy the buses and will lease them to the government for a period of 7 years. At the end of this period, the ownership
of these buses will be transferred to the government. This type of partnership is most advantageous for the governments that face financial expenditures restrictions; it allows the Lebanese public authorities to differ the payment of the buses’ price on a certain period of time. Furthermore, four private consulting firms (Team - Iaurif - Sistra - Sofretu) will be in charge for 24 months of reorganizing and modernizing the public transport in Lebanon.

4.5.8 Long Term mass transit network

The Lebanese government objective to not annihilate the benefits of the reconstruction work in the country that is concentrated in Beirut, as well as the demographic and economic importance of the capital, have pushed the authorities to concentrate on the effort of restructuring the public transportation and the traffic conditions in the capital, and retain limited plans for the other urban areas of the country.

4.5.8.1 Objective

The objective of the long mass transit network should provide all the inhabitants of the dense agglomerations of the capital with a mass transit line on its own right-of-way less than 1 km from home. The long term mass transit system in Beirut, as proposed by the Council for Development and Reconstruction (CDR) to overcome the congestion in the dense Beirut urban agglomeration is as follows:

- Two metro lines will form the basic components of mass transit in this region. The first metro line (MA) is 17 Kms long and extends from the East to the West; more precisely from Nahr El Mott and Hazmieh to Ras Beirut. The second metro line (MB) is 15 Kms long and extends from the South till the North; more precisely from the Lebanese University and Airport to St Michel Terminal (See Map). These metro lines are designed to carry 15,000 passengers per direction at peak hour as maximum capacity.

- Three bus lines on their own right of way will provide the secondary servicing of the urban agglomeration. The total length of this network is 28 Kms (See map). This service will be
complemented by an expanded bus network.

- A regional commuter service line of 38 Kms long that will use the rehabilitated railway line Saida, Tripoli from Beirut to Jounieh.

At the end of the implementation of this plan, and after the integration of all its components, the future mass transit network will allow to carry nearly 500 million passengers per year. This will allow Beirut to compete with the other urban agglomerations in the region.

4.5.8.2 Cost

This mass transit network should be implemented in the next 20 years and is expected to cost $2.5 billion of which $1.7 billion are allocated to the metro lines. The plan needs to resort new financial resources than the public sector capabilities. As a matter of fact, as practiced in many large world metropolises, the private sector could notably be invited to participate in the building, operation and maintenance of the metropolitan network, especially after the new era of public / private partnerships in Lebanon that has started in 1992, and the private implication in the financing of the short-term plan public transportation through the lease back contracts.

4.5.8.3 Phases of the project (team report)

This long term plan is supposed to be implemented on different phases. The first stage of implementation of the mass transit plan will include:
- The construction of the South / North metro line (MB).
- The development of the complementary bus network and of two bus lines on their right of way.
- The 38 Kms regional commuter service line going from Damour to Jounieh and passing by Beirut.

The implementation of this phase will allow the mass transit to capture 15% of the total trip market, and is expected to carry 160 million passengers a year (10,000 passengers per peak hour).
4.6 - The Lebanese Electric Power

4.6.1 Introduction

The electric power is one of the most important energy resources. It plays a pervasive and vital role in the national economy of a country. The demand for electric power keeps on expanding at a fast rate that must be matched by an equal rate of growth of supply. Lebanon, is trying to build a reliable power supply at a reasonable fares that will help in the economic growth and development of the country’s infrastructure. The government aim is to provide electricity to consumers at the power level they need and at the time and space of their choosing, while maintaining an acceptable quality of service (voltage and frequency levels).

4.6.2 History

Electricite du Liban (EDL) was established on the 7th of July 1954. It is a public entity benefiting from an independent financial and administrative status under the control of the Hydraulic and Electric Resources Ministry which approves EDL’s management, development plans, budgets, tariffs and loans. The decree of the 10th of July 1964, and the one of the 13th of December 1972 confirm its status as a public industrial and commercial entity, giving it the exclusivity of generating, transporting and distributing the electric power on all the Lebanese territory. EDL was supposed to be managed in a beneficiary way in order to cover its expenses and to finance its development projects. The participation of the private sector could only exists in the subscription collect.

4.6.2.1 Actual situation of EDL

Electricite Du Liban (EDL) is not able to assume the mission allocated to it since its creation in 1954. EDL owns its personal survival of the war area to the loyalty of its managers that were pursuing their jobs in difficult conditions. Since mid 80’s, EDL is not able to finance its development projects anymore. Since then, the government financed the expansion of the power
system, especially the production centrals of the company. Actually, EDL provide 62% of the electricity needs in Lebanon, while the other 38% are produced by the informal private sector, or by the big industrial and commercial enterprises.

After the end of the war, the equipments of production, transportation and distribution were deeply damaged and the electric supply was not sufficient. The actual financial and technical needs of EDL are the consequence of destruction, errors in exploitation (ex: overcapacity for certain machines, misuse of others...) and lack of maintenance during the hostilities period.

Nowadays, after a period where the electric power was limited to 8 hours a day, EDL is able to provide electricity between 16 and 18 hours a day. The most recent estimation of the electric energy market in Lebanon dates of the period between July 1994 and June 1995:

Table 3: Electric energy market in Lebanon in GWh / year

<table>
<thead>
<tr>
<th>Consumer sources</th>
<th>Residential and agriculture sector</th>
<th>Industrial sector</th>
<th>Public services</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDL</td>
<td>2,900</td>
<td>600</td>
<td>700</td>
<td>4,200</td>
</tr>
<tr>
<td>Informal private sector</td>
<td>1,200</td>
<td></td>
<td>300</td>
<td>1,500</td>
</tr>
<tr>
<td>Autonomous production</td>
<td>250</td>
<td>600</td>
<td>250</td>
<td>1,100</td>
</tr>
<tr>
<td>Total</td>
<td>4,350</td>
<td>1,200</td>
<td>1,250</td>
<td>6,800</td>
</tr>
</tbody>
</table>

*Ernst and Young 95*

The energy produced and distributed from the system in the last three years is resumed in this table:
Table 4: Energy produced and distributed

<table>
<thead>
<tr>
<th></th>
<th>1992</th>
<th>1993</th>
<th>1994</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermic production</td>
<td>3.250</td>
<td>3.550</td>
<td>4.210</td>
</tr>
<tr>
<td>Self consumption of the centrals</td>
<td>243</td>
<td>250</td>
<td>300</td>
</tr>
<tr>
<td>Electricity delivered to the service from the thermic centrals</td>
<td>3.007</td>
<td>3.300</td>
<td>3.910</td>
</tr>
<tr>
<td>Hydraulic production</td>
<td>950</td>
<td>950</td>
<td>988</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>3.957</td>
<td>4.250</td>
<td>4.898</td>
</tr>
<tr>
<td>Losses</td>
<td>670</td>
<td>720</td>
<td>830</td>
</tr>
<tr>
<td>Energy distributed</td>
<td>3.287</td>
<td>3.530</td>
<td>4.068</td>
</tr>
<tr>
<td>Energy paid by the consumers</td>
<td>1.956</td>
<td>1.800</td>
<td>1.937</td>
</tr>
</tbody>
</table>

*Ernst and Young 95*

### 4.6.3 Private sector involvement

The electric power in Lebanon has been widely damaged in the late eighties. The government could only provide electricity for an average of six hours (even two hours in some months). This situation has pushed the citizens to use private generators as a substitute for the government services. The private sector involvement has exceeded its use in hospitals, factories and in the residence of the rich Lebanese community, to widespread in every part of Lebanon. It has been well organized since then, and has supplied through large generators electricity for houses and offices in different regions of the country. In January 1996, the 10 Amperes 220 Volts supply cost was of 40$ per month. Most of the consumers rely on private generators as a backup whenever the Electricity du Liban (EDL) power is not affordable.

This private sector involvement had a negative impact on the environment. The diesel generators contribute to air and noise pollution. The smoke is released without treatment, and the noise can
still be heard several meters away from the source. Furthermore, the private sector supply of electricity is more expensive for the consumers than the regular public provision. The later study made by EDL and Ernst & Young estimates to 30 - 40 millions the total losses of the Lebanese economy caused by the use of the informal private sector. This is an important incentive for the government to repair and maintain EDL equipments while being able to raise the prices at the same time.

As the electricity has started to be provided for 16 to 18 hours a day, the minister of the Electric and Hydraulic Resources, Mr. Elie Hobeika, issued a regulation forbidding the private generators use in Beirut starting by the end of January 1996. The other region of the country will follow the same implications later in the year. These regulations were strictly applied. This decision has been made after many Lebanese government officials have claimed that private operators are hindering the rehabilitation work undertaken by state agencies in different infrastructure services. Accusations of bribery have been directed to many public employees for reducing the electricity supply provision periods, providing inadequate maintenance of the networks, and slowly responding to the citizens claims and complaints. With these bad services, private operators will justify their presence in meeting the citizens and the economical cycle needs.

4.6.4 Management of the staff

EDL has 3,250 employees of whom 2,180 have a full-time contract and 1,070 a temporary one. In practice both of them benefit from the employment security of the entity. Actually, EDL has 123 engineers and executive managers that represent 3.8% of the total number of employees. Comparable private firms have 10% of engineers in their effective workforce. Furthermore, only 511 technicians are working in the company (15.7% of the total effective), while this part of the work force should represent 50% of the total number of employees. Electricite du Liban has a high average employees' age of 46 years and reaches 54 for the managers. In five years the retirement of a substantial part of the executive employees will create an important problem on the managerial level. To be noted that it takes around 10 years to prepare a manager for assuming responsibilities in this domain. It is expected that by the year 2010, 51% of the present employees will be retired, which will create a substantial human resource problem in EDL.
Electricite du Liban is a complex and bureaucratic institution where the employees are promoted every two years independently of their performance. The wages are relatively low and noticeably equivalent to the public sector employees. The absence of a trainee programs inside EDL has drastically reduced the technical capabilities of the staff and lowered the standards of performance. Furthermore, some employees do not report to their work and do not perform correctly their jobs.

4.6.5 Composition of the Lebanese power system

The basic components of a power system are analyzed in terms of their functions: generation, transmission and distribution that carry the electric power from the source to the consumer. The main concept for the distribution network depends on distance and power flow that regulate the level of voltage in the circuit. The transmission lines carry large amounts of power over a long distance and are generally used for the flow among regions, while the distribution lines involve smaller power flows over shorter distances.

a - Generation (production)

EDL depends on thermic and hydraulic production capabilities. In June 1995, the network’s total installed capacity was 2,513 MW. The distribution of this generating capacity is divided as follows:
- Thermic capacity: 1.124 MW
- Hydraulic capacity: 1.389 MW

However, due to the various problems that EDL is facing, the total capacity that can be achieved by the network is 1633 MW.

b - Transmission

The transmission networks are in a poor situation. In 1994, on the 66 KV and 150 KV transmission network 14 cuts were observed for an average length of 22 hours each. The bad
equipments of EDL (ex: the unavailability of meters in some of the stations) have created lots of technical problems in the transmission system.

c - Distribution

The bad conditions of the electric distribution system in Lebanon are due to the destruction and to the absence of important investments in the last 20 years. The distribution networks are principally fed by 11 and 15 kV. The old lines of 5.5 kV had been replaced progressively by new lines of 20 kV. Most probably the lines of 11 kV of Beirut will be replaced by these 20 kV lines in the near future. By the year 2002, 1,500 posts will be rehabilitated based on an annually average rate of 200 posts per year.

4.6.5.1 Operational losses

Actually, there are no clear estimates on the technical losses in the transportation networks and generation factories. However, the latest official loss estimations date from the period before the war and were around 12% of the quantity produced. But, based on the actual situation of the network, its way of functioning, and on the information collected on some parts of the distribution network, Ernst & Young consultants estimate the total technical losses to be at least 15% split-up between 12% for the distribution and 3% for the transport. No estimates for the production losses are available.

4.6.5.2 Rehabilitation process

Since October 1993, the electric system in Lebanon has been subject to an emergent rehabilitation process of a total cost of 300 million Dollars equally distributed among the production (Zouk, Jieh, Hrayche...), the transport and the distribution. By the end of 1995, this program has allowed to recover the major part of the production capabilities, and to serve the important metropolitan regions of the cities due to the reparation of the existing posts and of the creation of new ones. Concerning the distribution process, an important effort remain to be achieved in order to modernize the network, identify the existing and potential clients, reduce the market part of the
informal private sector, and finance the expansion necessary for the actual increase in the demand.

4.6.5.3 Status of the independent electric producers and distribution concessions

The electric power sector in Lebanon also includes formal independent producers and distribution concessions. Except for the office of Litani (in the South of Lebanon), these concessions will be returned to the public authorities at the end of the licence expiration under Article 3 of the 10th of July 1964 law. The total capacity of the independent private producers (different from EDL) is around 10% of the total production of the electric power in the country, while 8.5% is exclusively produced by Litani. These percentages show that the formal private generation of electric power is not relevant. Nowadays, only four private concessions at Jbeil, Zahle, Bhamdoun, and Aley for electricity distribution are still operating. The two main active concessions, Jbeil and Zahle, distribute only 3% of the total energy provided by EDL. These existing private operators and concessions might form the nucleus of any future decentralist mode of distribution in Lebanon.

4.6.5.4 Demand and supply perspectives

The capability of the government to control the increase in energy consumption is the major variable in the evolution of the electric need. This is a determinant factor in the establishment of the capacity of the plan for the year 2000. Effective governmental decisions could improve the residential electric consumption by 30% through other forms of energy (solar...) and improve the other sectors performance by 20% to 30%.

The study conducted by Ernst & Young and EDL showed that the peak demand for the year 2000 will be around 1,800 MW. This will need new investments to improve and maintain the actual capacities, and build new ones.

