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THE FUTURE OF PUBLIC TRANSPORTATION
IN LEBANON: AN ADMINISTRATIVE
ASSESSMENT IN VIEW OF CURRENT PRACTICES

By

YAHIA MOHAMMED ALI NAJIA

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The following professors nominated to serve as the advisors
of the above candidate have approved his work.

FIRST READER

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S

SECOND READER

DR. TAREK MEKDACHI

SIGNATURE

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ABSTRACT

At the present moment, the General Directorate of Railroad and Public Transportation is in a very serious situation because neither the motor vehicles nor the railroads are earning sufficient revenues to cover their reasonable expenses. The causes are numerous but whatever these causes are, the effects will still be more destructive if no serious measures are to be taken.

Policy decision bearing on any one transportation mode in Lebanon will have repercussions on the others because public transportation is not a function by itself, it does not operate in entire independence to which standards can be applied without reference to their effects upon other parts of the social body.

This thesis will try to analyze the General Directorate of Railroad and Public Transportation's policy game and the reasons behind the deterioration of public transportation system in Lebanon.

The purpose is to assess the future of public transportation in Lebanon, an administrative assessment in view of current practices. The main points which are thoroughly investigated in this research are administrative options available for the General Directorate of Rail Road and Public Transportation, manpower, bus operation, financial position and performance indicators that could help decision makers at the strategic level to better predict the future of public transportation in Lebanon.

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CHAPTER I

1.0 Introduction:

At the present moment, Lebanon lacks the services of an efficient public transportation system. The railroad services are totally out of order and the bus transit services are so limited that their share in the transport market does not exceed 2 percent whereas taxi cabs's shares exceed 50 percent¹. Add to these, the bus transit services cover only the capital, Beirut.

Therefore, congestion is a daily occurrence experienced by all drivers and travelers in Lebanon and especially in Beirut, and as a result, this congestion impedes the delivery of quality transit service, which causes the overall performance of the transit system to deteriorate and discourage transit ridership. In addition, the redevelopment of the Central Business District and an increase in the occupancy of the downtown office buildings will still generate higher traffic volumes that will raise the level of congestion.

Besides transit performance as a system, the delays resulting from traffic congestion affect economic growth since time wasted could be used more productively. Moreover, traffic congestion results in a deterioration of the environment by causing air and noise pollution. Facing these problems, a question has to be asked: What is the ideal transport system needed to put an end to this traffic congestion?

¹ F. TV. interview with the General Director, 2/3/1995

In fact, there is no consensus among transportation experts as to "Ideal" transportation system. The different transportation modes are closely interrelated. The quality and cost of public transit affect the demand for other modes of transportation, and the degree of automobile traffic congestion affects the efficiency of road and highway transit.

Policy decisions bearing on any one transportation mode will have repercussions on the others. However, it should be pointed out that for channelized movement of any significant volume, public transit is greatly more efficient in land use and is correspondingly less costly than private automobiles are because "Auto movement at 32 Km per hour requires from 6 to 45 times as much road spaces per person as does a transit bus²".

Therefore, if it is a "Policy game", then the next question is: What is this policy and what is behind the deterioration of the public transportation system in Lebanon?

² Lyle C. Fitch and Associates, Urban Transportation and Public Policy (San Francisco:Chandler Publishing Company, 1961), P. 2.

1.2. Statement of the problem:

The relative absence of public transportation services in Lebanon in the last few years uptill now is the major problem lying behind conducting this research project.

1.3. Concepts tested:

This research intends to study the following concepts:

I. The fact that General Directorate of RailRoad and Public Transportation (GDRR&PT) is independent, for profit organization does not hold true because decision making is shared by many governmental agencies and because GDRR&PT depends heavily on government subsidies in order to survive.

II. Plans are developed to be implemented, but this does not hold true. There are problems in implementing and executing plans.

1.4. Statement of the purpose:

Major changes are likely to occur in the transportation situation in Lebanon and especially in Beirut. The redevelopment of the Central Business Center, the sport city and the reconstruction process in all over Lebanon are likely to have significant impacts on traffic levels and patterns of travel.

As a result, the purpose of this research is to assess the future of public transportation in Lebanon, an administrative assessment in view of current practices. Besides, this research will present and analyze operating expenses and revenues to come up with performance measures that could help decision makers at the strategic level.

1.5 Methodology:

The sources of information for this research include both primary and secondary data. The primary data consists of unstructured open-ended interviews with various men, inside and out GDRR&PT, responsible for carrying out the operations. Other primary data include operating revenues, operating expenses, and other bus schedule information which are obtained from the accounting department. Secondary data include newspapers. Chapter three describes in details the research design, the data collection, and analysis methods.

1.6. Construction of the study:

This research will follow the following outline:

- Chapter two will be concerned with:
 1. Reviewing the literature that deals with the issue of public transportation.
 2. Experience that could be learnt from the United States of America, Canada, and United Kingdom.

- Chapter three will include the methodology used in this research, the research design, the data collection methods, and the data analysis methods.
- Chapter four will include the findings of the research .
- Chapter five will include the conclusion and the recommendations.

CHAPTER II

2.1. Public Transportation

"Public or mass transportation is the transportation of large numbers of passengers by means other than owner-operated vehicles"¹. These systems are intended to improve mobility not only within metropolitan areas, but also along the increasingly densely populated corridors between what had originally been separate cities.

2.2. Requirements

In order to compete successfully, a public transport system must meet certain criteria:

- Reliability: Arrival on time has been shown to be an important competitive factor.
- Speed and wide coverage: A measure of the effectiveness of any transport system is door to door time. To maximize speed as well as comfort, the system has to have flexibility and wide coverage.
- Personal security: In a number of public transit systems, crime against individuals has become a deterrent to public use. Therefore, use of mass transportation systems, especially outside of peak period depends to a certain extent on security.

- Comfort: The vehicle should provide adequate passenger comfort.
- Low fares: Fares are important criterion. However, experience indicates that even high automobile fuel costs will not cause riders to shift to mass transportation if it is deficient in operation or safety.
- Frequent service: To be convenient, the system must offer suitably frequent service throughout the day.
- Freedom from strikes

2.3. Principle modes

In fact, there are a variety of modes used such as:

- Paratransit: It includes a variety of local services like taxis, van and car pools, taxis or small buses along fixed routes(Jitneys).
- Buses: Bus systems constitute the majority of public transport system in the world.
- Light rail: This includes mainly trolley cars, whether on city streets or reserved rights of way.
- People mover: It is mainly used in airports or amusement centers.
- Heavy rail local service: This includes subways, the diminishing elevated lines and commuter railroads

- Corridor rail service: This is mostly rail service for distances to 400 km or more. To operate, it requires railroad lines capable of very high speed.

2.4. Nature of Public Transport System

When one talks about public transportation, this does not mean that it is a purely governmental organization.

According to Bozeman, "All organizations are public, and this publicness is useful because it draws attention to the degree to which public authority affects how organizations act"¹. Public organizations are thus no longer synonymous with governmental agencies but include many for profit organizations. Calling all organizations public is perhaps a bit extreme, but it illustrates the need to consider the public aspects of the organizational life and the constraints -such as legal mandate, tradition and political influence - and empowerment that are crucial in strategic management.

Therefore, when one talks about public transportation, the degree of publicness declines because riders pay for this service. So, budgets derived from revenues based on

services with charges that cover part of the cost, suggest an intermediate level of publicness. However, this level varies from one country to another.

2.5. Cost-Benefit Analysis

Public transportation is one of the most interesting and challenging fields of policy analysis, partly because transportation is very closely concerned with modern urban structure and functions and partly because transportation analysis must draw upon many disciplines in the natural and social sciences like for example demography, economics, politics and public administration, engineering and law. All the above mentioned disciplines affect public transport, policies, and consequently the benefits and cost derived from this transport policies.

2.5.1 Benefits

The benefits of a transportation system can be defined as those benefits which accrue to members of the community at large over and above those accruing to users of the service.

A. Benefits to users:

"1. Value of time saving, in door-to-door travel

2.Saving in vehicle operation-motor-fuel consumption, repairs and the like

3.Value of improvements in service quality such as comfort, convenience, frequency of service"2

B. Benefits to others:

"1.Complementary improvement to other parts of the transportation system, such as a decrease in congestion on previously existing roads

2.Benefits to the metropolitan economy such as increasing general productivity through extention of the labor market or for other reasons, conservation of existing physical plants and so on.

3.Social benefits such as the deconcentration of population, increased opportunities for recreation especially for the old persons.

4.Balanced distribution of economic activities"3

Costs can also be divided into two categories:

2.5.2 Direct Cost:

Construction, other capital costs, operating costs, administration costs, interest costs on all funds invested in the project, no matter from what source, accident expenses and other direct cost.

2.5.3. Indirect Costs:

Costs imposed on other parts of the metropolitan transportation system, such as the costs of building interchanges, increased congestion in other parts of the system fostered by the new facilities and so forth, in addition, noise, air pollution and undesirable land uses.

2.6. Determinant of Effective Operation

To make public transportation effective, it will require a continuous direction between the administrative side and the operative side for all parts of the system. In addition, this system can achieve success "by improving speed and convenience of service through measures such as consolidation of routes, speeding of travel schedules and reduction of delays, installation of limited and express services on city

streets"4. Furthermore, traffic management policies emphasizing movement of people, rather than movement of vehicles would do much to overcome operational handicaps of transit on city streets.

2.7. Planning

"Planning is developing in broad outline the things that need to be done to accomplish the objectives of the organization and the most effective ways of doing them"5. In fact, planning for a public transportation system requires careful and penetrating economic analysis. This implies more than merely weighting the immediate costs and benefits of transit system. It means among other things projecting the patterns and urban development that might result from different transportation system. It means taking into account the effects that alternative ways of financing transport facilities may have on the use of such facilities and indirectly on urban development patterns. In addition, the optimum over-all public transportation system for a city will depend on a large number of factors : "The age of the city, the existing supply of wide avenues and rail transit right-of-way, the geographic density of its workplaces and residences, the

income level and tastes of its population and its future prospects and patterns of population and employment growth"⁶ .

Therefore, comprehensive planning is the first step in achieving a good transportation system. It should be for the transport system as a whole rather than for its individual components - Buses or rail transit.