The needed additional power will be provided by new installations:
- New equipments in Beddaoui and Zahrani of a total power of 452 MW.
- Four turbines equally distributed in Tyr and Baalbeck of 37 MW.
- Jieh plant will be expanded to increase its production by 145 MW in the year 2002.
A link with Syria to transport 100 MW from the Syrian electric power systems till the end of 1996.

4.6.6 Foundations of a new policy for the electric power sector

The rehabilitation of the electric power sector in Lebanon aims to reach the following objectives:

a - Provide good service quality at the lowest price, in the benefit of the employees and of the economy of the country.

b - Create organizational structures that are apt to reimburse the loans contracted by the state, and attract the foreign and Lebanese investments to finance the development of the future electric power systems in the country.

The new electric industry should develop new job opportunities, protect the environment, and reduce the waste in energy. Furthermore, these industrial enterprises should become rapidly able to generate profit under a totally autonomous system. The collect of the electric power fares should cover the total maintenance and exploitation costs, provide an acceptable rate of return for the investors, and generate an excess amount of money needed for investments. The government will be responsible for the financing of any electric subsidy provided to any region in the country for social or political reasons. Minister Elie Hobeika reaffirmed in his television interview in January 96, that the electricity will continue to be provided freely to the south regions of Lebanon to support the citizens in their resistance to the Israeli occupation.

4.6.7 Financial situation

Before the war, Electricite Du Liban (EDL) was a profitable and a financially independent institution. The excess of profit from the high revenues of selling power was sufficient to finance the new projects. Nowadays, EDL is financially dependent on the government, heavily indebted, and constantly seeking funding from Arab and international institutions for its projects.

The net financial results of the last three years (92, 93, 94) have been systematically negative
because of a negative commercial margin. In 1992, for example, the exploitation deficit of 105 million Dollars exceeded by far the turnover of the company (50 million Dollar). Before the war, Electricite Du Liban was a profitable and a financially independent institution, while today, EDL is not even able to finance independently the fuel needed for its regular production.

After the war, EDL has lost its financial autonomy, and is heavily relying on the government for its survival. The budget allocated are not sufficient to put right the actual situation. The exploitation and maintenance are insufficient, and the financial structure is unable to provide the needed investments, or even to guarantee the required loans for the new machines installment and maintenance. The debt of EDL to the public authorities is around 1.2 billion dollars and is mainly due to the fuel costs and to credits needed for maintenance and rehabilitation. As a matter of fact, the government starts to search for a private involvement in EDL in order to solve its current problems. The main causes for these financial problems result from the inadequate pricing policies that do not reflect the real cost of electricity, the inappropriate methods for collecting revenues, the illegal connections on the network, and the difficulty of collecting bills in some regions of the country.

4.6.8 Type of Public / Private partnership

The currently encountered financial and managerial problems of EDL have seriously raised the issue of privatizing this public entity. Electricite Du Liban cannot survive under the existing financial burden (debt) and the actual human resources needs (skilled employees).

Three acceptable scenarios of Public / Private partnerships that conserve the main objectives of distribution and production are examined:

1 - Corporatization of EDL to a real industrial and commercial enterprise.

2 - Partial leasing of the production and distribution, and distributing responsibilities among the private operators for the financing of the maintenance and operation investments.

3 - Build-Operate-Transfer (BOT) concessions of all or a part of the activities, in order to increase the competition in the sector.
1 - EDL, a commercial and industrial enterprise

The corporatization of EDL on an autonomous independent entity will make it fully responsible toward the government for its performance and its achievements. This is supposed to increase the efficiency and the productivity of the company. The director of the entity is fully responsible to the board of directors and to the government for the performance of its enterprise.

2 - Leasehold or “affermage” contracts

The Leasehold contracts will transform EDL in a society owning the production, transportation, distribution, and management of the investments and debts while one or different private companies will manage all or part of the production, transportation, and distribution. The contractors will operate, maintain, and rehabilitate the equipments (including the meters), collect the tariffs, and market the services. The authorities own the facilities but provide the operator with the infrastructure facilities in order to be used under the agreements made before. The private operator is responsible for the utility service, and takes the operational risks. He pays a fixed amount for the public authorities, and is remunerated on the performance and output that he achieves, while the government pays for the operation of the facilities. The contract is usually awarded for a period varying between 6 and 20 years.

The private firm interested in the production should not have any responsibility in the transportation and the distribution of the electricity. The state remains the sole owner of the plants, and guarantees the buying of a minimal amount of electric power from the operator of the facility in order to share the risk and guarantee a minimum revenue for the operator. The price of the power bought exceeding that minimal amount will be based on a marginal cost relying mainly on the fuel cost. The fixed charge paid by the lessee at the beginning of the agreement will allow the government to reimburse some of its debt, and cover some of its operating costs.

The Leasehold contract awarded for the distribution has the objective of making the collect of tariffs more efficient. No system can survive without the collection of at least 90% of the bills of the energy consumed. The operator buys the electric power from the government, and is
remunerated with respect to the gain that he achieves. The contract length varies between 5 and 10 years depending on the requirements imposed at the signature. As a matter of fact, the public authorities will buy electric power from a private firm and sell it to another independent private entity for distribution. The government role is to preserve the citizens rights and control the price of the electric power (Kwh).

3 - Build-Operate-Transfer (BOT)

This concession program is expected to be used for the actual and perspective facilities. It is exceptionally important for the future as it releases the state from the needed investments in the development and expansion of the electric power facilities. The operator will be responsible for the maintenance, exploitation, depreciation, and the renewal of the equipments. In addition to the leasehold contracts, the BOT concessions make the operator responsible for the needed investments in order to satisfy the expansion in the demand.

This alternative will introduce a real competition among the different potential providers groups in the electric power production in Lebanon, and will relieve the government from the important investments needed for the beginning of the 21st century. The BOT concession contracts are most easily to grant to the production phase for at least a 20 years period, where important investments are required and private interest is shown. The companies taking the transportation and distribution contracts into BOT concession should not have any kind of relationship with the company producing the electric power. The duration of these contracts is expected to be at least for 15 years. The success of this alternative is heavily based on the political and economical stability of the government in order to attract the foreign investments to the country.

4.6.9 Future perspectives

The government is in the process of evaluating each of these partnerships in order to choose one of the alternatives discussed in the previous section. The Leasehold or "affermage" type of contracts seem to be the most suitable and attractive, but the final decision has not been made yet. As described by Mr. Maroun Asmar, the general director of EDL, the probable privatization plan
is expected to layoff 1,000 full-time employees, which represents 45% of the total full-time workforce. Mr. Asmar added: "In case political or social problems will hinder its implementation, EDL will be bankrupt. This public/private partnership is vital for the survival of EDL."

In order to make the public/private partnership viable, the government should share some of the social and war-related risks. Guarantees should be provided for the probable destruction of either the distribution networks or the power generation factories located in the South from the Israeli bombardments. In addition, to make the public/private financially viable, the Lebanese authorities should impose tariff collection for all the regions that are not subsidized (unlike the South of Lebanon for example) irrespective of their political or religious orientation. Besides its social negative effects, privatization seems to be the only solution for the future existence of EDL.
4.7 Water Supply in Lebanon

4.7.1 Introduction

Compared to the neighboring countries (Syria, Jordan...), the average yearly precipitation rate in Lebanon reaches a satisfactory 900 mm per year, which equals to 9,500 million cubic meters that are precipitated over the country every year. There are around 35 streams in Lebanon, where most of them flow into the sea except the Assi which flows into Syria and the Kebir into Israel. Nowadays, 80 to 85% of the Lebanese population is served by potable water while only 20 to 25% has an efficient sewer system [Dr. Shamesdinne - Vice president of CDR, Interview January 96]. Even though the rain is abundant, a large proportion gets lost in river flow into the sea and neighboring countries, evaporation, and groundwater seepage, leaving a small quantity that can be exploited to serve domestic and irrigation needs.

The current studies and surveys conducted on the present Lebanese water sector indicate that the primary problem of the water supply in Lebanon is based on the lack of sufficient planning and management of water projects. The major difficulties lying behind these projects are the wide number of constraints lying behind the multidisciplinary nature of the water resources for Lebanon and the Middle-Eastern region. The Lebanese authorities aim is to finance and execute water development projects that can help reduce water loss and help reuse much of the wasted water in the sea.

4.7.2 The Water sector status

4.7.2.1 Quality of water

A study conducted by Unicef in 1990, indicated that 60 to 70% of water resources and networks in Lebanon are subjected to virus pollution. This figure increases by about 10% in the dry season. The contamination spreads over all Lebanon, but it is more precisely concentrated in the Bekaa Valley. The reasons for these contamination are numerous, some of them are:
- The poor maintenance and the inadequate use of the technical norms in the water distribution
networks.
- The intrusion of waste water liquids into the water pipes due to their adjacency and their bad maintenance.
- The long-term lack of governmental interest in protecting the natural resources in Lebanon (a ministry for the environment has been recently created).

4.7.2.2 Authorities of water resources

The ministry of Water and Electric Resources supervises all water related needs. There are 14 autonomous water boards and 5 water committees working under the control of the Ministry:

Table 5: Water resources in Lebanon

<table>
<thead>
<tr>
<th>Water board</th>
<th>Water committees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beirut</td>
<td>Nabañ El Kadi</td>
</tr>
<tr>
<td>Ain El Dilbeh</td>
<td>Nabah El Ghar</td>
</tr>
<tr>
<td>Al Kbayat</td>
<td>Batroun</td>
</tr>
<tr>
<td>Tripoli</td>
<td>Becharre</td>
</tr>
<tr>
<td>Kesrouan El Ftoh</td>
<td>Jbeil</td>
</tr>
<tr>
<td>Metn</td>
<td></td>
</tr>
<tr>
<td>Barouk</td>
<td></td>
</tr>
<tr>
<td>Saida</td>
<td></td>
</tr>
<tr>
<td>Nabah El Tasseh</td>
<td></td>
</tr>
<tr>
<td>Sour and Environ</td>
<td></td>
</tr>
<tr>
<td>Jabal Amel</td>
<td></td>
</tr>
<tr>
<td>Baalbek El Hermel</td>
<td></td>
</tr>
<tr>
<td>Zahleh</td>
<td></td>
</tr>
<tr>
<td>Chamsine</td>
<td></td>
</tr>
</tbody>
</table>

_Water Authorities [Nassar - 93]_
The actual situation of the water system in Lebanon is catastrophic. There are no maps or data to rely on in order to build a plan for the next century.

4.7.2.3 Actual status of the water resources

The actual situation of the Lebanese water resources seems similar to the summary report published in 1980 by Joseph Ammasian, a pioneer in water-development studies and long term active government official, made the following diagnosis:

"the widespread water shortages experienced nearly all over Lebanon cannot be attributed to a shortage in water supplies nor to the lack of knowledge about these resources. Numerous studies have been made and many solutions recommended. Most have been left in unopened drawers. as such one would attribute the shortages to the following:

a - Unequal natural distribution of water.
b - The unwillingness of the residents of the water-rich regions to share their resources with those of the less fortunate regions, even when such contribution does not deprive them of water they actually need.
c - The lack of maintenance and rehabilitation of dilapidated distribution networks.
d - Abuse by certain water beneficiaries"

The present situation is no better and quite similar to the situation in 1980 when Ammasian presented his diagnosis.

4.7.3 Treatment

There exists many treatment facilities in Lebanon. The major treatment facility in the country is located in Dbaye, at 7 Kms on the North of Beirut. The treatment process in Lebanon consists of coagulation, flocculation, sand filtration and chlorination. The treatment plants have been
seriously affected by the fights where many equipments were destroyed and no recovery plans were executed, which have caused a reduction in the production process. Furthermore, the increase in the Lebanese population in the last decade has aggravated the problem. The actual treatment plants are by far, away from providing the needs of the country; they should be restored and expanded in order to meet the required demand.

4.7.4 Conditions of the distribution networks (or conveyors)

In Lebanon major cities, most of the households are served by the water authorities throw connections legally or illegally to the pipe network. On the other hand, in some regions of the cities and in most parts of the mountainous regions, houses have alternative sources of water supply than the public network, through drilling private wells near their location of dwelling, if the underground conditions lend themselves to this practice. The individual wells were used as substitutes during the war period due to the reduction and even sometimes the inexistence of the governmental water supply.

Actually, the situation of the distribution network is bad. The pipes are infiltrated with wastewater and rain. The lack in maintenance and development, age, as well as the direct effect of the physical destruction during the hostilities have caused the deterioration of the networks as well as the pipes during the war period. These conditions have caused a loss in the health requirements of the water supplied and in a great pressure loss in the network. This situation results in an increase in the illegal measures and in the reliance on the private wells supply, caused by the bad services on many connections in the city

Furthermore, Dr. Ibrahim Shamseddine, the Vice-president of CDR, raised the problem of the lack in the data, maps and updated information on the water supply system with the public authorities. Therefore, the extend, impact, and geographic distribution of these deteriorated pipes are difficult to evaluate. The actual network situation represents an obstacle to provide better services and new expansions. Dr. Shamesdine added: ‘Two to three years are needed to collect information and organize files in order to be eligible for the water rehabilitation program financed by the world bank’.
4.7.5 The Public / Private partnership

4.7.5.1 The Awali - Beirut water conveyer

The Awali - Beirut water conveyer represents the first public / private partnership in the water system in Lebanon. It has an estimated construction period of 3 years and consists of a tunneled aqueduct, a water intake and a tunnel. The tunneled aqueduct is supposed to convey water from the hydroelectric water plant of Joum to a treatment plant at El Ouardaniya, where it will be transported to Khalde through the constructed tunnel. The tunnel has a length 23.8 Kms and a capacity of 3 cubic meters per second. The treated water will be stored at a reservoir in Hadath for distribution in Beirut. The capital cost of the project (the aqueduct, water intake and tunnel) is estimated to be equal to $142.6 millions. The total subdivision of the cost of the project is estimated to be:

Table 6: Subdivision of the Awali / Beirut water conveyer

<table>
<thead>
<tr>
<th>Components</th>
<th>Cost US Dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tunnels</td>
<td>76.3</td>
</tr>
<tr>
<td>Water treatment plant</td>
<td>50.0</td>
</tr>
<tr>
<td>Reservoir</td>
<td>16.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>142.6</strong></td>
</tr>
</tbody>
</table>

4.7.5.2 Type of Public / Private partnership

The project offers an attractive BOT concession contract for a 20 to 30 years period, depending on the concession negotiated and on the financing structure of the project. The period should be long enough for the builders and financiers to obtain a repayment of funding and a return, and the government at the end of the concession period for a nominal price. The Awali - Beirut conveyor
has a single source of supply and a single point of distribution and would involve bulk supply to the regional water authority expected to be established by the time the scheme is operational.

The Awali - Beiru: BOT project finance structure would involve the selection of a private sponsors / consortium which would form a locally incorporated project company to build, operate than transfer the water supply scheme after the proposed period of time. Mr. Ibrahim Shamseddine, the Vice-President of CDR, whom I interviewed on the 24th of January, added: “A company will invest in the execution of the project and will get paid for conveying, treating and delivering the water (not owning it) to the Beirut water authorities for a fixed charge per cubic meter. The government will guarantee conveying a minimal quantity of water, so a yearly guaranteed payments for the private firm to share the risk. This public / private partnership idea is welcomed by the world bank”.

4.7.5.3 Reasons for the private involvement

Water Resources are a critical issue in Lebanon and the Middle East and involve lots of political and social problems. In spite this problem, the government was obliged to ask for the private sector involvement in well defined and specific tasks for conveying water. As described by Dr. Shammesdine, the private sector help was needed due to the financial constraints on the public authorities expenditures that enable the government to develop essential facilities for the future development and needs of the country. Hopefully, when the overall problem of the Middle-East will be solved, the water resources conflicts would end up on a fair basis partition, and the private sector involvement in this kind of infrastructure provision will be broader and easier.
4.8 Telecommunication systems

4.8.1 Introduction

The telecommunication system in Lebanon has been severely affected during the war period. Nowadays, after five years at the end of the hostilities, the telecommunication services in Lebanon are at a very low level, amounting in many areas to no effective communications being available, and in other areas to the only services being provided through wireless systems provided by independent operators. The telecommunication networks were exposed to vandalism lack of maintenance, harsh operational environment and technological obsolescence. In addition to the above and in the absence of law and public property respect, employees and individuals abducted public facilities to their personal benefit. Before the war, this sector represented a beneficial source of income for the government, and was not subsidized by the government.

The actual resulting situation has widely recognized the need for a mobile telephone system in Lebanon. In order to provide a rapid deployment of services in as wide an area as possible it has been proposed to utilize a wireless approach. The use of the GSM technology was developed in Europe, with wireless links to provide the infrastructure network wherever cable links do not already exist or are impractical in the short-term.

4.8.2 Present Telecommunication network situation

The present telecommunication infrastructure services are region specific. It is very difficult to access the availability of adequate and reliable services on the country and not even on the city level. The central offices equipments are of poor quality and congested during peak hours. Acquiring a new telephone is very difficult. The availability of the international lines is scarce and not adequate. In the last twenty years, the private sector has been widely involved in the telecommunication services. Private institutions, companies and individuals installed a wide base of non-regulated cellular phones and a less significant number of satellite earth station node.
4.8.3 Private sector involvement

During the war, the private sector provision of the telecommunication services was noticed in some part of the country, especially in the major cities, without any coordination with the public authorities. However, this private involvement was done on a small scale, in a very anarchical way, and is very difficult to be afforded by low and middle-income families. The small private operators where connected through Satellites to another country as Cyprus or the United States for example. The services were very expensive compared to the public ones and mostly used for business or urgent calls. This private involvement that occurred in Lebanon is unacceptable and cannot constitute a long-term or even medium-term solution to the Lebanese public sector paradigm.

4.8.4 The Telecommunication plan

The development of a mobile system integrated with the actual conventional public Telecommunication one, is a must for the development of the country and it remains a requirement for the foreseeable future due to the bad situation of the telecommunication systems in Lebanon. After a deep analysis conducted by the engineering design firm Dar El Handasah, the Council for Development and Reconstruction (CDR), and the Ministry of Post and Telecommunication (MPT), the GSM system has been adopted because of its advanced features, its economic advantage and its wide range capabilities. It is expected that the initial take up of the system will be rapid due to the number of subscribers who will opt for this service in exchange of the actual system that is unavailable to them or unsatisfactory. Therefore, for isolated remote rural subscribers, it is expected that the GSM system will provide the most economical method of providing service, and this may be the permanent situation. It is anticipated that the GSM project will be completed within two years from the order to commence date.

The main threat for the mobile system is the current governmental service that if improved will cause the migration of some of the GSM system to the existing traditional one. Thus, it is recommended not to provide much excess capacity beyond the 185,000 lines capacity at this stage. However, the Ministry of Post and Telecommunications proposed that the wireless system
should have a capability of up to 500,000 subscribers in the initial phases of the program.

4.8.5 Forecasted demand

The general MPT plan estimates that a minimum of 1.5 million lines will be required by the new century to achieve the needs of the population and economic growth of the country. In order to achieve this realization, it intends that these will be distributed as follows:
- 450,000 to 500,000 lines though realization and modernization of the existing network.
- 500,000 lines through the extension of the existing network.
- 500,000 lines through the implementation of a new cellular network (GSM) [Digital cellular radio for Lebanon 93].

Based on the study conducted by Dar Al-Handasah, the CDR and the ministry, the demand for the cellular service in Lebanon is expected to be higher in 1995 than in 2005, in order to compensate for the shortage of the traditional telecommunication network during the rehabilitation period. Unless the wireless access option results in cheaper costs to the subscribers, the demand for new subscribers is estimated to decrease gradually as the number of cable telephones become widely available. Furthermore, the demand for business lines is greater in urban areas than in rural areas, due to the presence of most businesses in the major cities of the country.

4.8.5.1 The system

The plan consists of the construction of 185,000 "mobile" users, and the project is expected to end in the year 2005. The system is designed to be capable of extension with addition of transceiver channels. In order to make the quickest return on investment by serving the most populated areas of the country, the GSM system should be built in geographical areas starting in Beirut and its suburbs and then processing into the coastal regions, followed by the inland areas. Beirut and its suburbs are estimated to include 48% of the users, which represents 89,000 subscribers. [Digital cellular radio for Lebanon 93]

The GSM system will be integrated with other telecommunication systems in the country. While a
cellular mobile radio system may exist by its own, it can then only provide communication between users of the system. The independent cellular mobile radio existence is usually not acceptable by the public authorities, and interconnections to the other systems in the country, including the fixed public telephone, are imposed in order to provide telecommunication within the country and internationally. An agreement among the different parties is needed in order to agree on the methods and rates of billing for calls which are passed across the interface.

The tariffs should be arranged to ensure that the take-up rate and the calling rate is within the capability of the system users at all times. The charges should be reduced as the system nears completion and the take up rates and calling rates become clear.

### 4.8.6 Infrastructure constituents

In order to implement the GSM system, it will be necessary to implement certain supporting services that are the switching, power, radio links and civil works.

**Switching:** The GSM system is based on one or more mobile switching centers (MSC) that contain many software features not found in the actual public telecommunication network. These MSC are responsible not only for the routing of calls, but also for the authentication of callers and the location of all mobile users either based within their area or visiting it.

**Power:** In the GSM system, there is a requirement for power at each Base Station Controller (BST), Base Station Transceiver (BST), and Mobile Switching Center (MSC). The power is usually supplied at 12, 24, or 48 Volts from a battery. The primary source may thus be a town mains supply, a diesel generator or a solar panel.

**Radio links:** Since the GSM system is a digital system based on the digital rates of the PCM system, it will be logical to use digital PCM links to provide the interlinking of the sites. Communication links must be provided between the various installations involved in all the system. Since one of the purposes of the current project is to provide a rapid deployment of telecommunications in areas where the cable system requires considerable replacement, the
option to use cables to link the various sites together is not available. In these circumstances radio links have to be used.

_Civil works:_ Accommodation will be required for all the equipments associated with the GSM schemes including the antennas, which will need to be mounted in suitable positions depending on the coverage required. The equipment of the GSM should be included in a suitable building preferably belonging to the Ministry of Post and Telecommunications. Where an MSC is to be installed in a building, it will be necessary to insure that proper attention is given to the air-conditioning of the equipment room including the provision of a dust free atmosphere.

### 4.8.7 Technical requirements

The Ministry of Post and Telecommunication (MPT) requires a target of a full coverage of the country for mobile users and possibility of service for fixed users in any inhabited area. This is to be achieved as a minimum coverage of 95% of the land area and 99% of the population, for transportable and vehicle mounted mobile sets. The Ministry imposes a minimum grade of services which makes the mobile service the possibility to make a successful call shall be 90% within the coverage area within 90% of the time. All users of the system shall be able to connect to subscribers to the public telecommunication services in Lebanon, and to international circuits.

The number of cells required by the GSM system for any coverage area depends largely on the number of users requiring service. The exact number of cells is derived from the forecasted total number of subscribers in a particular area divided by the maximum number of subscribers permitted in a cell under stated traffic conditions. The greatest concentration of users will be in the city areas resulting in a large number of cell in a relatively small radius. In open areas where the number of users over a given service area is small, the aim should be to provide at least two cells with each cell not greater than 14 km radius. Thus, the forecast of the total number of subscribers is extremely important for cell implementation and the cell implementation are extremely important in order to provide efficient cell coverage.
4.8.8 Public / private partnership

The expansion of the actual telecommunication network will not be sufficient alone for the countries future needs. So, the ministry of Post and Telecommunication chose the GSM project to obviate the need to build an expensive fixed network. The lack of financial capabilities has obliged the ministry to ask for the private sector help. The high quality mobile telecommunication service throughout Lebanon is being provided by the new digital (GSM) system installed by two competing companies on a Build-Operate-Transfer (BOT) basis. Under these arrangements, the investments are made by the companies themselves, who have a 10 year concession, to operate the systems. At the end of the concession the concession can optimally be extended to 12 years, or the system reverted to the Lebanese authority.

The concession contracts were signed in July 1994 and the two networks started operation in early 1995 with capacity of 30,000 subscribers each and will increase according to demand. The contracts have been awarded to: Libancell, a company in which 14% of the shares is held by Telecom Finland International, and France Telecom Mobile Liban, a company in which majority share holding (67%) is owned by France Telecom Mobile International. The contact also implies that the government will also share the revenues during the concession period.

4.8.8.1 System control

In order to monitor the performance of the service provider, and to ensure that the terms of the concession are indeed being met, there will be a need to introduce a regulator. The regulator is an independent body that controls the obligations of the government and the service providers. His rights may extend to monitor the accordance with the terms of concession of the overall operations, ensure that subscriber services are offered and subscribers complaints dealt as required, and monitor internal audits and revenue collection. Furthermore, the regulator should assist in the settlement of disputes between the parties, including litigation and arbitration, within the confines of the concession.
4.8.9 Problems rising from the partnership

In the summer of 1995, the minister of Post and Telecommunication Mr. El-Fadel Shallak, ordered the two private companies, Libancell and France Telecom, involved in the Public / Private partnership to stop collecting the fees from the GSM consumers. His decision was based on the poor performance of the system due to the violation of the technical requirements imposed by the contract. Actually, the two private firms went on an auto-financing process, by selling a larger number of phone lines than the achieved capacity of the network, and financing the development of the system from the fees collected. The inefficiency of the system, and the complaints of the citizens for the services provided, imposed a brutal involvement from minister Shalak by prohibiting fees collection by the two private companies until the settlement of the system performances on the requirements agreed on. By that the two companies were suspended from tariffs collection for a while until the achievement of the contracts technical requirements. This incident has proved the efficiency of the public control agencies in detecting and imposing the contracts requirements, and provided evidence of the good will and determination of the government to introduce but also to regulate the private sector provision of the infrastructure facilities in Lebanon.
4.9 Other Projects

Since the end of 1992, there is a new era of public/private partnerships. As a consequence, many projects have already been awarded or there are under their way of being awarded for concession.

4.9.1 Beirut Sports City Commercial Center

This project consists of an investment of $200 million, and has an area of 136,000 square meters expandable to 143,000 square meters of commercial and leisure facilities, a swimming pool, a diving pool and an open air multipurpose stadium. An additional 800m long / 80m large strip is to be built, lined from both sides by a double lane 13.5m wide road. Commercial areas will be equipped with modern facilities and parking places. The contract is a BOT contract awarded for 45 years to ENDECO, and is under the supervision of IDAL.

4.9.2 Beirut Cultural and Conference Center

The project consists of an investment of $350 million with a total built-up area of 260,000 square meters (excluding car parks). The project comprises a congress hall, conference facilities, a theatre, a 3 star and 5 star hotels, 35,000 square meters of commercial area, 15,000 of square meters of cultural and recreational, a public library, and a museum. Some $175 million of the cost will be private capital, which will be listed on Beirut Stock Exchange. The remaining funds will come from banks and financial institutions.