The transport planning itself can be broken down into a number of stages, each involving a certain amount of economic input to it. Figure 2.1 illustrate the planning process.

Figure 2.1 The urban transport planning process⁸

A few comments are justified on each of the stages.

1-Nowadays a greater emphasis is being placed upon social and environment consideration as well as efficiency.

2-Information is gathered about the nature of the local transport system and travel patterns both by sampling and counting people actually in the act of transport or from official sources such as Census or other.

3-They look at modeling and forecasting techniques and, in particular, their economic underpinnings. The purpose is to assist in understanding and explaining behavior, to aid policy formulation and to provide robust predictions.

4-It is important to provide the planner and the decision maker with useful information about the long term implications of plans, emphasizing those areas where there are significant differences in the consequences of the alternative plans.

5-They employ some variant of the cost-benefit analysis approach or by inclusion of public participation at the evaluation stage, often in the form of public inquiries.

2.8. Public Support

In view of the importance of public transportation and the impossibility of financing a large capital improvement program from the fare box, a public contribution is clearly needed. However, it is difficult to build many strong justifications for subsidizing public transit on economic grounds alone. The theory provides only some loose guidelines in the selection of policies for achieving objectives stipulated by the political process or governmental policies.

So any program of governmental assistance should focus on the following objectives:

- 1-To encourage urban areas to deal with their transportation problems on an over-all basis, rather than piecemeal.
- 2-To put competing forms of urban transportation -private and public - on an equal footing with regard to support from external tax funds in order to produce more rational choices by users among transport alternatives and more rational decision by governments concerning investment in additional transport facilities.

3-To foster experimentation with and development of new transportation systems, technology, planning techniques and knowledge, and administrative expertise.

4-To prevent premature demise and the abandon of existing public-transportation facilities which are in financial straits because many of these facilities will prove to have a significant role despite their present under-utilization.

2.9. Public Transportation in USA, Canada and the United Kingdom

Public transportation investment should be planned not only within the wide context of the national and regional transportation system, but also within the wider context of the goals and objectives of the overall national and regional economic development.

Reorientation is needed in transport planning -particularly in developing countries such as Lebanon - from the standard, uni-directional, piecemeal to the holistic, overall system approach. Insights to this reorientation cannot be made unless the current system is

ineffective, inefficient and change must be made, or by realizing that others have the technology and the evaluation criteria that enhance decision-making in a more precise way.

For the purpose of gaining insight of the current state of art and the experience that could be learnt from the United States of America, Canada and United Kingdom - which have the greatest transport system in the world - will be taken as case examples in order to shed light on the following points :

- Planning
- Recent trends in administration
- Financing
- Management information system
- Technology
- Coordination between different federal agencies

Although these examples may not necessarily have direct relevance to the subject treated in this research, nonetheless, they are valuable guides.

2.9.1 Planning

Many organizations are facing now new mandates that require some form of planning, and

public sectors are included in this category. Plans must be skewed to fit the categories demanded by regulators and funding agents .

In many instances, the organization must do an ongoing agency management as it responds to these demands.

A very good example here is the plan carried by New York city department of city planning to integrate the various bus services with one another and into the city's larger public transportation network. The detailed objectives were to :

- "• Develop criteria for determining the level of need for express bus service.
- Assess relative needs by geographic areas of the city
- Define acceptable limits on the quality of express bus service in the central business district and evaluate the more efficient use of streets.
- Develop an express bus service plan that includes routes and desirable levels of service
- Assess legal constraints and develop an appropriate implementation plan."10

The major ideas are: The level of need, need by geographic area, service quality, frequency of service and assessment of legal constraints. Of course, to predict the first two ideas, there is a need to forecast and hence emphasize the ideas presented in Figure 2.1.

2.9.2. Recent Trends in Administration

Public transportation is often regarded as one way of helping solve congestion, scatterization and air quality problems. Yet, many public services are criticized for being neither cost-effective nor particularly effective in delivery.

Privatization is one proposal to make public service most cost-effective. The assumption is that a private business must perform in a cost efficient fashion, or it will fail because the competitors will attract customers by charging lower prices. In overall, privatization in the complete sense has its advantages and disadvantages.

A good example is "Deregulation and privatization of urban bus service: Lessons from Britain"¹¹ as applied in the United Kingdom. Deregulation and privatization of all local bus

transit - except for those in London metropolitan area - were carried by three methods:

1- Industry deregulation, enabled bus companies to offer commercial not subsidized bus service.

2- Publicly owned companies were reorganized as separate for profit corporation that may no longer receive direct subsidy.

3- If local authorities wish to supplement commercial services with subsidized services, they must be procured through competitive bidding.

In overall, the following can be observed from such deregulation practices:

- The threat of competition has proved effective enough to induce most bus companies to take radical measures to prune staff, reduce cost and improve quality of service. Disadvantages are serious barriers to effective long run competition by either collusion or merging of large companies.
- Bus fares increased and ridership declined because subsidy was cut. On the other hand, tax payers were winners in the process because they gained from reduction in tax burden

- Many labors lost their jobs. Some areas were poorly covered because they were not profitable enough

In the United States of America, the most recent trends has been to promote private involvement in public transport. As a result of a study conducted by a task force of Contract Service Association who made site inspection at five transit agencies, it was concluded that "the transit industry could achieve major capital and operating costs saving by applying competitive contracting practices"¹² .

Among the key findings of the task force is that contracting cut capital and operating costs by more than 30 percent while improving service. Moreover, it is proposed that a properly administered contracting program, relying on current technology and modern management practices would reduce the need for large expenditure on elaborate maintenance, management, inventories, and other operating expenses.

An example is the Metranet which is an acronym for Metropolitan Transportation Network in New York.¹³ Metranet promoted private investment in public transportation by

increasing private competition and encouraging public transit agencies to contract with private operators. The aim was to expand communication between public officials and private providers of transportation.

2.9.3.Financing:

The cutback in Federal subsidies for mass transit capital needs and mounting operating deficits have caused states municipalities and nonfederal agencies to play an increasing role in providing funding for both capital and operating costs. Innovative means of financing expenditures have been developed. It is now common to find debt financing of rolling stock and stations in the United States.¹⁴ In fact, this was made possible in light of the United States department of transportation's initiatives on encouraging debt financing. As a result, many options have been used in financing transit projects such as general obligation bonds, revenue bonds, leases and short term financing. Every conceivable revenue stream has been used to provide security for the bonds.

Furthermore, in order to consolidate this security and because of the significant demand for capital investment in transit and the need

to improve the allocation of implementation risks, the Federal transit administration encouraged more private sector participation in planning, engineering, implementation and financing. All this is to encourage the sharing of risk and cost between the private and public sectors. As a result, new project implementation strategies could:

- Permit Federal cash flow to be managed more effectively
- Minimize project costs
- Control project completion and cost overrun risks
- Attract new sources of funds

These benefits would provide for the possibility of access to lease financing, speeding up of the use of private sector project management capabilities and development of system performance criteria.

2.9.4. Management Information Systems:

A public transport organization is a system. "A system is a set of interdependent parts which together make up the whole because each contributes something and receives something from the whole, which in turn is

interdependent with the large environment"15. Moreover, a computerized maintenance information system (MMIS) was developed and implemented by the Pittsburgh's Port Authority Transit (PAT)16

This MMIS have great potential and as developed by PAT can:

- "• Improve maintenance planning, analysis, management, and evaluation
- Enhance cost-effective transit system management
- Increase effectiveness and efficiency"17

MMIS provides reliability and maintainability, statistics, labor and material cost, exception information for high-cost or repetitive failures, warranty programs support, preventive maintenance schedules, material consumption, information to support materials procurement and inventory management, bus maintenance history to assist technicians in trouble shooting and repair, source information for development and update of work standards.

In short, MMIS stores all the necessary data that is needed to keep the organization up-to-date of every single tiny entity that is needed for effective decision making.

2.9.5. Technological Innovation in Bus Vehicles:

Good service is particularly important if transit is to become more attractive to a greater number of riders. Improvements in

vehicles and facilities help, but improvement in operations are essential. Advanced vehicle monitoring and communication (AVM/C) systems enforce a group of technologies that together form a system "to improve the supervision and coordination of transportation vehicles in order to provide more reliable and efficient operations"¹⁸ . AVM/C are widely used in Canada and Europe.

The system provides an up-to-the-minute information on how bus operation is performing, including where the buses are, how many passengers are on the buses, and the condition of various mechanical and electrical parts of the system.

Supervisors can then use this information to anticipate difficulties or monitor problem situations as they develop, such as buses becoming overcrowded or beginning to fall behind schedule. Supervisory personnel, probably the dispatcher, can then develop a plan for recovery of the system to its scheduled mode. Instructions can be communicated directly to the driver and to other field personnel. The system is in essence an information link between the drivers, the dispatches and others in the central office who need to know what is happening to provide system quality control.

AVM/C can help cut the cost of offering transit service. Because of better control of vehicle operations, the same quality service can be provided with fewer buses and drivers. This can result from actions such as reducing layover times at terminals between runs. By cutting these costs, budgets can be relieved. Also the

image of transit in the community will be enhanced because of higher quality service, which may result in maintaining or expanding community support. Finally, AVM/C technology is an element of the intelligent vehicle high-way systems and provides a linkage by which transit can participate in traffic management concept.

2.9.6.Coordination between Different Association

Finally, an important idea should be highlighted which is the coordination between different Federal Associations.

This can be demonstrated by the cooperation between the United States' Department of Transportation, Federal Transit Administration, the Office of the Secretary of Transportation joined with United States' Environmental Protection Agency; all of these are indulged in the Travel Model Improvement Program which aims to respond to the requirement of clean air and the inter model surface transportation efficiency.¹⁹

The idea is to link transportation to air quality, energy, economic growth, land use, and overall quality of life; that is, the integration of analytic tools into the process of planning to better support decision making.

2.10.Public Transportation in Lebanon

If one needs to talk about public transportation in Lebanon, one will find one self confined to talk about public transit in Beirut Metropolitan Region (BMR) because, through out history, Beirut played an important

role in Lebanon and in the middle east in general. This role is essentially based on the services Beirut offers in the area of finance, commerce, education, health and recreation as well as in the transportation sector with its ports, its national airport and the country's national and international road network leading to the capital. As a result of this increasing importance and in the absence of a national plan for balanced development, in 1994, more than 65 percent of the population of Lebanon live in BMR.20 packed in an area of 218 sq. kms (2.1 % of the area of Lebanon).