The contract awarded is a DBOT (Design, Build, Operate and Transfer), for a 35 years concession awarded to a shareholding company under the supervision of IDAL. The private company can include non-Arab shareholders, official sources said, and the project does not need parliament's agreement.
4.9.3 The Rachid Karami international Fair Complex

The project consists of an investment of $50 million for the rehabilitation and completion of the 28 war damaged buildings and associated facilities including construction of additional facilities, such as a 200-room five-star hotel. The contract awarded is a BOT contract for a duration not determined yet. The complex has its own agency to control and submit the bids.

4.9.4 The Saida Free Port

The project consists of the rehabilitation and the construction of the commercial sea port south of Saida. The total area of the project is 1.8 million square meters including two piers (4500 m) and a 2600 m wharf 15 meters deep. The contract is a BOT contract for a duration not determined yet.
Chapter 5

Analysis of infrastructure development

5.1 Introduction

Infrastructure facilities make important contributions to the economies of the region in which they are located. For example, they generate employment and other economic activities not only at the project concerned and the surrounding community but for the country as whole. Three different types of economic impacts that arise from the operation of an infrastructure facility can be defined: direct, indirect, and induced. Direct economic impacts result in the activities of government agencies and businesses involved in related activities, including the provision of services to infrastructure users. Indirect impacts arise from the governmental agencies and businesses that generate the impact by purchasing goods and services. And finally, induced economic impacts result from the employees of these firms and agencies by their purchase of goods and services. Infrastructure projects may often involve certain disadvantages. For example, it might tie up limited supplies of national human resources (construction workers, engineers), physical resources (equipment supplies), and financial resources, thereby delaying or postponing other projects.

Moreover, from a pure economic perspective, public spending on infrastructure construction and maintenance can be a valuable policy to provide economic stimulus during recession. But, infrastructure investment is not sufficient on its own to generate sustained increases in economic growth. In deciding on public spending for infrastructure, policy makers have frequently not looked sufficiently beyond the near-term impacts, and many governments have been attracted to the political benefits of the highly visible structure created. But when the government budget is constrained, and the spending on infrastructure is not wisely deployed, it can crowd out more
productive investments in other sector. As a matter of fact, the Lebanese government should set a priority list of the needed infrastructure, and ask for the private cooperation to solve these expenditures.

Although Lebanon is traditionally oriented to private economy enterprise, it has been the government’s role to own, operate, finance, and provide infrastructure facilities services of which the overall economic and social benefits were believed to exceed those that could ever be captured as returns on investment by purely private providers. In carrying out this function, the authorities in Lebanon have borrowed heavily in debt and since early 90's, new strategic planning has been developed by the government to position the country and determine its future role in the region.

5.2 Strategic planning

The governmental absolute control over the infrastructure facilities planning, construction, management and operation has caused different problems to the services provided and to the economy as whole. The absence of the political consistency in the different political administrations that have governed the country, and the influence of the different military parties during the war have not developed a real strategic planning for the country’s needs. The development of such services has not been based most of the time on the current needs but on the political will. As a matter of fact, the infrastructure development has not followed all the times the logical sequence of: needs, planning, designing, constructing than operating.

The new era of peace that is flowing in the region since 1991 with the launching of the Middle-East peace process, and the determination of the government to improve the infrastructure services to meet the future needs of the country and its role in the region, have developed a real strategic thinking for the Lebanese infrastructure development that was missing before. This is an indispensable step to avoid costly failures that could lead to large and expensive interventions from the government, and consequent failure of the privatization efforts. The actual government strategic thinking, that I developed after the several interviews that I had conducted, is based on three main issues:
5.2.1 Infrastructure development to meet the future role of Lebanon

All the people that I have interviewed in Lebanon assured that the existing infrastructure facilities are not even designed to handle the existing population needs, so suspicions can be raised about their capabilities of handling the future needs, especially in a promising economical environment. Being an urgent necessity, the government is trying through its strategic thinking to match its financial capabilities with the needed infrastructure projects development, in order to determine the future role of Lebanon in the Middle-East. This means a planning process focused on the main needed infrastructure issues and integrating all the factors as whole. As a matter of fact, many infrastructure projects have been launched in order to meet the long-term role of Lebanon integrated in the Middle East, as a financial center for the region and a bridge for transit between the East and the West. The Beirut - Syrian border highway, the Free Zones, and the airport development are supposed to provide an important support for the link that Lebanon is supposed to provide. The telecommunication system is a crucial parameter for the financial center Beirut is supposed to assume, and the BOT contracts awarded to two private companies are supposed to provide good telecommunication services in a fast period of time. What is evident is that a strong association exists between the availability of certain infrastructure in Lebanon, telecommunications (in particular), power, paved roads and access to transit facilities, and per capita GDP.

5.2.2 Correlation between infrastructure and economy

The infrastructure facilities are not anymore only improved to meet the Lebanese citizens’ needs but also to activate the economic activities; infrastructure represents, if not the engine, then the wheels of economic activities. Good infrastructure raises productivity and lowers production costs if it expands fast enough to accommodate growth. An expanding economy requires a steadily improving capacity to serve the community more efficiently. Users demand infrastructure services not only for direct consumption but also for raising their productivity by, for instance, reducing the time and effort needed to secure alternative way of provision. The private sector involvement in the different infrastructure facilities in Lebanon provides services at a more expensive tariffs than the usual public one, and thus may reduce the cost of operation and reduce
the competitiveness of a lot of private entities. The government perspectives rely on the positive and strong correlation between the economic growth and the infrastructure variables. The expenditure needed to finance these facilities will provide more job opportunities and speed up the diffusion of the technological innovations and diffusion in the country. The private sector, through its attractive environment and its incentives, is most suited to attract foreign expertise and new managerial tools.

5.2.3 Government less efficient than the private and financial needs

The private sector can more efficiently provide large infrastructure projects that affect the future development of the country than the public sector. The government is better suited to control small components of the infrastructure, and the projects related to national defense or directly affecting the poor class of the population. The public sector lacks credibility on the national scale to run the country effectively, and the corruption permeates all the levels of the public institutions. On the other hand, the Arab and other International financial support to Lebanon’s reconstruction process is limited to the country needs. It is widely agreed on that the government resources will never be sufficient alone to meet public needs. As a matter of fact, the country’s needs to a large number of infrastructure development projects, and the financial constraints on the government expenditures have pushed the public authorities to look for a private involvement through public / private partnerships.

5.3 Failure of the strategic planning

The strategic thinking did not achieve its goals in Lebanon for external and internal reasons. The unexpected time needed for the achievement of the peace process, as well as the inexistence of laws that protect and help the Lebanese workers and enterprises from their international competitors, have prevented the expected economical boom in the country.

5.3.1 External factors

The peace process that has started five years ago is facing nowadays its most challenging
problems that are threatening its success or even its survival. Lebanese-Israeli talks that started in October 1991 have not reached yet any tangible solution to the territorial / military conflict opposing the two countries. The war in the South handicaps Lebanon by burdening the capital with refugees from the israeli-occupied zone as well as frightening off potential investors who view it as a source of instability. The uncertainties and the fear surrounding the new Israeli-arab relations had spread an atmosphere of instability in the Middle-East in general and in Lebanon more precisely. Foreign enterprises are afraid of investing in such an environment and are waiting for a clearer image on the future of the region. "We will not know a booming economy before signing a piece treaty with Israel," says Fredie Baz, adviser to the chairman of Banque Audi, one of Lebanon’s top banks [Time, January 15, 1996].

5.3.2 Internal factors

The willingness of the Lebanese government to attract and facilitate the participation of foreign investors in the newly established public / private partnerships, has lead to the elimination of the usual entry barriers of the Lebanese market on international competition. Furthermore, the wide range of expertise and the long time experience of the foreign companies have created a net advantage on the local ones, due to their wide range of operation and to the war in Lebanon in the last two decades that did not allow the Lebanese Entrepreneurship to develop. In addition, the lack in workers immigration control has allowed an abundant presence of foreign workforce that has replaced the Lebanese one. Lebanese companies and workers are not participating effectively in the reconstruction process. The selection of appropriate standards and design criteria are generally the most effective ways to ensure that infrastructure realizes its potential for fostering labor intensive growth. The Lebanese government should shape these criteria to help the Lebanese workers to participate in the economical growth process, and allow the Lebanese companies to compete on the same level with the international firms.

The methodology that I will follow in my analysis is based on a macro and micro levels regarding the evaluation of the new Public / Private partnerships in the country, and on the quadrant analysis for the procurement strategy of the government.
5.4 Macro analysis

5.4.1 Feasibility of Public / Private partnerships in Lebanon

The Lebanese government has a unique capacity to create and encourage a competitive environment in which the private sector is oriented to meet the public infrastructure needs. The transference of various infrastructure services and functions to the private sector has assured considerable prominence worldwide. The establishment of a new share in the economy under the private supervision has strengthened the market forces and improved the standards of services. In order to enhance this, policies have been issued to help liberalization and deregulation and to provide a smooth transition of the services from the public to the private. At the end of 1992, Lebanon started an important privatization process to release the infrastructure services in the country from their desperate situation.

Before this new era in the country, negligible progress has been reached due to the several inexisten economic, technical, political and social factors to create an adequate environment. These problematics should be bypassed before implementing infrastructure privatization programs. The actual government tried its best to overcome such problems, but the problems are deep enough to be solved promptly. As a matter of fact where can we position the privatization process in Lebanon from the macro economic point of view?

In order to analyze the feasibility and the possibilities of Public / Private partnership in the country, and to answer the first research question: "Are the public/private partnerships feasible in Lebanon?" I will examine the advantages and disadvantages of such partnerships from the economical, technical, social and political perspectives.

5.4.2 Advantageous factors for privatization in Lebanon

5.4.2.1 The presence of a governmental political support

The adoption of a liberal economic system in Lebanon, that allows extensive freedom to the
private sector, has reduced substantially the political opposition to privatization in the country. The actual government of Rafic El Hariri believes that the private sector should be the major driving force in the development of the large public projects and some of the infrastructure services, due to the corruption and the bureaucratic decision making of the public authorities that fail to respond to the actual urgent needs of the country. Furthermore, the government is convinced that the Lebanese public sector structures are inadequate to attract high level of expertise, a primordial necessity for the success of complex infrastructure projects, due to the lack in incentives, motivation, and appropriate wages for the employees. On the other hand, the involvement of foreign contractors in the Public / Private partnerships may bring technological and managerial expertise that are not available in Lebanon actually. Sooner or later this foreign expertise will be transferred to the Lebanese companies and workforce through the cooperation of the public and private Lebanese firms and International ones in the Public / Private partnerships.

5.4.2.2 Prohibiting laws

Contrary to other developed or developing countries, most of the infrastructure facilities in Lebanon have no existing laws that impose the government as the exclusive provider of this public type of services. In addition, not all the kinds of infrastructure that have legislative restrictions need parliamentary law reforms; some need only a CDR law for example. Dr. Boutros Labake, the Vice-President of CDR, described the laws needed for the privatization process of the different infrastructure facilities described in this thesis as follows: “The telecommunication system and Electricite Du Liban need a law approved by the government, while the Beirut International Airport facilities, the Beirut-Damascus highway, as well as the public transportation facilities do not need any legislative reforms”. I would like to mention that the presence of a political will and support is facilitating the legislative reforms or constitutional provision when needed.

5.4.2.3 Inadequacy of the public institutions to develop the infrastructure in the country

The lack of qualified personnel, necessary to cope with the needs for innovation techniques suitable for the reconstruction phase in Lebanon, is one of the major obstacles in providing
efficient public infrastructure supply. The staff in the different public institutions has a high average age and most of the employees lack educational qualifications. This stems mainly from the ineffective employees recruitment during the war, and from the fact that recruitment in the public sector has not been based primarily on the individual's education, experience, qualifications, efficiency and productivity. Instead, political status, connections and personal relations rather, play a major role in the recruitment process. Finally, little attention has been given to training unqualified employees so that they require the necessary and adequate skills [Abou Assaly - 93].

Another important factor compromising efficiency in infrastructure development is the corruption and moral deterioration of employees who have been taking advantage of the absence of the government's control to seek their self-interests on the account of public interests. Besides the various reasons listed above, the low level of public employees wages have made bribes in fact, common in the various administrative department. Although this situation has relatively ameliorated in the last period due to an improved governmental control, effective results have not been reached yet. All these factors will compromise efficiency and quality, and increase the cost of the projects, and thus encourage private sector involvement in the different infrastructure facilities in Lebanon.

5.4.2.4 Financial and technical capabilities of the private sector

Compared to the private sectors in developing countries, the Lebanese private sector has more technical and managerial abilities. This sector is well developed and even comparable to the developed countries one, and is involved in industry, agriculture, banking, insurance, tourism, construction, trade. The Lebanese private sector is an experienced one, containing many capable and competent entrepreneurs that have been successfully involved in major development projects in the country and in the arab world. The Lebanese consumers tend to respect and appreciate the performance of the private sector while they remain suspicious of the government capabilities. In addition the private sector is financially stable and strong, and has lots of capabilities inside and outside the country. It is hard to speculate how much of these deposits and assets would be channelled into privatization. However, the attractiveness of the privatized
projects compared to other alternatives in the market is the sole determinant of the potential investments from the private sector. 

5.4.2.5 Reduce the burden on governmental expenditures

The fragile stability, that is surrounding the country since the end of the war in 1990, has obliged the government to increase its military expenditures in order to train and equip the Lebanese Armed Forces. Huge amounts of money are spent for political and military purposes in order to provide confidence and security, and encourage the resistance of the South Lebanese citizens to the Israeli occupation. The Lebanese army has been increased to 58,000 compared to 20,000 before the civil war [Time, January 15 1996]. Spending on strengthening the Lebanese Army, is not only to serve the practical military goals of the government, but to serve a more abstract national purpose. Today, there is a one year military service mandatory for all Lebanese, in order to let Christian and Muslim youth train and live together, and set aside sectarian differences. Moreover, privatization would release some of the financial obligations of the government, and provide the necessary capital for rehabilitating other public services that do not have available capital currently.