As a result, traffic congestion is a phenomenon experienced by all drivers and travelers in the BMR.

Congestion is a daily occurrence not only in the central areas of the city, but also in the suburbs and at the main entrance points to the capital. Its causes are numerous. However, it should be pointed out that congestion problems in Beirut are aggravated by the daily inflow of vehicles from the suburbs. This also underlines the dependence of the suburbs on activities and services offered by the capital and the lack of a national plan for balanced development of various regions of the country.

2.10.1. Evolution of public transit in Beirut²¹

Since the turn of the century, the city of Beirut has experienced a number of different public transit technologies and modes. The first tramway line was put in service in 1909. Until the mid-forties, these electric street-cars and horse drawn carriages provided the only means of public transport in Beirut. By the early

fifties, there were around 3200 service car (Jitneys) operating within Beirut, and between Beirut and other various towns in Lebanon. Although electric tramways were being used extensively, they could not satisfy the increasing demand for a more efficient mass transit system for the following reasons: 1) tramways moved in two directions on one-way streets, thus causing traffic jams and accidents; 2) trams were run by electric power and any failure of electricity would paralyze the whole system and 3) the rapid growth of Beirut to the suburbs necessitated an increasing mass transit coverage to the urban area which would have meant a significant initial infrastructure investment if the tramway lines were to be extended.

In 1965, the electric tramways were replaced by a publicly owned bus system. With the radical change, most of the residential, commercial, and industrial areas of Beirut were linked by nine lines of the bus system with a much better performance than the tram - in terms of service quality. However, two other observations should be made here:

1) Public transit services were not available in cities other than Beirut.

2) There were no public inter-city passenger transportation services.

Full description of the administrative, operational and financial details will follow in chapter Four.

¹ Americana, P.444.

²Paul C. Nut, and Robert W Backoff, Strategic Management of Public and third sector organization, (San Francisco : Jossey Bass Inc., 1992), P. 23.

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- ³Lyle C. Fitch and Associates, Urban Transportation and Public Policy, (San Francisco :Chandler Publicing Company, 1961), P.111.
- ⁴Ibid. P.112.
- ⁵Ibid. P.55.
- ⁶Edgar f. Huse, Management, 2nd ed., (Minesota : West Publishing Co., 1982), P.8.
- ⁷Meyer, J.R, Kain J.F , The Urban Transportation Problem (Massachusetts: Harvard University Press, 1966), P.365.
- ⁸Button, K.J, Transport Economics, (London:Heinemann, 1982), P.227.
- ¹⁰Newsline:Current Research in Public Transportation Development, v.19, #4, Dec.1993,P.2-3.
- ¹¹Ibid., V16, #2 April1990, P.4.
- ¹²Ibid., V16, #5, Nov. 1990, P.1-2-4.
- ¹³Ibid.: V17, #3, Sept. 1991, P.1.
- ¹⁴Ibid., V19, #3, oCT. 1993, P. 1-2.
- ¹⁵Edgar, F. Huse, P. 58.
- ¹⁶Newsline, V. 16, #6, Dec. 1990, P. 1-3-5
- ¹⁷Ibid., V16, #6, Dec. 1990, P. 1-3-5
- ¹⁸Ibid., V. 20, #22, Sept. 1994, P.2.
- ¹⁹Ibid., Oct. 1994, P. 5.
- ²⁰Al-Nahar , March, 22nd
- ²¹Bassil, G, Bus Transit in Beirut: A study of system characteristics and potential (AUB, Feb,1993).

CHAPTER III.

Before presenting the findings of this research, clarification of the data collection methods will be presented in order to clarify the nature and the scope of this research.

3.1. Basic Approach:

As the title of this research indicates, the purpose of this project is to probe the views of the various men responsible for carrying out the operations of GDRR&PT, also the views of others, outside GDRR&PT who have substantial control over the decision making process, on the current situation of GDRR&PT regarding structure, operations and planning are considered. Moreover, the purpose is to come out with performance indicators that give a clear picture of GDRR&PT performance.

The main purpose of this research is a general overall assessment of GDRR&PT in view of current practices.

In order to carry out the assessment, descriptive research is chosen. In fact, the following quotation can help make clearer the role of descriptive research and the direction that this research has taken: "The major purpose of descriptive research, as the term implies, is to describe characteristics of a population or phenomenon¹".

¹ William G. Zikmund, Business Research Methods, 3rd ed. (New York: Harrouart Brace Javonovich College Publishers, 1991), P. 32.

3.2. The practice for data collection:

The sources of information for this study include both, primary and secondary data. The primary data was collected through face-to-face personal interviews where direct communication between the interviewer and the respondent is most beneficial because it allows probing. "Probing refers to interviewers asking for clarification or expansion of answers to standardized questions²". Probing was important in this research because it allowed some flexibility and enabled the respondent to enlarge on, clarify or explain his or her answers. It should be noted here that unstructured, open ended questions were used. However, a standard set of questions were posed to the respondents especially in the part that dealt with manpower and buses so that a compare-contrast process between the various depots information and the head office information can be allowed. Other primary data were collected and included annual operating expenses, revenues figures and other bus schedule figures obtained from the accounting department of GDRR&PT.

Secondary data were collected mainly from newspapers.

3.3. Aims of the interviews:

The interviews that were conducted aimed at assessing the following main points:

- Administrative options available for GDRR&PT

² Ibid., P.163.

- Planning
- Manpower
- Technology
- Trains
- Internal control
- Financial position
- Buses
- Public support
- SWOT analysis

Appendix C gives a list of these detailed questions.

3.4. Data analysis approach:

The data that was collected in this research fell into two categories: Qualitative such as the responses of the respondents about the administrative options available. The other part is quantitative like operating expenses and operating revenues. Therefore, part of the analysis was treated qualitatively because the data collected for this part depended on judgment. The other quantitative part depended on data collected from GDRR&PT's accounting department which include operating revenues, operating expenses and other bus schedule figures so that performance-monitoring indicators could be reached.

CHAPETR IV

4.0 Introduction:

At the present moment, neither the motor vehicles nor the railroads are earning sufficient revenues to cover their reasonable expenses. This a serious situation. The causes are numerous but whatever these causes are, the effects will still be more destructive if no serious measures are to be taken.

What is desired now is a program which will give relief and in so far as possible, one upon which GDRR&PT's Administration can agree. Such a program should be moderate in its demands upon the general public, it should offer a reasonable likelihood of securing results, and it should be couched to lessen the possibility of emotional attack by the public. To be successful, the plan must be carried out by experts in public transportation administration. This plan must be carried out carefully because sudden changes in existing methods and structures are not desired when they seem likely to produce unemployment internally or externally or to cause dislocation in an economy, as an increase in efficiency often does.

Public transportation is not a function by itself, it does not operate in entire independence to which standards can be applied without reference to their effects upon other parts of the social body . This chapter will shed light on the researched aspects of public transportation in Lebanon and will also attempt to analyze these aspects.

4.1 Organization hierarchy and relationship with other governmental authorities:

The "General Directorate of railroads and public transit" (GDRR&PT) is an autonomous body, a state owned agency which has the responsibility of running and maintaining public transportation all over Lebanon. Initially, this organization was founded by a joint venture between "Jarr and Tanwir" and the Electricity company of Lebanon. These two bodies had the responsibility of running the old tramways. On the 14th of April, 1961 and according to the government decree number 6479, "The Lebanese Railroad and Beirut Public Transit Office" was founded to replace the tramway services with railroad and bus services. Recently, and attempting to expand public services all over Lebanon, the government changed the name of the organization and excluded the word "Beirut" from the name to become GDRR&PT. So GDRR&PT is an organization which has its board of directors, its chairman, and it is run by several directorates. It is supervised by the ministry of Public Work and Transportation (MPWT), and its budget is approved by the ministry of Finance.

As the minister of MPWT puts it, "GDRR&PT is an independent for-profit organization¹" that operates with significant public features, making it more like a private organization.

¹ Al Nahar Newspaper, 30/03/1994.

In an interview with the government commissioner for the GDRR&PT², he commented upon the statement "independent organization" as follows: The government wanted to free itself from direct commitment in many fields and decided to turn them into profit organizations with features of public services. Yet, it did not let them loose, but it legislated a law that enabled some public organization to be independent but under the control of "Sultat Al-Wissaya Al-Idariya". Therefore, GDRR&PT is an independent for-profit organization supervised by Sultat Al-Wisaya, i.e., MPWT and the ministry of Finance. Figure 4.1 and the following discussion give a brief description of the functional relationships between these various governmental bodies³.

Figure 4.1, GDRR&PT's relationships with other governmental agencies

² Personal communication with Government Commissioner for GDRR&PT, 20/02/1995

³ Personal communication with Government Commissioner and The General Secretary of the board of directors

As it is obvious in Figure 4.1, the responsibilities are shared by various ministries and governmental agencies:

- Ministry of Public Works and Transportation: MPWT has four directorates: Town planning, Transportation, Highways and Buildings and Civil Aviation. Through its Transportation General Directorate, this ministry supervises GDRR&PT without direct interference in the details of the decision making process because GDRR&PT is an independent body. Yet, an important fact remains, and that is, the implementation of big projects is done by the MPWT. In addition, this ministry has the right to oppose and nullify any decision taken by GDRR&PT.
- Ministry of Finance: Every year in its annual budget, the Ministry of Finance allocates the necessary funds needed by GDRR&PT from its point of views. Also, this ministry has its own observers who have substantial authorities in financial matters.
- Board of Civil Service: This board belongs to MPWT and is responsible for overseeing the rights, duties, privileges, problems, and performance of employees.
- Government Commissioner: He attends the weekly meetings of the board of directors and his job is to make sure that any decision taken is legitimate and does not offend government's laws; otherwise, he reports to the minister of MPWT and stops that decision.

- Board of Directors: This is the legislative board having the decision making authority. It consists of twelve members appointed by the council of ministers based on political and religious criteria. This board holds weekly meetings in presence of the general director and the government commissioner. Its function is to direct and legislate.
- General Directorate: It is headed by the general director who is appointed by the council of ministers. This directorate is responsible for carrying out the daily operation and implementation of small maintenance or enhancement projects. The general director has to keep the board up-to-date with the current situation of GDRR&PT and makes the connections between the various directorate departments and the board of directors.
- Railroad Directorate: It is responsible for the operation of the railroad. However, it is not now functional especially when the last line between Doara and Jubeil was lately halted because of the traffic congestion it caused at Naher Al-Kaleb.
- Administrative Departments: They handle all daily operations and include:
 1. Supply Office
 - 2 Accounting Department that handles all money related matters such as revenues, operating costs, payments and bills.

3. The Archive Office: Responsible for documenting all types of transactions done in GDRR&PT.
- Urban Transit Directorate: It includes the following departments:
 1. Traffic Department: It designs the networks and monitors the buses operations
 2. Maintenance Department: It is for maintenance and storage purposes.
 3. Depots Department: Responsible for keeping all the spare parts and needed equipment for the buses.
 4. Receipts Department: It is responsible for collecting daily revenues and sending them to the Central Bank.
 - 5 Legal Office: It consists of lawyers that handle all legal issues, law suits and preparation of any legislative documents.
 6. Medical Department: It handles all the issues that deal with employees sickness. It also includes doctors and make contracts with "Caisse Nationale de Securite et de Sante(C.N.S.S)" and with hospitals.

4.2 Administrative Options:

When talking about administrative options, one has to recognize the following two facts:

- First, the government finds the transport sector extremely difficult to handle solely by the private sector because it is not an independent entity by itself. This could be concluded from the points of views of many managers interviewed.

- Transportation is a service which should be rendered everywhere by that type or combination of types of carriers which is best suited to the local and immediate demand. The private sector can not fulfill or apply its services everywhere especially if the served area is not profitable.

Lately, there has been a lot of talk about the administrative options available for GDRR&PT, and the reasons behind this is that GDRR&PT is criticized for being neither cost effective nor effective in delivery.

As to cost effectiveness, the government paid in 1993, LL. 13 billions to cover the expenses of GDRR&PT at a time where their revenues did not exceed LL. 850 millions⁴. The same thing holds true for the year 1994 (Personal communication with the General Manager). Table 4.1 gives figures about coverage percentage by all types of transportation modes.

Table 4.1. Transport coverage per entity ⁵

Transportation Mode	Percentage
Public Transportation	2%
Legal private buses	4%
Legal taxi cabs	22%
Illegal Vans	5%
Illegal taxi cabs	50%
School buses	16%

⁴ Al Nahar newspaper, 30/03/1994.

⁵ F.T.V. interview with the General Director.

Chart 4.1 Transport coverage per entity.

From this chart , it is obvious to notice that public transportation compares very poorly with other modes of transportation especially with illegal taxi cabs which cover 50%.

Facing these facts and in order to enhance its image, the 1994 administrative options for GDRR&PT were as follows:

i)Privatization	ii)Contracting
iii)Mixed companies	iv)Same as is

According to the minister of MPWT, the situation of GDRR&PT was and still is abnormal, and the government must initiate some serious practical steps to this situation⁶. The stress is on the following ideas:

- Reforming the laws governing the independent organizations with public features so that these organizations can practice their operations with more flexibility.
- A change in the infra structure of GDRR&PT in a way that the government's help should not exceed 15% of all expenses. Although GDRR&PT

⁶ Al Diyar newspaper, 22/02/1994

has a public feature, yet this service must cover its expenses⁷.

- To stress the importance of inviting the private sectors to invest in GDRR&PT's projects instead of getting loans from outside.

The same ideas were noticed by the Chairman of the board of directors, "GDRR&PT is an independent organization and yet can not be managed according to the prevailing administrative routines⁸". The suggestions were either:

- To modify the laws governing independent organizations with public features or
- To allow mixed companies instead of these independent organizations.

In 1995, it was obvious that there were changes in the points on views regarding mixed companies and privatization.

In an interview with the General Secretary of the board of directors, "No deep or official studies had been conducted regarding privatization or mixed companies⁹". According to him, the real problem lies in the nature and limits of this government monitoring system. For example, the decree number 4-515 dated 03/12/1972 which underlines all the operational, legal, legislative laws governing GDRR&PT is just like a handcuff that prevents GDRR&PT from direct reaction with the market.

⁷ Al Safir newspaper, 19/02/1994.

⁸ Al Safir newspaper, 21/03/1994.

⁹ Personal communication with the General Secretary of the board of directors, 19/03/1995.

According to the general director, he is against privatization or mixed companies, yet with internal enhancement especially regarding laws governing GDRR&PT¹⁰. The main issue is that GDRR&PT is offering a public service, and this service can not be totally rendered to the private sector because:

- Eventually the public will pay the price
- The service will cover only the profitable lines
- The government can not drop a public service even if it is not profitable.

As it can be seen, the decision to privatize, go for mixed companies, or for internal enhancement is not in the hands of GDRR&PT. The political situation, the economic situation, the current government policies, and finally the approval of the Lebanese Parliament House have to be taken into consideration.

For example, in 1994, the government policy as it was seen by the announcement of the minister of MPWT and the Chairman of the board of directors was to privatize, but this decision was rejected by the Parliament House. In 1995, the policy is to go for internal enhancement depending more and more on government subsidies. Therefore, an alternative to operating directly upon transport undertaking external factors like for example Pollution and congestion is to offer an incentive for transport users to switch to more socially desirable modes. This line of reasoning is currently being used as a

¹⁰ Personal communication with the General Director, 20/03/1995.

partial justification for large subsidies given to GDRR&PT. The objective is the containment of growth in private motor traffic.

In a perfectly competitive market, there would be no justification for this type of policy but in a situation where political expedience leans against the introduction of an administrative and operating options in which the public will pay the price, it may offer a pragmatic approach to the external problems, that is, if carried on a planned and clear objectives.

4.3 Objectives and Planning:

As it has been mentioned in chapter two, comprehensive planning is the first step in achieving a good transportation planning design. It should be for the whole and not for the particular. So, once it became recognized that there was not only a need to consider objectives other than simply congestion in transport planning, especially since transport is an integral part of a much wider urban economic system, it has become apparent that planning needed to be replaced by a more comprehensive planning framework.

As defined by the General Director, the objectives of GDRR&PT are as follows:

- To provide a highly reliable service.
- To orient the use of power and fuel oil in cost effective ways that utilize the most advanced technologies.
- To protect the environment from pollution.

Social welfare, environmental consideration and efficiency are the main points which, in a way or another, are in conformity with the objectives mentioned in chapter two. Now what remains is the degree to which these objectives are adhered to. It should be mentioned here that although these objectives were defined by the General Director, yet, through-out the practical history, these objectives were only objectives on paper.

4.3.1 Planning studies:

in order to evaluate the planning procedure, the following most recent plan will be described and then analyzed:

This plan, as described below, covers all the Lebanese territories in an attempt to put an end to the deteriorated situation of GDRR&PT. The studies were carried out by a Lebanese architecture company called "TEAM" in collaboration with a French organization "SOFRETU", also, the studies were carried by a French expedition "Region Medi Pyrenees" to evaluate the transport issues in north Lebanon and by the French organization "Hytkmn" with the assistance of the architecture faculty in AUB. The plan starts by a description of the current situation.

It is estimated that population in Beirut will reach 2,150,0000 in the year 2010, and the following expectations were reached:

- 60-65% of them are in the range of 15-65 years, that is, those that use transport facilities regularly.

- 58% of the resident Lebanese will work in Beirut and the suburbs around the Capital.
- 48% of the students all over the country will be in Beirut and the suburbs.

The studies that were carried assure that there are:

- 125,000 daily entrances to the capital from the suburbs.
- 600,000 daily movements inside Beirut.
- 500,000 daily movements in both direction.
- 600,000 daily movements in the suburbs.

That is, the average daily movements in Beirut and the suburbs is 1,700,000 daily movement and the estimated growth is between 25-35% in the five coming years with the probability that this estimation may double in the year 2010.

As to the land use by different transport facilities in hour per meter square (h/m²), it is estimated that:

- Walking people occupies 1/8 h/m².
- Taxi cabs occupy 501 h/m².
- Buses occupy 2 h/m².
- Private cars occupy 35 h/m².

Facing this continuous growth in the population, the ever increase in the daily entrance in to Beirut, the advantages of buses in saving h/m² and the very poor coverage of public transport (2%), an urgent need arises to:

1. Save Beirut from the rising congestion.
2. Save millions of wasted hours.

3. Save it from increasing rate of pollution.
4. Stop the increasing movement of people towards Beirut.

The main heading of this plan which has a two years execution period are:

- To make public transportation cover all the Lebanese territories from the south to the north.
- To construct of maintenance depots in Beirut and in the other districts.
- To buy 450 buses (big and small) for Beirut and 250 buses for the other districts.
- To construct of training centers to rehabilitate old employees and train the new ones.
- To computerize all departments.
- To implement a new modern structure for GDRR&PT in order to provide service for the public in an acceptable price and service quality.
- To improve revenues by using bus stations and bus internal and external sides for advertising purposes.
- To initiate advertising campaigns to convince people to use public transportation facilities.
- To make sure that all the laws concerning driving, mechanical situation of private cars and illegal parking are implemented.
- To modify the current laws governing GDRR&PT.

- Costs of the projects: They are shown in table 4.2.

Table 4.2. Project costs. (us\$)

Studies	1,500,000
Buses & Spare parts	65,000,000
Maintenance depots	10,000,000
Other equipment	4,500,000
Bus tations, shelters computers, salaries	19,000,000
Total	100,000,000

4.3.2. Financial coverage:

In order to cover the cost of this project, it was reached that 2% of the minimum level of salaries (118,000 LL.), that is LL. 50,000/month or LL. 600,000/Year will be sufficient to cover the cost of this project according to the following program:

i- Public sector = 150,000 employees.
 $150,000 * \text{LL. } 600,000 = \text{LL. } 90,000,000,000.$
 ii- Private sector = 250,000 employees.
 This number covers only those registered in S.N.N.F.
 $250,000 * 600,000 = 150,000,000,000.$
 Total/Year = LL. 240,000,000,000
 or \$ 150,000,000.

If this plan is to be evaluated, it is on a good basis regarding the elements it involves. It takes into consideration population and the estimated growth, land uses, population geographic dispersion and the daily movement, the taste of the population and employment growth which necessitates the

existence of an efficient public transport all over the Lebanese territories.