5.4.2.6 Lebanese Stock market

One of the major factor helping the privatization schemes in the country is the Lebanese Stock Exchange Market that reopened officially on the 22nd of January 1996. It offers a valid alternative to raise capital by attracting international investments that would help in the reconstruction process, and will attract foreign investors interested in the high returns of the Lebanese emerging market. In addition, a capital market represents a better guarantee than the individual or governmental loans. The government should work on developing the capital markets, introducing innovative financial instruments and instituting regulations that attract foreign and long-term investments in the Lebanese market, and create confidence. The long-term goal must be to broaden and deepen the Lebanese domestic capital markets so that they can serve as efficient and reliable conduits for infrastructure finance. Getting there will require broad investors participation, a variety of market-making players (brokers, dealers, underwriters), and a wide
range of financial instruments. The equity listings and bond issues by infrastructure companies or projects can spur capital-market development by increasing the range of investment options. By that, infrastructure development, private provision strategy, and capital development form an integrated framework.

Capital markets and privatization present opportunities for mutual development. But surely, on the long term, capital markets can be used as the motor for privatization. This will allow the public to buy shares in the newly privatized entities, to participate actively in the designation of the board of directors, and to directly supervise the management of the company. Furthermore, a capital stock exchange reduces drastically the social opposition to the privatization process, as it allows the low and middle income class to channel their savings into stocks and bonds, and share the profits of entrepreneurial business of any feasible project. This is supposed to reduce the gap between the middle and low class from one side, and the small group of individuals that controls most of the wealth of the country from the other side, and to give these deprived classes the opportunity to own large businesses. In addition, the government or even private entities can raise an important amount of money in a short period of time by issuing bonds, instead of relying on international and national financial institutions.

Besides the role that Beirut Stock Exchange can play in the development of the Lebanese economy, it can provide a critical role in the privatization process in the region after the success of the peace process. Some neighboring countries are expected to start a privatization program in the near future. Beirut Stock Exchange can be used as a gateway for American and European investments in theses markets, if it allows cross-listing of the neighbor countries companies shares in it. By that Beirut will regain its financial position in the Middle-East, and will lead the privatization schemes in the region.

5.4.3 Disadvantageous factors for privatization in Lebanon

5.4.3.1 Risky environment

The geographical situation of Lebanon in the Middle-East, as well as its internal communitary
constitution have positioned the country as a high risk country. This image stems from the 17 years of war that Lebanon had spent in the last two decades, and from the unstable military situation in the south of Lebanon due to the occupation. This will certainly reduce the Lebanese in diaspora and the foreign investors’ interests in the projects privatization process, and attracting private capital for investment in the reconstruction of Lebanon will not be an easy task. With the South-Lebanon problem solved, Lebanese officials expect, hesitant foreign investors will flock to add new vigor to the recovery. Furthermore, the issue of social reconciliation is one of pressing importance because of its impact on the future and the constitution of the country and should be given a more important momentum by the Lebanese government.

Even though the Lebanese Pound has been stable or even appreciating since the end of 1992 and the inflation cut from 131% to 10% since 1992 [Time, January 15 1996], two determinant factors for the success of any private involvement, the last reports published by famous Lebanese economists have shown a growing and uncontrollable public debt which attained record levels recently. This risky environment and the actual acute economical difficulties, will not encourage long or medium-term capital investments in infrastructure which needs a reliable and stable economic situation.

5.4.3.2 Absence of parliamentary and social support

The social class, backed up by most of the parliamentary circles and the opposition parties, stands against the privatization of these major sectors of the economy. Even though the majority of the Lebanese population supports the reforms and the fast rehabilitation process of the major infrastructure projects, the average Lebanese citizen fears that project privatization would lead to additional corruption and wealth concentration among the people involved in the new privatization dynamism. They argue that public services should remain under state control, and privatization would lead to a monopolistic abuse by the private company that will not fairly preserves the right of the citizens. The public lacks confidence in the honesty of the private firms, and is afraid of sacrificing social benefits for higher financial outcome. But, the high level of education of the Lebanese population will provide a help for the government to educate the Lebanese public about the advantages of privatization.
On the other hand, some politicians and bureaucrats are afraid that project privatization would reduce the scope and extend of their authority and hold on to their power. They try to keep on the conservative traditional way of implementing infrastructure projects in the country.

5.4.3.3 Loss of subsidies

The poor and middle class claim that the public enterprises could deliver services for a lower price than the private sector due to their social benefits. They are afraid of the increase in the price of the infrastructure facilities served by the private due to the main objective of the private firms of maximizing their profit and financial rentability. Furthermore, by transferring some of the services to the private, they will lose their governmental subsidies, and automatically become more expensive to a class that is struggling to survive in a difficult environment. The fear of the reduction or even the elimination of these welfare subsidies will prevent the low income class of having access for the minimal infrastructure services. This will reduce drastically their standards of living, and result in additional health problems.

5.4.3.4 Private monopolistic operators

The serious hurt of the middle class by the recent economic crisis, and the concentration of private wealth among few individuals in the country, spread the fear of a limited likely private players in the privatization process instead of a large public participation as in the developed countries. The public fears that this selected class will be the only beneficial party from these Public / Private partnerships.

5.4.3.5 Projects assets evaluation

Assets evaluation represents a major problem in the privatization process in Lebanon. The social class opposing the new way of dealing with the infrastructure issues in the country is not satisfied by the asset evaluation methods used that, in their opinion, are biased to the private sector interests. In addition, there is a great divergence in the point of views between the political class
and the public on Solidere, the first private large scale development project in the country, about
the real and listed value of the company.

Actually, it is very difficult to establish a market value for intangible assets that were never
evaluated before. The evaluation process should include the strategic, social and know how value
incorporated in the asset. As the infrastructure projects have not been efficiently managed, and as
their fixed assets value is usually undetermined, because the depreciation methods do not reflect
the real financial value of the assets, the market potential price is rather unknown. The best
financial method for evaluating these assets is determined by the current and expected revenue
streams that determine the Net Present Value (NPV) of a project, and thus its potential attractive
investment price.

5.4.3.6 Regulatory framework in the country

Due to the war, serious damages and problems have occurred in the judicial system and
procedures themselves. The legal system has not been effectively functioning since the beginning
of the war, where disputes can hang for an indefinite period of time and even verdicts not
respected. This is an important obstacle for the privatization process, where companies are
searching to rely on clear and efficient judicial procedures that guarantee their investments and
their official involvements. In addition, the time consuming procedures of the judicial system will
cost the private companies unexpected money and increase their risks. The absence of an efficient
legislative system, as a third party regulator in the privatization process to protect both parties
(public and private) by enforcing the contracts, the degree of the private companies involvement
will rely on their willingness to risk their own funds.

5.4.3.7 Overlapping of the responsibilities

The main public institutions responsible for the privatization process in Lebanon are the Council
for Development and Reconstruction (CDR) and the Investment and Development Authority in
Lebanon (IDAL). These are independent public authorities not related to any specialized ministry.
The main characteristics of the CDR and IDAL are their proximity to the decision making circles
and money resources.

The CDR and IDAL are considered to have unprecedented powers for a Lebanese governmental agency, and operate directly under the Council of Ministers and report directly to it. Their responsibility is for the development in the whole country and do not focus on any sector of the infrastructure or any geographical part of the country. This large power authorization creates conflicts and power overlapping between such institutions and the ministries concerned. The ministries represent the conventional way of the public sector involvement in the services in the country. They were severely affected directly or indirectly during the war period (poor managerial and technical skills...), while CDR and IDAL are more efficient and have a wider technical and managerial expertise. Nowadays, decisions and experts have a dual attraction between these institutions and the concerned ministry for any project.

As a conclusion, we can resume the different reasons for the failure of the privatization process in a country to the following figure:
Graph 5.1: Causes of failure of privatized projects

5.5 Micro analysis

The most important criterion for the evaluation of the privatization feasibility of any infrastructure facility in Lebanon depends on its status: is it a new or an old one? This important criterion of evaluation causes a direct and indirect effects on the social level. The direct effect relies on the employment situation of the public employees. The indirect evaluates the citizens acceptance for paying expensive fares for new facilities while not admitting the idea of additional fares for old conventional ones. This part of the analysis will answer the second research question: "In which field and to what extent privatization is beneficial to the infrastructure of the
a - Direct effect

All over the world, the public employees' unions tend to oppose any attempt of reform, including any privatization process. They mainly oppose privatization because they fear heavy job losses, knowing that a reduction in the staff is a logical consequence of divestiture to profit-oriented concerns. The unions have gained power during and after the war in Lebanon due to the bad economical situation and the high unemployment rate in the country. The Lebanese unions have influenced many times the political scene and stability of the country. In 1992, the government of Omar Karama was urged to resign after huge manifestations, organized by the labor unions, had devastated the country. The first union active movement against Raffic El-Harriri government started on the 19th of July 1995, when manifestations devastated Lebanon's major cities protesting against the bad economic situation in the country. Recently, on the 29th of February 1996, a curfew was announced and the army charged of the security in the country in order to stop the protestations that were supposed to take place at that time. The fear of most employees from loosing their jobs causes tremendous pressure on the union leaders and pushes them to negotiate with the government.

In the infrastructure facilities described in this thesis, the effect of the unions seems minimal except for Electricite Du Liban, where an important amount of workers layoff is expected. For all the other new facilities, the privatization process may create more job opportunities and will not affect the actual situation of the unionized labors. This will be a major problem to be solved among the government, the private company and the unions.

b - Indirect effect

The Lebanese population, as described by prof. Pierre Abou-Ezze, the chairman of the department of Business Administration at the American University of Beirut, accepts the privatization of new projects while rejects any public / private partnership for the old, existing ones. In the public opinion, the new facilities represent an optional alternative that can accommodate their
convenience if offered at an acceptable quality and price. The existing facilities, when privatized, may shift from a public to a private monopoly, loose their subsidies, and thus may become an expensive necessity for the citizens. As a matter of fact, the public / private partnerships for the airport, the free zones, the telecommunication network, Beirut-Awali water conveyor, and Beirut-Damascus highway are more socially accepted than the public transportation and Electricite Du Liban (EDL). On the other hand, privatization specialists argue that the expectation of increased efficiency of private sector services will overcome the need of the actual subsidies for the existing facilities. Actually, there is no general answer for these different arguments and a project by project evaluation is needed to determine the extent of private sector involvement and its influence on the working class. In my opinion, any infrastructure facility that is badly serving the community will cause additional indirect expenses to the community for which it is providing services to. By that, the public should decide whether to pay direct or indirect fees to the services provided.

5.5.1 Evaluation of the projects

5.5.1.1 Beirut International Airport

Beirut International Airport needs improvement to meet the actual and future demand of the country. The relatively low budget needed for the airport expansion motivates the government to keep the activities related to this expansion under public administration, but the commercial aspect of these services (Shops, restaurants...), and the lack of business expertise in public organizations, mean that private cooperation will be a determining factor for the success or failure of the project. In addition, the tight financial restrictions on government expenditures have pushed the government to opt for a leasing type of public / private partnership. A leasing contract with a minimum passenger guarantee will allow the government to share the risk with the private developer.

This would be, in my opinion, the best form of Public / Private cooperation for airport expansion. The private sector involvement in this type of partnerships is not risky, as airport passengers’ actual use and future forecasts can determine approximately the expected average number of
passengers in the coming years. For private businesses linked with the airport, there is normally no risk of foreign or domestic competition in these services. An economic recession, or a political instability could affect the overall number of travellers however; this is the only important parameter affecting the financial rentability of the seven privatized activities. This major risk is shared fairly between the public authorities and the private company through the contracts that they sign (refer to section 4.2.4). One advantage of this new program, however, is that the newly established partnerships will not affect the public employment situation, nor have problems with the unions and will therefore be accepted by the population. On the other hand, the national security importance of the airport in controlling the incoming and outgoing passengers into the country, has imposed a wide governmental involvement in the design of these facilities.

The major problem that I foresee with these public / private partnerships is the difficulty, both parties have, in evaluating these intangible assets, for no previous experience with airport services has been recorded in Lebanon.

5.5.1.2 The Free Zones

The redevelopment of the free zones services is an important factor for the development of one of the major activities of the country as a good transport link between the East and the West. This completely matches with the strategic thinking of the government in planning the future role of the country. But a doubt has been raised on the potential of Lebanon to provide this kind of services in the future. The development of the Israeli harbor of Haifa, the Jordanian harbor of Aquaba, and the availability of the Suez canal for maritime transportation are new factors that were inexisten in the 60's, and influence the use of the free zones described in this thesis. In addition, these countries provide better and wider ranges of services due to their better infrastructure services provision (highways, ports,...).

The private entity operating these services should consider seriously the risk of foreign competition, and evaluate carefully the political stability and alliances in the region. The political risk resulting from the stability of Lebanon as well as its mutual diplomatic relations with its various neighbors in the region (Syria, Jordan, Saudi Arabia,...) represents a major risk in the
development of these projects. The transit system provides a link between two different countries, and the level of use of these free zones is deeply relying on the level of cooperation among the different countries in the region. In addition, the free zones in the Beqaa Valley face an operational risk in the building of the Beirut - Damascus highway; any delay or incompletion of this project will affect deeply their use, and thus the financial feasibility of these facilities. From the type of contract described in section 4.3.2.2, there is no clear reference to the kind of risk sharing between the private and the public entities. The information provided is incomplete or inaccurate regarding the risk sharing in the provision of these new free zones services.