As to the planning process mentioned in Figure 2.1, it is not adhered to. When the General Secretary of the board of directors was asked about whether there are statistical and modeling techniques used in planning, he replied that "GDRR&PT does not have the qualified personnel to do such a job".

Mainly, this job is carried by the foreign contracted companies. Therefore, modeling, forecasting physical effects remains as a black box. As to the economic evaluation of the alternative plans, it is not conducted because this step usually involves public inquiries and this had not taken place. Finally, there is the implementation stage.

In this stage, it is important that actions are phased so that costs are kept at a minimum and according to the schedule. "We have many plans, but when it is time to carry them out, these are either implemented in an inefficient way or not implemented at all" (Director of Bir Hassan depot) and the obvious reasons are:

1. Lack of sufficient funds
2. Inappropriate maintenance department
3. Lack of qualified personnel
4. Not adhering to the schedules pointed out in the plan
5. No feedback - Planning is an on-going rolling process of adaptation.

4.3.3. Implementation Problems:

Insufficient studies lead to the situation where only part of the plan is carried out. Also, the financial restriction imposed by the Ministry of Finance creates a drawback. The other major problems in executing a certain plan is whether there are adequate political climate to approve this plan. In general, and particularly in Lebanon, it is a political game. For example, the Electrified Train plan was rejected on the basis of "priorities" by the Parliament House although the project was fully studied. The plan at hand is very urgent, yet the presidency issue and the political climate is not appropriate and so, this plan will be suspended for the time being. As to the public reaction, this plan may raise public emotional attack because every registered employee will have to pay around LL. 50,000 / Month, and this is not desired especially when the public is facing a hard economic situation. Therefore, sources of funds may cause obstacles to this project.

4.4 Manpower:

Although there is general agreement about the need for improving productivity, there is little consensus about the fundamental causes of the problem and what to do about them. Some blame the seventeen years of war, some put it on the greater proportion of less skilled workers in respect to the total labor force, and others put it on the inadequate capital investment (as will be shown later in the allocated budget to capital investment).

Through meetings with different personal in GDRR&PT, from regular employees to directors like for example, Bir Hassan director, Fern Al Chebak director, General Director, Minister's Counselor, and the General Secretary of the board of directors, the following items were observed:

1- Lack of management concern to workers: This can be observed through talking with regular employees who claim that there is a big gap between employees and management. Others put the blame on the government's policy because, as they claim, their directors do what ever pleases the minister.

2- No training: Unfortunately, there are no training in GDRR&PT especially for the new comers. Three to seven days are the usual training days and most of the time, it is done on the actual job.

3- No good selection: Nothing is done to attract the right talent to the right place. This case could be seen in 1988-89 employment which was done on a political, sectarian basis regardless of whether this employee is needed or not.

4- Poor compensation plan: This is one of the important factors leading to decreased productivity. In fact, GDRR&PT's employees suffer from a poor compensation plan where many employees are obliged to work on another complementary outside job. Although employees receive medical, social and educational benefits, this is by no means compensating for the low salaries which result in low

motivation and high level of absenteeism. According to the General Director, the average salary for a 40 year employee is around LL. 350 thousands.

5-Government paper work and regulation: There are lots of routine work to do in order to achieve a single job, and this in turn, wastes employee's time on a non productive work. For example, and as the General Secretary had put it, an accident that costs LL. 25,000 must be supervised and approved by the board of directors and the minister too.

6- Reactive business leadership: This is an apparent case because the General Director can do nothing without the approval of the board of directors and the minister. There is no direct interaction with the market, consequently the management can never be able to be proactive.

Moreover, GDRR&PT has a large number of employees where many of them are not needed, and yet can do nothing about them. In fact, one of the confusing things is the number of employees currently in GDRR&PT. According to the Director of Bir Hassan, there are 153 employees to run at most 12-16 buses and in Fern Al Chebak, 181 employees to run approximately the same number of buses. According to the General director, 1994 records show that there are 750 employees while the 1995 March records show that there are 644⁸. So when inquiring about the apparent differences, it was found that some were dead, some were dismissed or migrated, some were

⁸ GDRR&PT Accounting department.

always absent, and some were assigned other jobs in GDRR&PT. All this contributes heavily to the expenses incurred by GDRR&PT.

Even those considered as active employees are not showing satisfactory discipline or performance. The daily hours of operation on each line are from 6 Am to 8 PM and are divided into 7-hour shifts. Even these simple schedules are not adhered to. Most of the time, the shift is reduced to six hours or less. Others do not show up at all which is another significant problem, and the result is missed trips and unreliable service.

The administrative level suffers from low motivation, low salaries and poor productivity. Also there is the lack of various administrative services as for example fast circulation of documents, telephones, faxes, telexes and proper equipment and office supplies. However, it should be mentioned here that lately, there has been an attitude towards enhancing the current situation of manpower as this can be seen in the General Director's talk about enhancing the compensation system for GDRR&PT so that the management can oblige its employees to work regularly in a productive basis¹⁰.

Table 4.3 shows the personnel structure in every depot:

Table 4.3. Personnel structure per entity

STORE	OPERATION	MAINTENANCE
Storekeeper	Manager	Manager
Dispenser	Route supervisor	Foreman

¹⁰ Future TV. interview with the General Director.

Tool dispenser	Chief controller	Mechanic
	Controller	Electrician
	Chief driver	Sheet metal emp
	Driver/Collector	others

Every depot has three departments: Store, Operation and Maintenance department. Each department is headed by a manager. The depots have to report about the daily operations to the head office. Information about fuel consumption and daily mileage are sent by the maintenance manager to the central workshop on Mar Michael.

In overall, "This organization is well adopted in mind⁹ ", yet what is missing is the discipline and the good performance.

4.5 Bus Operation:

As mentioned before, GDRR&PT covers only 2% in the transport market and that gives an idea about GDRR&PT's buses. During the war, GDRR&PT's buses were heavily damaged because buses were either stolen by militia men or damaged by shelling. It all began in 1965 when the Lebanese government bought 150 berliet/Renault buses from France. Table 4.4 shows through-out the years, the real number of buses:

⁹ Personal communication with "Team " engineer..

Table 4.4.GDRR&PT buses throuh-out years.

YEAR	NUMBER OF BUSES
1965	150 Berliet buses
1970	110 Buses remain
1973	97 Buses remain
1975	all stolen or damaged
1977	50 used buses from France. Served 3-4 weeks & then stolen from the streets
1978	A deal with the France Gov. to buy 220 Berliet buses
1980	First shipment:55 buses then followed by 30
1982	25 buses were destroyed in the airport during the Israeli invasion
1989	Second shipment :135 buses

Today, the number of buses working are 25 buses. This number can not be taken for granted because the number of operable buses varies from day to day due to various problems facing them.

According to Fern Al Chebak director, the number of total working buses in both Fern Al Chebak and Bir Hassan is in the range of 15-17 buses. Once again, it is obvious that there are differences in information between head office and the depots just like the case of the number of employees currently registered and those that are attending.

As to the current working lines, table 4.4 shows the working lines according to January, 1995 schedule.

Table 4.5. Jan, 1995 bus schedule.

Line number	Km	Daily trips	# buses/Mon	Working days	Av. # of buses/day
1.Methaf-Ner Al Mout	18	6	187	25	7.5
2.Nebaa - Ashrefia	6	8			
3.Ain Al Remaneh-Neher AL Mout	28	6			
4.Methaf - Baabda	16.6	8	51	25	2
5.Methaf - Kefershima	17.8	8	26	25	1
6.Methaf - Kehale	22.6	6			
7.Methaf - Neh Al Mout	18	8			
8.Methaf - Hamra	22	10	88	25	3.5
9.Neher Al Mout - Ain Al Marai	28	6	20	25	2.5
10.Kola - Al Showifat	28	6	21	11	2
11.Kola -Al Musherafia	16	8			
12.Airport	13	10			
13.Al Musitbeh	11	10			

Out of thirteen lines, six lines are working, the rest are halted. Even on the currently working lines, the number of trips are not the actually scheduled as these represent the number resulting from end of monthcount, namely, they do not adhere to a specific schedule, they do not adhere to the scheduled number of buses or to the timing between trips or to the number of working days. For example, line number 10 works 11 days of 30 days.

4.5.1 Facilities:

In order to run its operations, GDRR&PT has three depots-garages as follows:

- I. Fern Al Chebak: It is used as terminal for parking the buses. It lacks a maintenance garage and is used for very simple vehicle provisions.

II. Mar Michael: It is the largest of the three, it has a maintenance garage and can be used as a parking lot. Although it is the largest, yet it is not being taken advantage of because it is not a starting point for buses operation.

III. Bir Hassan : As described by its director, this depot is very small, it lacks a maintenance depot, even the very small elementary provisions can not be handled, it was seriously damaged during the last years of war, and now it is being used to store the greatest number of damaged buses and launching point for 12-15 currently working buses.

It should be mentioned here that the shelling destroyed most of the maintenance depots and shelters which makes repair work even harder especially during the winter months.

4.5.2 Service Features:

If GDRR&PT service features are to be evaluated, the discussion will be directed to nothing. In fact, all the standards that are related to a public bus operations are completely neglected as evidenced by the following:

- Poor coverage (2%), canceled lines and missed trips
- Peak service: This routine of putting extra additional buses during peak hours to cater for excess demand is not applicable.

- Service Headway's: No trip adheres to the scheduled headway's, that is, there are no right-on-time trips for users to depend on.
- Stops and shelters: Unfortunately, there are no more physical stops or shelters for users to use. In fact, there are some conventional known places where the bus stops, otherwise the driver stops whenever he sees a group of people waiting.

4.5.3 Fares:

On 01/10/90, the fare was raised from LL. 25 to LL. 100 and on 01/08/90, it was raised to LL. 250. So LL. 250 is the current fare and is considered cheap if compared with other modes of transportation which could range between LL. 1000-2000. This rate is determined by GDRR&PT management and approved by its board of directors, MPWT, and the Ministry of Finance.

4.6 Financial position and Performance analysis:

Financially, GDRR&PT depends heavily on government subsidies because its revenues rarely cover part of its expenses. Because GDRR&PT is offering a public service, the government finds itself obliged to cover these expenses otherwise GDRR&PT will no longer exist.

Table 4.6 shows in numbers the revenue figures for 1993 and 1994 and the difference between the two years.

Table 4.6. 1994-95 revenue figures, (Accounting department).

Month	1994 Revenue	1993 Revenue	Difference
Jan	106,875,500	73,291,250	+ 33,584,250
Feb	83,756,500	109,226,750	- 25,470,250
March	71,879,500	144,360,500	- 72,481,000
April	62,679,500	137,131,500	- 74,452,250
May	47,346,500	127,783,750	- 80,437,250
June	29,671,750	98,431,500	- 68,759,750
July	54,473,500	81,406,750	- 26,933,250
August	57,920,500	61,358,250	- 31,437,750
Sept.	59,112,250	61,358,250	- 7,532,500
Oct.	51,441,500	96,377,500	- 44,936,000
Nov	39,303,750	93,458,000	- 54,104,250
Dec.	37,610,250	101,812,250	- 64,202,000

It is obvious from this chart that 1994 revenue figures compare very poorly with the 1993 revenue figures except for Jan, 1994.

The reasons behind this are:

- Lack of Maintenance garages
- Lack of spare parts, and
- Lack of technicians to do the maintenance job

Another important thing that could be concluded from this chart is that these figures do not show consistency where the variation between every month is not predictable, and indeed, this is due to the lack of maintenance schedule and capabilities that would have enabled GDRR&PT to face any shortage or breakdown in its vehicles.

Table 4.7 gives the difference between the expected revenues in the yearly general government budget and the actual revenues.

Table 4.7. Differences between expected and actual revenue figures for 1994 and 1995.

Year	Expected Rev.	Actual Rev.	Ratio
1993	1,625,000,000	1,191,282,750	73.3%
1994	1,335,000,000	702,070,750	52.58%

Therefore, 52.58% was the actual revenue that is, 47.42% less than the expected figure and 20.8% less than the previous year figure. This is a very serious situation and requires an immediate action because for the government to pay this heavy burden, it has to raise taxes and consequently, the public pays again.

When the General Director and the General Secretary of the board of directors were asked about other sources of funds like, for example, debt financing or any other sources of funds, the answers were negative. It seems that the current government policy is not to let-go of any public service without its support if the situation is in need of this support and that is attributable to the refusal of the Parliament House to go for Privatization or any other related form of administering public transit. So, it is a

political game; Radical changes are not desired, at least at this stage.

4.6.1 Cost Analysis:

GDRR&PT is an independent organization with various departments. One of its department is the accounting department which issues on a yearly basis a detailed bulletin of every single pound spent during the service year. The expenses incurred by GDRR&PT are:

- General management expenses
- Bus expenses
- Railroad expenses

In this case, railroad expenses are excluded and they do not affect the present analysis because railroad expenses are independent, that is, a subsystem within the system GDRR&PT. The other reason is that railroad is totally out of service.

Table 4.8 summarizes these operating expenses.

This table is divided into two parts. Part I refers to regular expenses spent during that year for repetitive use such as fuel, oil, salaries, utilities. Part II refers to capital expenditure (R&D) such purchasing buses or building new depots.

The total amount spent in 1994 was 7,882 millions LL. where 91% of these expenses were salaries, benefits, and other special aids. Indeed, this is very unusual or even outrageous if compared with the 35.9% in 1978.

The reasons behind this are many. Beside inflation, the main reasons are the 1988-1989

religious employment which did not take into consideration GDRR&PT labor requirement. Also there is the persistent payment of salaries for migrated and absent laborers. GDRR&PT has 750 employees where on the other hands, its operable buses does not exceed 25 buses.

Table 4.8. Operating Expenses 1994 (Accounting Department)

Part I	Amounts in LL.	*
I. General Management		
Salaries, Special grants	49,975,993	F
Transport, Maintenance, other managerial exp	29,520,339	F
II. Bus transit		
Fuel and oil	134,372,319	V
Spare parts	36,479,749	V
Library material & other expenses	10,796,460	F
Works & services	3,324,673	F
Salaries	4,248,003,796	V
Special aids & grants	2,887,393,527	V
Fees for legal proced. & other taxes	116,600	F
Transport	418,817,760	V
Compensation for damage	5,371,800	F
Other managerial exp.	780,000	F
PART II		
General management	0	
Bus Transit		
Equipment	41,926,825	F
Furniture	1,653,700	F
Other fixed assets	14,219,007	F

Note: * refers to whether the operating expense is variable or fixed

As to fuel consumption, it is far below the standard where fuel oil expenses represent only 1.7% of all expenses. This is abnormal if compared with other years or with the normal percentage world wide. Table 4.9 shows fuel oil consumption percentages through-out years.

Table 4.9. Fuel oil consumption percentages.

	1992	1993	1994	Normal %
Exp. %	5.96	5.98	1.7	< 10

The 1994 fuel rate is especially low because there are many missed trips and canceled lines. In general, this rate is normal if one takes into consideration the number of operable buses.

Capital expenditure represents 0.07% which reflects the total absence of any new developmental projects. This has been the case for previous years also where in 1993, it was 0% and in 1992, it was 4%.

So, 91% of all expenses are spent on employees as salaries, benefits, and other special aids. This percentage is considered high, and what makes it extremely high is that other expenses are very low.

4.6.3 Performance measures:

At the strategic level, management is concerned with making certain that it operates properly with its environment and the broader social system. Besides these, top management must be concerned with its performance that will endure its existence in order to achieve its objectives. Top level management must be kept informed of its performance in order to

evaluate where the organization is found and where it is heading to.

Performance indicators can measure an organization progress towards its objectives.

As far as transit organizations are concerned, efficiency indicators, effectiveness indicators and cost effectiveness are the main important indicators.

4.6.3-1 Efficiency: Service efficiency in public transit refers to how labor, vehicles and fuel are used to produce service. Output per dollar cost can be measured by taking the ratio of service output measured in hours or miles to cost. It indicates how economically service is being provided and is measured in term of cost per unit of service provided. It should be noted here that efficiency is under the control of transit management which could be held accountable for performance.

4.6.3-2 Effectiveness: i.e. Service utilization. Consumption of service is measured by passenger trips or passenger miles. Assessment of Utilization is provided by the fare box revenue. Either vehicle hours or vehicle miles can be used as the denominator in ratio measures of service utilization.

4.6.3-3 Cost effectiveness: Cost per passenger is a commonly used measure. The ratio of operating revenue to operating cost is another mixed measure that is also used.

In applying these performance indicators, special consideration must be given to the availability of data and mainly over a stable period of time. Appendix B shows the revenue figures by lines for the last six months of 1994.

After examining these revenue figures, it was found that lines number 1,4,5,8,9 and 10 are the most reliable lines that could be considered stable.

4.6.3-4 Performance Procedure:

Costs in Table 4.8 are classified into fixed cost "F" and variable cost "V". Fixed costs are Part II in the bulletin and other costs like salaries of administrative personnel. These are considered fixed because they are not related to the service volume of each line and are equally distributed among all lines. Variable costs refer to repetitive expenses related to the service volumes such as fuel, oil, salaries and benefits for the employees.

Indeed, longer lines will require additional buses, employees, and more fuel consumption if compared with short lines. Therefore, variable costs are allocated to the different lines based on revenue vehicle-km.

As to the variable cost unit, vehicle-km and not vehicle hours was chosen because bus service in Beirut is in great disorder with no bus adhering to the schedule.

Although vehicle-Km is not the sole variable that affects variable costs because of the

type of the road, whether it is congested, physical status of the assigned buses and the number of employees assigned to that line all affect variable costs; it was adopted because no accurate data on operating hours are available or recorded.

Appendix B gives a full description of the computation methods used.

4.6.5 Results:

Efficiency or cost per unit of service provided may be evaluated based on the cost in LL. that was incurred per revenue vehicle-Km. It indicates how economical service is provided. The highest figure of 8302.52 was recorded for line Methef-Kfershima, and the lowest one of 8151.7 was for line Mathef-Naher Al Mout.

Chart 4.3 Efficiency Chart.

Effectiveness: The higher the number of passengers per unit of service provided, the more effective the line is. Effectiveness was measured based on the number of passengers carried per revenue vehicle Km. It should be noticed here that these figures were multiplied by 1.18 to account for non paying riders. So, Mathef-Naher Al Mout line was the most effective with 4.8 passengers per vehicle-Km and Mathef-Baabda the lowest with 1.65 passengers per vehicle-Km. These figures are relatively low if compared with other systems in the world.

Char 4.4. Effectiveness chart by lines.

From these figures, it is obvious that people rarely use public bus in Beirut, instead they depend heavily on private cars and taxi cabs.

Cost Recovery: It expresses to what extent every line is paying its operating costs from its own revenues. Line Mathef-Naher Al Mout is the best performer with 12.46 recovery percentage and Mathef-Baabda the lowest with only 4.23%.

Since ridership and revenue are directly related, all lines with high effectiveness have high recovery percentages and those with low effectiveness have low recovery percentages.

The overall cost recovery of the system is 8.9% and is considered very low if compared with other systems in the world where figures are in the range of 30-40%.

4.7 SWOT Analysis:

It is very important, from the point of view of management, to know what are GDRR&PT's strengths, weaknesses, opportunities and threats in order to initiate right on-time measures and procedures that would enable GDRR&PT achieve its objectives on the short and long run. However, what perhaps bother managers in GDRR&PT most is government uncertainties. Constant change or new interpretations or efforts make planning difficult. So political actions have great effects on GDRR&PT's decision making process.

• Strength Analysis:

A company's strengths are significant because they can be used to build competitive advantages. In fact, it is not an easy undertaking to find a strength for GDRR&PT, but as it was described by the General Director and the General Secretary of the board of directors, the strength of GDRR&PT lies in the fact that GDRR&PT is offering a public service for the public at a very low price.

In fact, this could be considered a good strength only if GDRR&PT had the good image and the wide coverage.

- Weaknesses Analysis:

The following are the major internal weaknesses that GDRR&PT have:

1. Government regulations: The major point here is that the government applies the same rules and regulations for both, GDRR&PT and the Electricity Company of Lebanon where the first is facing a very intensive competition while the other is the sole owner and seller of electricity.
2. Lack of managerial depth and expertise at the top level and the technical skills at the labor level.
3. Very poor coverage with unreliable service.
4. High overall unit cost per unit of service provided.
5. Too many unproductive employees.
6. Poor advertising and promotion campaigns.