5.5.1.3 Beirut-Damascus highway

The economic condition of Lebanon plays an important role in such long term concession type of contracts. This type of projects includes lots of risks in the developing countries, and imposes a risk sharing between the private and the public organizations. The highway from Beirut to the Syrian border is a vital facility for the development of the free zones and transit activities, and it follows a conventional B.O.T. type of contracts for such projects. However, by investing $400 million in land expropriation, the government is sharing a big part of the project risk (25%), and thus should find an alternative solution that minimizes this risk. Even though the Lebanese population widely welcomes this fast and optional way of transportation between Beirut and Damascus, it is afraid from the long-term commitment to the two French private contractors (Bouygues and Dumez). The political and foreign competition risks represent a determinant parameter in this type of projects. The financial viability of the highway relies heavily on the Beirut harbor activities and, thus, on the political stability in the region and on the mutual relations between Lebanon and its neighboring countries. From a historical point of view, the Middle-East has never experienced a long period of stability due to its socio-cultural constitution. As a matter of fact, the long term BOT contract may represent a special kind of regional “Middle-Eastern” risk for the contracting firm.

Furthermore, these types of long-term contracts represent an inflation and interest rate risks. Even though Lebanon was not considered as a hyper-inflationary country, it has experienced an important inflation rates in the last decade (450 times - 45,000 per cent). This inflationary threat
represents a real risk for the equity investors as it directly affects the cash flow streams of the project. The Lebanese government has reduced the inflation risk by allowing the toll tariffs to be collected in US dollars (as described in section 4.4.7), and thus eliminating the direct effect of inflation. But obviously during inflation periods, the use of these highways is reduced drastically due to their expensive toll prices in US dollars. The Mexican road experience in this kind of risk represents the benchmark of any similar project development in this field. Irrespective of all the disadvantages of developing such partnership, the long-term B.O.T. type of contracts remain the most suitable for the development of Beirut-Damascus highway or any similar project in Lebanon. The private companies could rely on the Beirut Stock Exchange to develop sophisticated financial instruments of bond or equity financing that match return on investment and risk.

5.5.1.4 Public transportation

The Public transportation system in Lebanon is already privatized. The public sector provides less than 2% [Team 94] of the mass transport in the country, and the government is playing a regulatory role in the market to control the prices by legislative actions and by providing lower public services fares. The public transport is heavily subsidized by the government with an average annual cost of 10 billion L.P. a year [Dr. Nawam]. The development of this service either by the government alone or through Public / Private partnerships is useless for the Lebanese situation. This will lead to more subsidies and more burden on the government expenditures, and will not solve the problem of public transportation in the country. On the other hand, there is no real risk involved in this type of public / private partnership. The private companies financing the purchase of these buses do not bare any domestic, financial or political risks. The contract described in section 4.5.7 expects the reimbursement of the lease in US dollars, and thus eliminates any kind of inflation risk for the investing firm. Unless the Lebanese state is bankrupted, the private firms are guaranteed to receive their lease payments on the agreed basis.

Instead of investing in new public transportation facilities, the Lebanese government should try to combine competition for its cost-reducing impulse, with residual controls to ensure the quality of service and maintain operating discipline to meet in success the passenger demand. The
government should keep on subsidizing the actual public transportation facilities, issue regulations to attract private investors, create an adequate environment to promote competition, and ensure that the private operators are operating efficiently and responding to the demand requirements. The fragmentation of the urban transportation provision in Lebanon, has led to difficulties with route coordination and, at times, to excessive congestion in urban routes and unsafe practices by the private sector private operators. Therefore the public bus transit planners have to decide for the private operators which routes to operate, which areas to serve, the hours and the level of services that should be provided on each route. Moreover, public scrutiny and regulation on such matters as passenger safety, service obligations, and pollution should be implied in this competitive industry. As a matter of fact, I perceive the future role of the Lebanese government as regulator than provider of the Public transportation. Its procurement role should be limited to subsidize its own limited provision and control the private operators services (tariffs, safety...).

5.5.1.5 Telecommunication

A good telecommunication network is important to ensure the role of the capital as a financial hub in the Middle-East. The existence of parallel public services to the new cellular network, that provide services at a lower and competitive price, and the nature of this system as a facultative and more efficient alternative than the traditional public ones, have made it feasible and accepted by the citizens. The GSM Radio-based telephones are competing with existing local networks, and will compete with other systems if the market competition is opened. This infrastructure covers utilities that produce services for which user fees are charged, typically based on direct consumption, and that generally use large-scale networks for distribution. Most of these services are highly marketable and can be provided through approaches involving competition within a market or competition for the right to serve that market.

The rehabilitation of the actual public telecommunication network represents the major threat for the future of the GSM system. By eliminating the competition in the market and fixing the tariffs rates in US dollars, the political stability of the country remains the only risk that the private company should support. In my opinion, this risk is not as important as for the other infrastructure
projects, and its effect might be minor on the future cash stream of the project. It is funny to mention that, despite the expensive tariffs charged for the use of the system, the GSM cellular service has been widely used due to its symbol of wealth and prestige in the Lebanese society.

The 10 to 12 years duration of the B.O.T contract signed between the contractors and the Lebanese public authorities seems very attractive for the private sector, as it eliminates any potential competitors for the cellular phones provision during this period. The only disadvantage factor of privatizing a part of the telecommunication networks, is the positive cash flow stream that is usually generated from these facilities to the government. As described by Dr. Robert Kasparian, the director of the Statistics institutions in Lebanon, the telecommunication system is one of the rare infrastructure facilities that used to generate revenues for the government; by privatizing a part of this facility, there is a risk of losing this positive cash flow. The government should help, encourage and regulate the private involvement in the telecommunication systems and subdivide it, in a later step, into short and long distance calls.

5.5.1.6 Electric power

Electricite Du Liban is facing one of its most critical situation since its creation in 1954. The electric power system in Lebanon is heavily indebted (not even able to pay its operating costs without the governmental subsidies), and is in urgent need to the private sector involvement for its survival. A major issue is raised in this infrastructure development privatization program. Why rehabilitation before privatization? Mr. Maroun Asmar, the general director of EDL, related this question to some political reasons emerging at the end of the war in 1990 that did not allow the private sector involvement in these key infrastructure facilities. Actually, I am afraid that the financial situation of EDL will reduce the bargaining power of the public sector on the actual value of the company, and by that be less beneficial for the government. In my opinion, repair should have been limited to the urgent and pressing needs of the company, and consisted in replacing some of the existing systems and facilities with their exact equivalent in terms of capacity and quality to represent a fast and flexible answer to the urgent citizens needs without endebting so much EDL. Nowadays, Public / Private partnerships represent the only solution for Electricite Du Liban problem.
In addition, as opposed to the other infrastructure facilities privatization programs, EDL represents the main power generator in the country. The transition from state-owned monopoly to multiple operators requires new attention to regulation. Preventing the private operator from abusing its market power requires accounting and disclosure requirements, performance targets, and incentive-based price controls. Thus, a social fear of fare increase in electric bills is rational in the absence of such past experience in this domain. Actually, this increase might be controlled by the government, which in response should eliminate or drastically reduce the theft of electric power on the distribution lines. Based on minister Hobeika television talk in January 1996, this problem seems in the last phase of its resolution!

The three alternative Public / Private partnerships proposed by the government will create an important amount of employees layoffs at EDL. Around 1,000 of the 2,200 permanent employees will be dismissed in order to make the project financially feasible for the private company that will be involved in this partnership. In that sense, what will be the position of the labor unions from this plan? Will all the dismissed employees accept to receive compensation for their work? Difficult questions to be answered for the time being, but surely this will be an important and determinant issue for the private sector involvement in Electricite Du Liban.

The private companies involved in the Public / Private partnerships will support a social, political, and financial risks. The social risk resides in the position of the unions from the layoffs, and the tariffs collection in some areas that do not usually pay tariffs due to different political and social reasons. The political risk is mainly due to the instability in the South that may cause war related damages or disfunctionning of the generation or distribution system. As the electric power generation is vital to the Lebanese economy, the tariffs are collected in Lebanese Pounds, and any inflation risk may be fatal to the financial feasibility of the project.

The potential for private competition in the power sector is greatest for thermal generation and distribution. A minimum market size or a governmental minimum use guarantee, may be a decisive element in the privatization process. Actually, vertical separation of generation from transmission and distribution may not produce sufficient efficiency gains due to the small size of
the Lebanese market to offset the additional coordination costs among these entities. As a matter of fact, I suggest, that after experiencing one of the previous public / private partnerships described in section 4.6.8., and providing an adequate environment for investments in the country and strengthening the efficiency of the control agencies, the government should subdivide the electric power provision in the country among several private operators, each of them responsible for either one of the actual major generating factories (ex: Zouk,...) or for a new one. But each of these operators will have the responsibility of generating, transmitting and distributing the electric power together. This suggested alternative does not have the advantage of competing on economies of scale production but will save money from the coordination among the different service provision, and mix some of the marketable activities, as generation, with less marketable one as distribution. [WDR 94].

5.5.1.7 Water conveyor

Lebanon is considered to be the water reservoir of the Middle-East. At that stage of the piece process when water resources become a major issue in the problem resolution, privatizing a part of these facilities becomes nearly impossible. It is neither accepted on the social nor on the governmental levels. But, as the project has been described by Mr. Shamesdine, it represents an independent project for conveying the water, not treating or distributing it. On the other hand, all the activities involving water have strong environmental links that make them less marketable than telecommunication or power generation, and their local nature makes some activities natural candidates for community provision. By that, the water resources in Lebanon are not subject to an overall privatization process, indeed the public / private partnership of the Awali/Beirut conveyor is an independent project caused by the financial needs of the government. Thus, the political and social influence cannot hinder or stop such kinds of partnerships. As the government guarantees the conveyance of a minimum quantity of water, the risk is heavily reduced for the private firm. The two major risks that the project is still facing are the inflation risk if the tariffs are not fixed in US dollars, and the potential competition of similar water conveyers projects to the capital from other rivers surrounding Beirut.
5.5.2 Evaluative matrix

In regrouping these seven infrastructure projects into a general matrix that discusses their status, I have selected six determinant evaluative criteria: kinds of risk, public / private risk sharing, magnitude of the different projects and impact on the society, potential competition, type of contract, and information provided.

Table 7: Evaluative criteria matrix

<table>
<thead>
<tr>
<th></th>
<th>kinds of risk</th>
<th>risk sharing</th>
<th>magnitude and impact of the project</th>
<th>Potential competition</th>
<th>type of contracts</th>
<th>Information provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beirut International Airport</td>
<td>-Political -economical</td>
<td>-Minimum passenger guaranteed</td>
<td>-Small magnitude -Low impact</td>
<td>-non-existent</td>
<td>-Leasing</td>
<td>-Sufficient</td>
</tr>
<tr>
<td>[new/existing facility]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Free Zones [New facility]</td>
<td>-Political -Regional alliances -Foreign competition -Operational (Beirut - Damascus completion highway)</td>
<td>-None</td>
<td>-Small magnitude -Medium impact on the economy</td>
<td>-Jordan (Aquaba harbor) -Israel (Haifa harbor)</td>
<td>-B.O.T. (Build - operate- Transfer)</td>
<td>-Incomplete</td>
</tr>
<tr>
<td>Beirut - Damascus highway</td>
<td>-Political -Regional alliances -Inflation risk</td>
<td>-Toll in US dollars -400 million dollars for expropriation</td>
<td>-Big magnitude -Important impact (generate employment and facilitate economic activities.</td>
<td>-Future national highways -Middle-Eastern highways</td>
<td>B.O.T.</td>
<td>-Sufficient</td>
</tr>
<tr>
<td>[New facility]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public transportation [existing facility]</td>
<td>-No risk</td>
<td>-Lease payments in US dollars</td>
<td>-Small magnitude -Low impact</td>
<td>-Private sector provision</td>
<td>-Private to public Lease contracts</td>
<td>-Sufficient</td>
</tr>
</tbody>
</table>
### Table 7:

<table>
<thead>
<tr>
<th>GSM cellular phones [New facility]</th>
<th>kinds of risk</th>
<th>risk sharing</th>
<th>magnitude and impact of the project</th>
<th>Potential competition</th>
<th>type of contracts</th>
<th>Information provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>-Public phone network</td>
<td>-tariffs in US dollars -Eliminate private competition</td>
<td>-Medium magnitude and impact</td>
<td>-Future private competition</td>
<td>B.O.T.</td>
<td>-Sufficient</td>
<td></td>
</tr>
<tr>
<td>-political stability</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electricite Du Liban (EDL) [Existing facility]</td>
<td>-political stability -Social opposition -union layoffs opposition -South of Lebanon instability</td>
<td>-Guarantee a minimum value of electric power production and distribution</td>
<td>-Important magnitude and impact</td>
<td>-Other authorized private operators</td>
<td>Either one 1)Corporatization 2)E.O.T 3)Lease-back (after-mage)</td>
<td>-Sufficient</td>
</tr>
<tr>
<td>Beirut/ Awali water conveyor [existing facility]</td>
<td>-Social and political opposition -Similar projects</td>
<td>-Guarantee a minimum water conveyed</td>
<td>-Small magnitude -Small impact</td>
<td>-Similar water conveying to Beirut</td>
<td>B.O.T.</td>
<td>-Incomplete</td>
</tr>
</tbody>
</table>

As a matter of fact the kind of risks and the magnitude of the infrastructure projects, as well as the potential private competition for the services provided determine the type of contracts and risk sharing perspectives. Any new or expansion project of important magnitude, should be undertaken as a BOT concession type of contract to allow the private firm to compete on all stages of project development (refer to section 5.5). For the existing infrastructure services and small size projects, especially if they involve a national security issue, a leasing agreement may be more advantageous for the government. The leasing contracts allow a better control in the design, construction and operation of these facilities, and are more socially accepted.