- Opportunity Analysis:

It is obvious that the secret of success is to be ready for an opportunity when it comes. The followings are the major GDRR&PT'S opportunities:

1. Serve a large number of people not just captive poor riders.
2. Expand geographic coverage: Enter into other cities and districts other than Beirut.

3. Expand bus service to meet broader range of users needs i.e., large, small buses and short, long trips.

- Threat Analysis:

1. Current government regulations regarding GDRR&PT remain as they are.

2. Changing users needs and tastes was demonstrated by the increasing tendency towards owning private cars.

3. Poor customer loyalty.

4. Absence of technology.

CHAPTER V.

Conclusion and Recommendation

5.1 Conclusion:

Public transportation systems are multi-dimensional in that they are multi-problematic, multi-purpose, multi-ownership, multi-network and multi-technological. In fact, problems are rooted in the basic structure of the system. Actions taken to deal with one problem may generate difficulties else where.

Structural, demographic, and socio-economic changes affect transit ridership. The key factors that could be identified in Lebanon are the increasing ownership of automobile, greater female participation in the workplace, the increasing move from the country to the city and the suburban areas and the concerns about the environmental pollution and security. Facing these factors, proactive management is needed to deal successfully with the issue of the future, and management can no longer afford to just respond to events. Management must take the initiative. Management must also be market driven. In order for management to be proactive, major changes in the structure and the administrative thinking must take place.

As a conclusion and from the data that was collected for this research in an attempt to assess the future of public transportation in view of the current practices, the following points were reached.

The concepts to be tested were the following:

I. GDRR&PT can not be considered as an independent for profit organization because:

1. Although GDRR&PT has its board of directors and its general director, yet it does not own its decision because this decision must be shared and approved by the ministry of Public Work and Transportation, the government Commissioner and the ministry of Finance.

2. GDRR&PT depends heavily on government subsidies and as stated by the Minister of Public Works and Transportation, "it is not supposed that the government pays the expenses of an independent for profit organization¹". So, if this subsidy did not exit, GDRR&PT would have gone out of order years ago.

II. There is a major problem in implementing plans, and this could be due to, insufficient studies, lack of expertise and managerial talent, and finally, the intrusion of politics and political games on a purely non-political development projects.

The other major conclusions are:

1. GDRR&PT's major problem lies in the basic structure of the system. Modification regarding structure, laws,

¹ Al Nahar newspaper, 30/03/1994.

relationships with other governmental authorities must urgently take place so that GDRR&PT can own its decision and its management can be proactive and market oriented.

2. With 2% market share in the transportation market, and learning from the American experience, management should promote private sector involvement. The aim is to expand communication between public officials and private providers of transportation. This idea was also reached by the experts in "TEAM" company. This does not mean to go for total privatization, but to involve and gain the expertise of private sector by contracting.

3. The goals defined by the general director are goals that could be pursued and up to the standard, yet and up till now, there has not been any practical move to adhere to this claimed goals.

4. Planning is mainly done by outside private companies and no internal studies exist.

5. GDRR&PT has a large unproductive labor force at the operational level, it lacks technical and managerial expertise at the administrative level, and suffers from low motivation, poor discipline and poor performance.

6. Out of fourteen lines, six lines are working, 15-25 buses are currently working. This number of operable buses vary

from day to day and can not be taken for granted.

7. There were poor coverage, no peak hour service, no right-on-time service and no stops and shelters.

8. Total expenses in 1994 were LL. 7,725 millions. Salaries, special aids and benefits constituted 91% of the total costs.

9. Revenue figures did not exceed 52.58% of the expected revenue figures registered in the yearly government budget where as in 1993, it reached around 73%.

10. Capital expenditure represents only 0.07% which reflects the total absence of any new developmental projects.

11. Efficiency: The highest figure was 8302.52 LL./Day/Bus/Trip/Km for line Mathef -Kafershima

12. Effectiveness: The best performer was line Mathef - Naher Al Mout with 4.8 passenger/vehicle-Km.

13. Overall cost recovery percentage is 8.9%.

5.2 Recommendation:

To enable GDRR&PT to perform better, the followings are recommended:

- Implementing steps that would ensure involvement of the private sector in the local planning process for public transit services.
- Increase the ability of existing travel forecasting procedures to respond to emerging issues, including environmental concerns, growth management and life style as well as the more traditional transportation issues
- For the coming future, GDRR&PT should enhance its operation and its image and launch a new campaign based on the following ideas:

i Public service should be favored over private ones

ii. Transit vehicles provide much higher transporting capacity than automobiles.

iii. Transit vehicles have much lower negative side effects than automobiles

iv. High quality transit is the key element allowing creation of livable urban environment.

v. Coverage must be at least 50% of the total market share.

VI. GDRR&PT must own its decision making process.

VII. Introduction of technology is one of the key success factors.

On the other hand, and as far as the government is involved, the followings are recommended:

I. The provision of high cost infrastructure: The sheer cost and long pay-back period, combined with possible high levels of risk, makes it unlikely that major transport research would be undertaken without some form of government involvement.

II. The integration of transport into wider economic policies: Land use, movement of people from the country to the city and the availability of public transport system are clearly interconnected. So, some degree of coordination is desirable especially when imperfection exists in either one.

However, this does not justify the high cost the government is paying to support GDRT&PT. It should be one of the government priorities to relieve its budget either by putting full support or by letting the private sector effectively play its role, i.e., by contracting.

If one can have these with the promotion of flexibility and efficiency in our public transport system joined with a reorganization of structure, then one shall be able to resume a development in public transport to levels which are not yet known, and in the long run, GDRT&PT will take its chances with other parts of our productive organizations and will rely upon its own abilities for prosperity. It is only upon special occasions, such as the present that it can expect extraordinary support.

5.3. Considerations for future research:

As mentioned in the beginning of this chapter, public transportation is multi-problematic. Investment in transport affects, and is affected by investment in other sections. Assessing the private sector motivation to investment in the public transportation could be one of the considerations that need to be further researched.

Also research is needed to look at the decision making process and the allocation of resources and to develop transport management tools intended to ease the dilemma faced by transportation decision makers when attempting to reach rational informed decisions. For example, conducting economic evaluation of the alternative plans which usually involves public inquiries.

Another research is needed if expansion of the bus network is sought. This network should be designed to serve and link major concentrations of activities, residential, commercial and business.

5.4 Limitations:

Because part of the findings was qualitative, the techniques used for analyzing these data had some limitations because it depended on logic and personal judgment.

Another limitation is the unavailability of organized data about bus schedule operations. For example, in calculating performance indicators, the unit of service that was chosen to allocate variable costs is the vehicle-Kms and not the vehicle-hours. This hypothesis is not very accurate because it is not the only factor that controls. There are other factors such as the type of the road, the physical status of the buses allocated to different lines that affect the consumption of fuel and maintenance materials. Also, the jobs held by different employees of the bus transit body affect the way salaries are distributed over the various lines. All these factors may affect the assumed proportional distribution of variable cost according to traveled Kms. However, this hypothesis was adopted because traveled Kms were the only reliable data available.

Appendix A

Revenue Figures for July 1994						
Line	Km	Daily Trips	# Buses / Mon.	Working Days	Av. # of buses/Day	Rev. / Month
1. Mathef-Naher Al Mout	18	6	226	29	7.8	21,139,750
2. Nabaa - Ashrefia	6	8				
3. Ain Al Remaneh-Naher Al Mout	25	6				
4. Mathef - Baabda	16.6	8	27	26	1	1,120,500
5. Mathef - Kafershimma	17.8	8	30	26	1.1	2,122,250
6. Mathef - Kehale	22.6	6	26	26	1	1,418,500
7. Mathef - Naher Al Mout	18	8				
8. Mathef - Hamra	22	10	103	19	5.4	12,718,000
9. Naher Al Mout - Ain Al Merysi	28	6	137	30	4.5	15,954,500
10. Kola - Al Showifat	28	6				
11. Kola - Musherafia	16	8				
12. Airport	13	10				
13. AL Musitheh	11	10				

Revenue Figures for August 1994						
Line	Km	Daily Trips	# Buses / Mon.	Working Days	Av. # of buses/Day	Rev. / Month
1. Mathef-Naher Al Mout	18	6	242	26	9.3	22,311,000
2. Nabaa - Ashrefia	6	8				
3. Ain Al Remaneh-Naher Al Mout	25	6	1	1	1	14500
4. Mathef - Baabda	16.6	8	44	26	1.7	1,849,000
5. Mathef - Kafershima	17.8	8	49	26	1.9	2,934,750
6. Mathef - Kchale	22.6	6				1
7. Mathef - Naher Al Mout	18	8				
8. Mathef - Hamra	22	10	76	20	3.8	7,767,000
9. Naher Al Mout - Ain Al Merysi	28	6	144	26	5.5	16,234,500
10. Kola - Al Showifat	28	6	71	26	2.7	4,361,500
11. Kola - Musherafia	16	8				
12. Airport	13	10				
13. AL Musibeh	11	10				
14. Mathef - Aalye	34	6	48	24	2	2,448,250

Revenue Figures for Sept. 1994						
Line	Km	Daily Trips	# Buses / Mon.	Working Days	Av. # of buses/Day	Rev. / Month
1. Mathef-Naher Al Mout	18	6	205	25	8.2	22,425,250
2. Nabaa - Ashrefia	6	8				
3. Ain Al Remaneh-Naher Al Mout	25	6				
4. Mathef - Baabda	16.6	8	32	25	1.7	1,834,250
5. Mathef - Kafershima	17.8	8	49	25	1.9	3,515,250
6. Mathef - Kehale	22.6	6				
7. Mathef - Naher Al Mout	18	8				
8. Mathef - Hamra	22	10	86	25	3.4	9,262,000
9. Naher Al Mout - Ain Al Merysi	28	6	138	25	5.5	14,958,250
10. Kola - Al Showifat	28	6	50	25	2	3,487,250
11. Kola - Musherafa	16	8				
12. Airport	13	10				
13. AL Musibeh	11	10				
14. Mathef - Aalye	34	6	50	25	2	3,637,000

Revenue Figures for Oct. 1994						
Line	Km	Daily Trips	# Buses / Mon.	Working Days	Av. # of buses/Day	Rev. / Month
1. Mathef-Naher Al Mout	18	6	180	24	7.5	20,824,500
2. Nabaa - Ashrefia	6	8	4	4	1	93,250
3. Ain Al Remaneh-Naher Al Mout	25	6				
4. Mathef - Baabda	16.6	8	44	24	1.8	2,289,000
5. Mathef - Kafershimma	17.8	8	25	24	1.	2,279,500
6. Mathef - Kehale	22.6	6				
7. Mathef - Naher Al Mout	18	8				
8. Mathef - Hamra	22	10	86	24	3.5	8,835,500
9. Naher Al Mout - Ain Al Merysi	28	6	94	23	4	10,288,250
10. Kola - Al Showifat	28	6	47	24	2	3,124,000
11. Kola - Musherafia	16	8				
12. Airport	13	10				
13. AL Musitbeh	11	10				
14. Mathef - Aalye	34	6	46	24	2	3,707,500

Revenue Figures for Novt. 1994						
Line	Km	Daily Trips	# Buses / Mon.	Working Days	Av. # of buses/Day	Rev. / Month
1. Mathef-Naher Al Mout	18	6	151	24	6.3	18,850,000
2. Nabaa - Ashrefia	6	8	1	1	1	20,000
3. Ain Al Remaneh-Naher Al Mout	25	6				
4. Mathef - Baabda	16.6	8	42	23	1.8	1,865,000
5. Mathef - Kafershimma	17.8	8	24	24	1.	2,225,000
6. Mathef - Kehale	22.6	6				
7. Mathef - Naher Al Mout	18	8				
8. Mathef - Hamra	22	10	69	24	2.8	6,863,500
9. Naher Al Mout - Ain Al Merysi	28	6	35	16	2.2	03,529,500
10. Kola - Al Showifat	28	6	48	24	2	3,1913,250
11. Kola - Musherafa	16	8				
12. Airport	13	10				
13. AL Musitbeh	11	10				
14. Mathef - Aalye	34	6	28	17	1.6	20,375,500

Revenue Figures for Dec. 1994						
Line	Km	Daily Trips	# Buses / Mon.	Working Days	Av. # of buses/Day	Rev. / Month
1. Mathef-Naher Al Mout	18	6	133	26	5.1	16,348,250
2. Nabaa - Ashrefia	6	8				
3. Ain Al Remaneh-Naher Al Mout	25	6				
4. Mathef - Baabda	16.6	8	36	22	1.4	1,532,750
5. Mathef - Kafershimma	17.8	8	26	26	1.	2,184,500
6. Mathef - Kehale	22.6	6				
7. Mathef - Naher Al Mout	18	8				
8. Mathef - Hamra	22	10	78	26	3	7,803,500
9. Naher Al Mout - Ain Al Merysi	28	6	60	26	2.3	5,602,000
10. Kola - Al Showifat	28	6	50	26	2	4,139,250
11. Kola - Musherafia	16	8				
12. Airport	13	10				
13. AL Musitbeh	11	10				
14. Mathef - Aalye	34	6				

APPENDIX B.

Items explanation:

- Item I : Length in Km.
- Item II : Number of trips per bus per day.
- Item III : Number of buses per month. Obtained from daily count of operating buses.
- Item IV : Daily revenue per vehicle-Km.
= (Total rev/Month) / item I /item II / Item III.
- Item V : Average daily revenue per vehicle-Km.
= Average of item IV for six months.
- Item VI : Average number of buses per month.
= Average of item III for six months.
- Item VII : Travelled Kms.
= Item I * item II * item VI.
- Item VIII : Distribution of variable costs.
= Total variable cost * item VII / Summation of item VII.
- Item IX : Distribution of fixed costs.
= Equally divided between all lines.
- Item X : Total cost per line per month.
= Item VIII + Item IX.
- Item XI : Average cost per day / bus / trip /Km.
= Item X / Item VII.
- Item XII : Effectiveness.
= (Item V / Current fares) * 1.18 to account for non paying riders.
- Item XIII: Percentage cost recovery.
= Item V / Item XI.

Line	Lenght in Km	# trips / bus / day	Buses / month	Daily rev./ Veh- Km	Buses / month	Daily rev / Veh- Km
			JULY	JULY	AUGUST	AUGUST
1.Mathef-Naher Al mount	18	6	226	866.1	242	853.6
4.Mathef-Baabda	16.6	8	27	312.5	44	316.4
5.Mathef-Kafershima	17.8	8	30	496.8	49	420.6
8. Mathef - Hamra	22	10	103	561.3	76	464.5
9. Naher Al Mout- Ain Al Merysi	28	6	137	693.2	144	671.6
10. Kola- El Showifat	28	6	0	0	71	365.6

Line	Buses / Month	Daily Rev / Veh-Km	Buses / Month	Daily Rev / Veh-Km	Buses / Month	Daily Rev / Veh-Km	Buses / Month	Daily Rev / Veh-Km
	Sept.	Sept.	Oct.	Oct.	Nov.	Nov.	Dec.	Dec.
1.Mathef-Naher Al mount	205	1012.9	180	1071.2	151	1155.8	133	1138.1
4.Mathef-Baabda	32	431.6	44	391.7	42	334.3	36	320.6
5.Mathef-afershima	49	503.8	25	640.3	24	651.0	25	590.0
8.Mathef - Hamra	86	489.5	86	466.9	69	452.1	78	454.7
9.Naher Al Mout- Ain Al Mout	138	645.2	94	651.5	35	600.2	60	555.7
10.Kola- El Showifat	50	415.1	47	395.6	48	485.2	50	492.7

Av. Daily Rev per Veh-Km	Av. # of Buses / Month	Travelled Kms	Distribution of Variable Cost	Distribution of Fixed Cost	Total Cost per Line per Month	Av. Cost /day/bus /trip/Km	Effective- ness	Percentage Cost Recovery
1016.3	189.5	20466	1991422800	11263239	166833387	8151.7	4.8	12.46
351.1	37.5	4980	484573700	11263239	41319744	8297.13	1.65	4.23
550.4	34	4841.6	471106830	11263239	40197506	8302.52	2.59	6.62
481.5	83	18260	1776770200	11263239	149002789.9	8160.06	2.27	5.9
636.1	101	16968	1651053500	11263239	138526394.9	8163.9	3.0	7.79
359.0	44	7392	719270840	11263239	60877839.5	8235.6	1.69	4.35

APPENDIX C

1.Administration:

1) Public transportation in Lebanon is criticized for being neither 1) Cost effective nor 2) Effective in delivery.

To deal with these problems, available administrative options are

i. Privatization	ii. Contracting
iii. Mixed companies	iv. Same as is with
internal enhancement

What are the directions of the current administration and why ? In any option chosen, what are the advantages and disadvantages?

2). How do you assess the relationship between public transit agency and other governmental authorities? How, in your opinion, could it be improved?

2. Control:

1) Are the current administrative control procedures capable of:

* Monitoring

- i) Effective service delivery.
- ii) Proactive procedures to respond to any shortcoming or failure to meet schedule.

* Maintaining i) Bus maintenance history to assist technicians in trouble shooting.

ii) Maintenance planning.

* Controlling i) Collection of bus fares.

ii) Employee attendance

2) What are the control procedures taken to limit the number of unlicensed taxi cabs?

3.Planning:

1) Planning for a public transportation system requires careful and penetrating economic analysis. This implies more than merely weighting the immediate costs and benefits. In your opinion, can you actually identify the steps included in the planning procedure?

2) Two of the benefits of public transportation system are increasing general productivity through extension of the labor markets and deconcentration of population. Do these elements enter in your planning? If yes, how come public transportation only exists in Beirut?

3) Besides direct costs, what are the indirect costs included in your analysis?

4). Have there been any research or forecasting techniques conducted lately and used in your planning procedure? (i.e. inventory of existing pattern of travel either by sampling or counting people actually in the act of travel).

5) Do you use or develop any mathematical models of local supply and demand relationships that assist in understanding economic changes and the effects of different planning options?

6) What is the criteria used for determining the level of need for bus services?

7). Plans are developed to be implemented. Is this practical? To what extent does this expression holds?

4. Financial position:

1) How is public transport agency financed? Have been there any trend toward debt financing?

2) What are the revenues and expenses of public transport in the year 1994? What are the likely future trends?

3) It is very important for the strategic managers to measure and monitor system performance which can be described and analyzed in a number of measures:

- i) Op. cost / Passenger
- ii) Op. cost / Vehicle service hour
- iii) Passengers / Vehicle service hour
- iv) Passenger / Vehicle service mile

Do we have such statistics? If yes, how do these figures compare with other country's figures?

5. Manpower:

- 1) What is the current situation of manpower in term of
- i. Productivity
 - ii. Specialization
 - iii. Training for new employee

6. Buses:

1) Indeed, the number of buses currently working is insufficient, what are the future steps to face this shortages? What about contracting? What about other privately working busses?

2) In your opinion, what are the effective determinant of bus operation?

7. Technology:

1) How do you assess public transit agency in term of technology?

- i. Introduction of computers.
- ii. Introduction of advanced vehicle monitoring and communication system.

8. Public support:

1) Although it is difficult to build many strong justifications for subsidizing public transit on economic grounds alone, yet public contribution is clearly needed. Is the current administration with / against this principle and why?

2) Public transportation is considered as " an independent agency" in Lebanon. How much does this expression hold and what is the role of government?

9. Trains:

1) There has been a great deal of talk about an electrified train all along the Lebanese coast. In what face is this project and what are the methods of administrating and financing such project? What are the expected economic improvements in overall?

10. SWOT Analysis:

Strategic management permits us to :

- * Build on our strength
- * Overcome our weaknesses
- * Exploit our opportunities
- * Block or blunt our threats

1) Strengths are defined as one or more skills, distinctive competencies, capabilities, competitive advantages, or resources that the organization can draw on in selecting a strategy. In your opinion, what are these strengths?

2) Weaknesses are defined as the lack of one or more skills, distinctive competencies, competitive advantages, or resource. In your opinion, what are these weaknesses?

3) Opportunities are situations in which benefits are fairly clear and likely to be realized if certain actions are taken. In your opinion, what are these opportunities?

4) Threats are situations that give rise to potentially harmful events and outcomes if action is not taken in the immediate future; they must be actively confronted to prevent trouble. In your opinion, what are these threats?

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