On the other hand, three major types of risks are faced by the private operators: an economical, a political, and a war related risks. The economical risk could be reduced by the government by allowing the private entity to collect tolls in Dollars, to guarantee a minimum use (passenger, cubic meters, electric KWh...) of the project, and to provide financial hedging possibilities throw governmental agencies (this section will be discussed deeply in chapter 6). The war related risks,
a major issue after the latest aggressions in April 1996 on one of the major electric power plant near Beirut in Baabda, should be guaranteed by public agencies as the National Investment Guarantee Corporation (NIGC) (refer to chapter 6). On the other hand the political stability in Lebanon, and the mutual relationship between Lebanon and its neighboring countries are unpredictable problems, and it is the private entity sole responsibility to bare these risks.

During the development of the risk analysis related to the different projects listed above, I did not discuss the risk of “regulations change”. I believe that the government should create a stable regulatory system and eliminate any persuasive political risk that can change the ground rules at any stage of a project. Failure to eliminate this kind of risk will cause enormous foreign and local investment losses, and will create an inadequate environment for investments especially in an unstable political country like Lebanon.

5.6 Analysis of the procurement strategy

5.6.1 Introduction

Since the independence in 1943, most of the Lebanese infrastructures were based on the segmented design, construction, than maintenance. The government provided the major source of financing and designing of these facilities. The new era of reconstruction in the country, and the financial and technical needs of the public sector, have pushed the government to opt for other sources of finances, and to prefer the system approach for designing, constructing and operating these facilities. The primary goal of an effective procurement strategy is to create a competitive environment with incentives if necessary and appropriate, which generates timely and high quality proposals to meet public needs. But is the actual procurement strategy of the government the most efficient way to provide services for the citizens?
5.6.2 A Framework for analysis

The analysis of the procurement strategy of the Lebanese government that I will follow will be based on the framework set by Prof. John Miller in 1995. The procurement methods in this strategy are analyzed systematically using two axes which are used to describe the government’s two fundamental strategies to the development of infrastructure. The first strategy is based upon an election to either “push” specific projects “directly” through current appropriations used to fund contracts or grants, or to “pull” specific projects “indirectly” through incentives, mandates, subsidies, and other measures which encourage the private sector to accomplish government goals.

The second strategy is based upon an election by government to implement planning, design, construction, operation, maintenance and finance in one of two fundamental ways:

- Clearly separating each of these different steps in the procurement process from one another, a “segmented” process or,

- by combining all these aspects of an infrastructure project into a single procurement of the completed system, a “system” process.

These two strategies are conveniently arrayed on two axes, which can then be used to categorize specific government programs or specific projects in one of the four resulting quadrants, I through IV, shown below:
Graph 5.2: The quadrant analysis model

These quadrants provide a convenient framework to categorize infrastructure procurement strategies [Miller, 1995].

5.6.3 Lebanese Infrastructure procurement system

For the seven infrastructure facilities described above, the Lebanese government has been seeking financial support from the private sector and has been involved in many phases of the design and procurement of these projects. The following table determines the amount of involvement of the public sector in the Public / Private partnerships of these projects:

Table 8: Private involvement in the different infrastructure projects
Table 8:

<table>
<thead>
<tr>
<th>Public involvement/Facilities</th>
<th>Technical involvement</th>
<th>Financial involvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airport</td>
<td>- Design</td>
<td>- Fees to the design firm</td>
</tr>
<tr>
<td></td>
<td>- Part of the construction</td>
<td></td>
</tr>
<tr>
<td>Free Zones</td>
<td>- Design</td>
<td>- Fees to the design firm</td>
</tr>
<tr>
<td></td>
<td>- part of the construction</td>
<td></td>
</tr>
<tr>
<td>Telecommunication</td>
<td>- Inexistent</td>
<td>- Inexistent</td>
</tr>
<tr>
<td>Water conveyor</td>
<td>- Design</td>
<td>- Fees for the design firm and feasibility studies</td>
</tr>
<tr>
<td>Public transportation</td>
<td>- Selection of the quantity and kind of buses</td>
<td>- Direct loans for a number of buses</td>
</tr>
<tr>
<td>Highway</td>
<td>- Alternative design selection</td>
<td>- $400 for expropriation - Design fees</td>
</tr>
<tr>
<td>Electric power</td>
<td>- All the design and construction costs</td>
<td>- All the rehabilitation and expansion expenses</td>
</tr>
</tbody>
</table>

5.6.4 Analysis of the procurement phase

The involvement of the Lebanese public authority in the design and construction of a part of these infrastructure projects may be harmful for the bidding private companies. Even though the government was traditionally involved in financing, designing, constructing, and operating the infrastructure facilities in the country, a big step between quadrant IV to quadrant II seems difficult to achieve. The actual procurement system may be a transitional phase between the direct /segmented approach, and the indirect / system one. By analyzing the different projects listed above, we remark that the Lebanese government is using the four parts of the matrix listed above in its procurement strategy:

*Direct:* In most of the projects, the government is financing the design and some of the construction.
**Indirect:** The private company is financing the remaining part of most of the projects; design, construction and operation.

**Segmented:** In most of the projects, the design and construction are made by two or more independent private entities.

**System:** In most of the projects the private companies are responsible for constructing all or a part of the project, operating and maintaining it.

Even though the public / private partnerships adopted may represent a breakthrough in project procurement since direct and segmented methods have been traditionally used in Lebanon, the provision of the design by the government might represent a serious constraint for the participation of the private firms. They are already absorbing enough risk in a particularly risky environment, both during project development and after project completion. The Lebanese government is only guaranteeing a minimum amount of use for the different facilities privatized. By means of this, the public authority is expecting the developer to absorb all the remaining risk, from cost overrun to design errors reflected either in construction or in operation. The margin of profit is increasingly growing smaller, and the design requirements imposed by the government pose another obstacle to the flow of project management. Innovation will be quite limited as first, the design is segmented between two or more different companies, and second, margin profit is stretched so as to make innovation too risky to be implemented. It is widely agreed that the introduction of innovation and modern technological systems into infrastructure facilities, is provided through mechanisms by which infrastructure procurement is provided through a system basis and not a segmented one.

As the main evaluation process of the developers is based on the cash flow that the project will generate, neither a segmented nor a system approach followed may be a major hindrance for the project development and success. Design Development and Value Engineering should be one of the exclusive responsibilities of the developers. The private sector responsibilities should extend to design and build the system, without the interference of the government in optimizing their system. This segmented / system approach, actually adopted by the Lebanese government, damages resource optimization n and innovation in the design phase that is the most critical in gaining competitive advantages in the whole life cycle of the project. The actual intended
partially segmented bidding process orients the competition to a single phase in project development, and does not produce the best integration of design, construction and maintenance.

On the other hand, the design provided by the public authorities is critical for the compatibility, both functional and architectural, with the other parts of the infrastructure and the environment surrounding it. The social and economical impacts of the infrastructure facilities to the region they serve require that the state assumes a conservative approach that a private firm might not follow. In addition, the required design may also allow a better benchmark to get similar ground for judging the different proposals of the involved private companies. But, the objectives of the design firm in the airport facilities, the water conveyor, and the Beirut-Hadath highway, are aimed solely to provide good design more than to aid in the dynamism of the management and operation of the facilities.

From another perspective the use of quadrant II instead of quadrant IV will hinder the development of the Lebanese engineering design and contracting firms. Most of these companies are of medium and small size, and they are acquainted to a segmented bidding process. Bidding on large projects is a net advantage for the international firms. Furthermore, the segmented bidding process may generate the lowest cost for the government on the different stages of a project, and involve more participants in the project; actually, the more the number of participants, the more the project helps in promoting the economical activities in the country. In my opinion, these different quadrant IV advantages might be conserved for quadrant II use by adequate regulations that encourage joint ventures among different Lebanese firms, and imply a minimum involvement for the Lebanese companies on any infrastructure development project in the country. In addition, this can also promote technology transfer to firms based in Lebanon.

The Lebanese government without previous intention is affecting the future cash flow, Net Present Value, and Return on Investment (ROI) of these projects. When restricting these companies to compete on design, they definitely lose potential in reducing costs by matching design and construction that might reduce investment at an early stage of the project development. Even though breaking up projects has been a traditional approach, a lot of conflicts among the different designing firms and contractors are created. This is always time and money
consuming. As a matter of fact, the Lebanese government has shifted from quadrant IV to quadrant III way of procurement. Due to the different reasons listed above, I would recommend quadrant II:

![Graph 5.3: Different procurement strategies of the Lebanese government](image)

In my opinion, a good prequalification document provided by the Lebanese authorities, that defines exactly their needs and includes 5% of the design, is enough to avoid risk bearing by the public authorities. But, the Lebanese government should spread an atmosphere of confidence in its commitment to a future private sector involvement and re-investment in infrastructure development in Lebanon.
Chapter 6

Recommendations

6.1 The Lebanese government challenge

The Lebanese government conceives the future role of the infrastructure in the country as supporting a “service industry”, providing goods. Actual commercial orientation contrasts sharply with the situation of the governmental agencies and employees. The public departments put little emphasis on the revenues collected and the quality of services delivered, and suffer from multiple and conflicting objectives and inadequate accounting for costs or financial risk. Managers have neither the financial capabilities nor the motivation to satisfy customers, or to achieve a reasonable return on investment. Since the independence in 1943, typical providers of infrastructure are subject to pervasive interference by political and sectarian authorities, which adversely affect operational decisions on investment, pricing, labor, and technological choices. Although infrastructure markets with numerous suppliers are rare, competition among a few rival providers can lower costs and prices. Even when economies of scale and scope favor a single provider, the existence of potential rival suppliers that can contest the market limits the risks of monopoly abuse. All qualified national and international new entrants (each group should have different qualifications constraints), that meet the government requirements for providing public infrastructure, should be allowed to provide services, with the market deciding how many providers can operate profitably. A privatization process that allows competition and commercializes the industry seems to satisfy the current objectives of the government. But, do the public institutions and the overall situation of the country facilitate this smooth transition and regulate the competition?

The Lebanese government is inexperienced in the different types of Public / Private partnerships, as no project of this nature has been developed in the country before. Although it would not be reasonable to compare countries with different socio-economic structures, it is interesting to learn
lessons from different countries where privatization has sometimes been successful and at other times less desirable (ex: the privatization process in Russia since 1991). The Lebanese government should ensure positive results for the first public/private partnerships in the country, to encourage private investors involvement, enhance the interest of lenders, and provide social support for the program that might lead to rebuild a significant portion of the country’s infrastructure.

6.2 General strategy recommended

Infrastructure construction and provision should be undertaken within a business framework that includes profitability as one of its major aims, rather than being limited to fulfill budgetary requirements without regard of profits. The actual situation has caused allocation of subsidies without restraint. The commitments to privatization from the actual government of Hariri are most credible when all the enabling measures needed for private entry and asset provision are adopted within a short period of time as part of a consistently designed program. I recommend the following sequencing strategy to be followed by the Lebanese government:

1) Set up a statutory regulation that sets the rules, requirements and expectations of the privatization process.
2) Provide the supportive environmental, social and managerial needs for the Public/Private partnerships.
3) Conduct general surveys for the infrastructure facilities in the country to fix by priority order the most urgent and suitable infrastructure projects that meet its strategic perspectives.
4) Determine the appropriate kinds of partnerships for the industry structure, the degree of unbundling of the different activities, and the extend of new entry.
5) Conduct feasibility studies on project by project basis to determine their attractiveness.

When careful feasibility assessment and wise planning have been performed, privatization scenes in Lebanon are attractive, feasible and yield desirable cash flows. Strategic infrastructure
development can yield major benefits in economic growth and population needs. Personally, I do not see many logical reasons that should prohibit the Lebanese government from using the private cooperation and their limited public funding to meet the fast growing infrastructure needs in the reconstruction period. Even though many obstacles are opposing the privatization process that is going in the country, the need and benefits of such partnerships overcome these problems and make the process indispensable in the actual circumstances. In order to define the needs for the success of the Public / Private partnerships, the following part will answer the third research question: "What is the role of the government in creating a successful privatization process and making the smooth transition?".

6.3 Role of the government

To provide success for the Public / Private partnerships in Lebanon, two major steps need to be taken: political stability and efficient legislative body. When these two major problems are solved, foreign and Lebanese investments will flow to the country, and the ultimate role of the government will be to manage and guide these investments.

6.3.1 Political and economical stability

Unfortunately, even though the economical situation has widely improved, Lebanon remains politically weak and unstable compared to other developing countries involved in the privatization process. The actual political and economical environment does not encourage long-term basis investments necessary for infrastructure projects. Lebanon cannot expect to attract foreign investments without a serious government involvement that includes political and economical risk sharing (monetary, inflation...) and incentives provided (taxes and duties exemption). The more the country is considered unstable, the more the government should sacrifice in revenues and share risks. In order to spread an atmosphere of confidence in the country, the government should stop the careless public expenditures and reduce its political and military expenses, in order to shrink or at least stabilize the public debt that had attained record levels recently, and to control the Lebanese Pound parity and inflation rate.
6.3.2 Adequate legislative structure

A rapid and efficient legislative system, that regulates the procedures and defends the interests of the public and private firms, is a necessity in any privatization process. Due to the ineffectiveness and the slow decision making of the actual legislative system in Lebanon, the Lebanese citizens are not used to go to the courts anymore for their disputes resolving. The actual system is time and money consuming for the private and for the public sectors. The legal system should be designed to create stability and spread confidence among the investing firms with clear and efficient procedures that protect the investments and property ownership. The government should guarantee an enforcement of the law and the decisions issued by the courts, and provide better and equal access to the courts for the different parties without any political interference. In addition, the social class should have confidence that the regulations issued are adequate to control the private firms, and prohibit them from achieving illegal financial and profit rentabilities on behalf of the citizens interests.

A statutory regulatory system that provides clear and open enforcement of the terms of contracts for infrastructure is required, although its actual weakness has not held up private entry in the Lebanese market. Regulations must negotiate many potential pitfalls; as it controls the exercise of monopoly power, it must also ensure service quality, safety, environmental protection, service obligations, consumer rights, and the rights to network access. Effective statutory regulation requires prescriptive and nondiscriminatory rules and the creation of consumer constituencies. The design of such regulations may well benefit from the contractual experience of the already few private entrants to the private infrastructure provision in Lebanon. Furthermore, the legislative system should issue regulations that protect and encourage Arab and foreign investments in the country.

In general, the new regulatory system should be flexible but with commitment to fixed rules to promote the private sector in the traditional public facilities. Too much flexibility lets well-organized interest groups gain control of the regulatory process to their own benefits. Too rigid a regulatory structure limits the ability to correct mistakes and adapt to change, and stifle initiative. Regulation sometimes leads to outcomes worse than those that imperfect markets could achieve.
6.4 Recommendations for the government

The government has the responsibility to solve the problems that are hindering the scenes of public/private partnerships in order to provide better efficiency and public support of the newly privatized entities. The major procedures that the government should implement are:

6.4.1 Fair access to the infrastructure facilities

Although the relationship between infrastructure and poverty is pivotal, infrastructure is nevertheless a blunt instrument for intervening directly on behalf of the poor. The Lebanese government should keep direct or indirect control on the main infrastructure services of the country in order to assure fair access to the users, and to avoid the control of these key elements for the countries economic growth by private entities whose objectives are different from the nation ones. The social class is afraid that privatization will reduce subsidies in the infrastructure services, and thus will eliminate the means of redistributing resources from higher-income households to the poor class. However, there are many ways in which infrastructure subsidies can be structured to improve their effectiveness in reaching the poor.

I would suggest that the government should impose on the private firm an “increasing-block tariffs” pricing method to be used: a particular low rate for the first part of consumption, and additional rates for the other “blocks” of consumption. This kind of subsidies should be used for the essential infrastructure facilities in the country, and more precisely to the electric power and to the water provision in case they are privatized. By this method, the government can be sure that subsidies reach the poor, and thus, it is a way to ensure redistributing resources from higher-income households to the poor. Surely, the government should also check that the poor, or the rural areas, do not lack access to the vital infrastructure provision because of the private company’s maximizing benefit objectives, and they do not end by paying much higher prices for infrastructure services or their substitutes from private operators.
6.4.2 Project evaluation and bidding process

The attitude of the Lebanese population is that privatization may lead to further corruption in the country and wealth concentration. Furthermore, there is a great doubt about the integrity of the bidding and project awarding process. A complete fairness of the proposal selection is constrained by the clarity of the evaluation factors. Factors such as quality of design, plan’s feasibility or the level of integration are vague and can be interpreted in many ways. Thus publicly opened bidding procedures, where information on the projects awarded and private companies selection criteria are available to the public, might be one of the major factors that will appease the public opposition.

6.4.3 Marketing the Public / Private partnerships through educating the Population

As the concept of public / private partnerships is new to Lebanon, it is not well understood by the society. The government should start to promote the new concepts of public / private partnerships to ensure the citizens support and motivate them to become the future investors and customers of the new infrastructure provision system in the country. An educational program that regroups the several benefits of infrastructure projects privatization, supported by success and failure stories from other developing countries should be implemented. These programs should be diffused on Television, radios and released through seminars and lectures in high schools and universities. The Lebanese public should understand through these programs the advantage of public / private partnerships in generating employment and providing better services than the existing ones. Furthermore, the program should inform the simple citizens about the opportunities in investing in the stocks and bonds of these projects. This kind of program is very important to provide reassurance to the citizens. Unfortunately, a major part of the population that is opposing the privatization process is influenced by the misunderstanding of the concepts and benefits of such a process.

6.4.4 Protect the Public employees from massive dismissal

The Lebanese government should issue rules and regulations to impose employment conditions
on the operation of the contractors and protect the public employees. On the other hand, the plants privatized will be transferred to the government at the end of the concession period. The government could either renew the contract with the same company or with another interested one, or allow the public sector to manage it. In all cases, a joint educational program, regrouping the public and the private firms, should be periodically pursued in order to train the staff that might take the control of the public entity at the end of the partnership, and assure the technology transfer. By that, at the end of the concession period, most of the employees concerned will have required the technological, technical and managerial skills needed to operate and maintain these facilities. Furthermore, I suggest that the Lebanese government requires the gradual transfer of parts of the activities to the public sector during the last years of the partnership to ensure the training of its staff by the private contractors.

On the other hand, control systems in public enterprises should be created to control the private sector. These agencies should have clear goals, missions and tools on how to determine and measure the performance of the private entities. Unfortunately, through the interviews that I had conducted in Lebanon, there are no plans to create organizations with the sole objective to control the private partner. The employees in these institutions should be appointed based on technical and managerial capacities, rather than on political ones. Even though there has been a positive experience in controlling the work of the GSM system, the need for independent public institutions in this perspective is crucial for the success of any privatization scene.

6.4.5 Create risk sharing agencies

In January 1977, the government of Lebanon tried to create an official entity to guarantee investment in Lebanon against non-business-risks. It instituted through Decree law No. 3 of January 15, 1977, a public agency named the National Investment Guarantee Corporation (NIGC) [Boustany 92]. NIGC was supposed to cover strictly political risks, and direct damages caused by the war or any act of violence. Its responsibilities were restricted to the investments in tangible fixed assets of the domestic and foreign investors. However, since 1983, the steep depreciation of the Lebanese Pound has eliminated the importance and the role of NICG and consequently halted its activities at the end of 1983.
In order to cover and share some of the risks by the Lebanese government, risk agencies should be created to cover the financial and economical risks in addition to the war related damages. Nevertheless, for attracting foreign and Lebanese in diaspora capitals, it is necessary to provide guarantees against currency depreciation, inflation, and nationalization risks. I strongly believe that the absence of such agencies is implying additional costs for the government to share the risks. Actually, the investors are seeking high return on their investments due to the risky environment and the lack of such risk sharing institutions in Lebanon. Such institutions form a determinant factor for attracting foreign investors and reducing the different risks in the country, thus they should be created as soon as possible by the government.

Graph 5.4: Government/Private operator risks sharing for achieving successful projects
6.4.6 Government procurement strategy

The Lebanese government can contribute most effectively to the development of public infrastructure by determining and defining public needs, and opening the possibility for the private sector to compete for providing these needs. The best alternative for the public authorities to meet this strategy, is to opt for quadrant II (Indirect / System) type of procurement for most of the large infrastructure projects in the country. This strategy is the least cost and time consuming, and allows the government to select best value from a number of proposed packages that cover the whole life cycle of an infrastructure project. Actually, the government is using quadrant III, as seen by the major projects discussed in this thesis, by relying on the private sector investments, but segmenting the design and construction. This might be a strategic move between the past direct / segmented (quadrant IV) strategy and the future indirect / system (quadrant II) one! On the other hand, the limited public funding will be used through direct-segmenting strategy procurement for the other routine and small projects throughout the country, or for the essential infrastructure facilities that meet the poor status and the national defense needs.

The B.O.T. (Build-Operate-Transfer) and D.B.O. (design-Build-Operate) types of concessions allow the government to obtain competitive prices, not only for the cost of construction, but for the cost of financing, designing, constructing, maintaining, and operating major infrastructure facilities over an extended period of time, typically 20 to 30 years. The competition will be based on a mix of evaluation factors that produces a corresponding different combination of quality, price and time for the government to consider in evaluating different proposals. In addition, the DBO and BOT procurement methods eliminate public expenditures for maintenance and operations during the franchise period, and permit reliable budgeting and financial management of public expenditures for infrastructure. Furthermore, this kind of procurement analysis will reduce the need of government engineers and staff to supervise project development activities directly, as some of them will be conducted by the private developing team, without the participation of the government staff [Miller 95]. Following this strategy, the Lebanese government should develop a good description of the needs for the Free Zones and the public transportation facilities, and allow the private sector to compete and to be creative in their project proposals.
The success of the BOT and DBO (Indirect / system) strategies depends heavily on the consistency and stability of the political and economical environment. The next Lebanese governments should provide stable environment and solicit and evaluate such procurement proposals in a consistent way.

The following describes the way the infrastructure provision should be structured in order to regulate competition, and to facilitate and create a competitive environment:

**Legislatures**

- Identify and describe Public Needs
- Provide a Competitive Path to Fill These Needs

**The procurement system**

- Conduct Competition and Manage The Results

**The private sector**

- Approach A
- Approach B
- Approach C

*Graph 5.5: Structure of the infrastructure provision [Miller 95]*
6.4.7 Short-term actions

As the actual economical and political situation in Lebanon is not stable, and the government has not implemented the actions described above, I am afraid of the nullification of the potential benefits of the privatization efforts. In order to let the government learn from its first mistakes and avoid the costly failure, I recommend the slowing down of the privatization process for two main reasons:

a) The fairness of the price paid for these infrastructure assets is heavily dependent on the current economical situation of the country. Actually, Lebanon is facing difficult economic problems that might cause the undervaluation of the infrastructure facilities in order to make them attractive for the investors under this risky environment.

b) The lack of social support and the absence of some of the needed technical tools and governmental agencies, oblige the government to be more careful about the different steps to be followed for implementing its strategy.

In order to ensure positive results, the move to the market based system should be achieved gradually, through systematic changes, to provide more credibility for private sector investment and re-investment in public needs. Without that, private entrepreneurs are not likely to take on new investments.

Mr. Ibrahim Shamesdine, the Vice-President of CDR, was pessimistic about the privatization process in Lebanon: “I do not believe that public / private partnerships will be successful in a country that experienced a war period. In the privatization process there are two possible scenarios: either the government takes control of the process and controls everything; this scenario is unlike by the private firms. Or, there is no governmental control, and the private firms speculate on their own; this is not accepted by the government.” I am afraid that Lebanon will confront the second alternative if the government does not create carefully the basic solid ground for the privatization process. As a matter of fact, it is the sole responsibility of the government to create the adequate environment and to select the right types of contracts and risk sharing on a
project by project basis. Implementing adequate measures for public / private partnerships will motivate the Lebanese in diaspora to invest in the reconstruction of their country. The Lebanese in diaspora were not affected by the war and their holdings grew to $40 billion, saved and invested outside the country [Boustany 92]. Therefore, when we consider the Lebanese private capital as a source of funds for the reconstruction of the country, it is rational to think first about the capital of the Lebanese diaspora saved abroad and invested in foreign countries. The attachment of the Lebanese living abroad to their mother land and their will to help in the reconstruction of their country, as well as the financial profit expected from the investments might form the solid ground for financing infrastructure development and rehabilitation in Lebanon.
Conclusion

Lebanon is expected to play a major role in the reconstruction and socio-economic development of the Middle-East, as a result of its unique characteristics and position. Beirut is expected to become the center of a large financial and multi-modal transportation center which extends far beyond its limits and constitutes the medium for extensive passenger movements and trading activities. The adequacy of infrastructure helps to determine Lebanon’s success or failure, in diversifying production, expanding trade, coping with population growth, reducing poverty, or improving environmental conditions. Public / private partnerships are an innovative financing methods that help to enable the Lebanese government to provide projects that are needed for the country’s social development, the subsequent well being of its population, the country’s future development and long-term comparative advantages. The rewards of the actual reforms led by the Lebanese government are potentially large, which make the commitment to reform imperative and worthwhile. These reforms will produce three major types of gains: a) reduction in subsidies, and thus relieve the government from some of its financial burdens, b) technical gains to suppliers, c) gain to users. The payoffs from better infrastructure services go beyond reducing technical inefficiency and financial losses but they would also enhance the growth and competitiveness of the economy.

Implementing the reforms for better infrastructure services is not easy for the Lebanese government. Improving the productivity of the existing infrastructure facilities will often require to shrink the workforce. Creating commercial enterprises also means, even though it has not been admitted by most of the persons that I have interviewed in January, rising up user tariffs in many sectors, especially in water and power. These increases will often be resisted by the low and middle-class constituencies that benefit the most from subsidies. But in Lebanon, the dissatisfaction with existing services is so strong that initially unpopular measures may become palatable if they are accompanied by effective efforts to improve services. Although countries can acquire knowledge, skills and financial resources from outside, the commitment for reform must be homegrown. Obviously, the strong commitment of the actual Lebanese government may be the
most valuable asset to bring up change.

Today, Lebanon is relying on the strong government commitment for change, the strength and experience of its private sector, and the diverse capacities of its workforce. The three major parties should cooperate and unite their capabilities together in order to make this privatization experience successful. The government should shape the adequate investment environment, the private sector should propose its financial and innovative capabilities, while the workforce should bring its technical expertise. Through all the generations, Lebanon has been the leader in the development in the Middle-East through the dynamism and creativity of its citizens. I hope that this thesis has presented the actual infrastructure situation in Lebanon, and has given the government an idea on shaping the environment to attract private investments to the country. Finally, I would like to send a personal message to all the Lebanese around the world: "Let us regroup our forces to build a new Lebanon".
List of notations

*C.D.R*: Council of Development and Reconstruction

*I.D.A.L*: Investment Development Authority of Lebanon

*E.D.L*: Electricite Du Liban

*G.S.M*: Global system for Mobile Communications

*N.I.G.C*: National Investment Guarantee Corporation

*R.O.I*: Return on Investments
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