

**JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
MUNICIPALITY OF BUCHAREST
REPUBLIC OF ROMANIA**

**THE COMPREHENSIVE URBAN
TRANSPORT STUDY
OF
BUCHAREST CITY AND
ITS METROPOLITAN AREA
IN THE REPUBLIC OF ROMANIA**

**FINAL REPORT
SUMMARY**

MARCH 2000

**CENTRAL CONSULTANT INC.
PADECO CO., LTD.**

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Preface

In response to the request from the Government of Romania, the Government of Japan decided to formulate the Master Plan on the Comprehensive Urban Transport Study of Bucharest City and its Metropolitan Area and entrusted the study to Japan International Cooperation Agency (JICA).

JICA sent a study team to Romania five times between July 1998 and December 1999. The study team was headed by Mr. Takeshi Yoshida and composed of members of Central Consultant Inc. and Padeco Co., Ltd.

The team held discussions with the officials concerned of the Government of Romania, and conducted field surveys in the study area. After the team returned to Japan, further studies were made and the present report was prepared.

I hope that this report will contribute to the promotion of the project and to the enhancement of friendly relations between our two countries.

I wish to express my sincere appreciation to the officials concerned of the Government of Romania for their close cooperation extended to the team.

March, 2000

A handwritten signature in black ink, appearing to read 'Kimio Fujita', with a horizontal line underneath it.

Kimio Fujita
President

Japan International Cooperation Agency

March, 2000

Mr. Kimio Fujita
President
Japan International Cooperation Agency
Tokyo, Japan

Dear Sir,

Letter of Transmittal

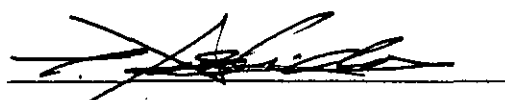
We are pleased to submit to you the study report on the Comprehensive Urban Transport Study of Bucharest City and its Metropolitan Area.

This study was conducted by Central Consultant Inc., in association with Padeco Co., Ltd., under a contract to JICA, during the period of July, 1998 to December 1999. In conducting the study, we have examined the feasibility and rationale of the project with due consideration to the present situation of Romania and formulated the transportation master plan in Bucharest.

We wish to take this opportunity to express our sincere gratitude to the officials concerned of JICA and the Municipality of Bucharest. We would also like to express our gratitude to the officials concerned of the RATB, METROREX and the Embassy of Japan in Romania for their cooperation and assistance throughout our field survey.

We hope this report will contribute to the further promotion of the project.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Takeshi Yoshida', is written over a horizontal line.

Takeshi Yoshida
Team Leader
The Master Plan on the Comprehensive
Urban Transport Study of Bucharest City
and its Metropolitan Area

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Conclusions and Recommendations

“What should be done today for the future of Bucharest?”

1. Establishment of Public Transport Priority Policy

1.1 Background

Bucharest, which they once called a little Paris, was a modern city which had tram routes opened in year 1871 and had tall and beautiful buildings along Calea Victoriei. One of the characteristics of the urban structure of Bucharest is that a high density built up area was formed within a 5 km radius and a public transport network consisting of metro, tram, trolley bus and bus was established in a dense pattern. Therefore Bucharest might be recognized as a compact shaped city with relatively well developed public transport infrastructure for citizens' use.

After the democratic revolution of the year 1989, the Romanian economy has been transiting from a planned economy to a market economy. In the course of the transition, the purchase of vehicles became deregulated and the number of vehicle owners is sharply increasing. The average annual rate of increase for the past four years reaches 4.7%. If the present tendency of increase of vehicles continues, the study area will become more congested and air pollution in the central area will be more serious. Thus Bucharest may make the same mistakes that the cities of Western Europe and the United States made (Do Nothing Case).

1.2 Necessity of Public Transport Priority Policy

Bucharest stands at the crossroads of two separate ways and a basic policy of public transport should be established. Specifically, this policy concerns promoting the use of the public transport modes in place of passenger cars in consideration of the environmental issues. For this purpose, the transport network should be improved making the most use of the existing public transport infrastructure, the central city area should be further developed, and the "sub-core" area in the surrounding area should be fostered. Naturally, Bucharest's advantage of a compact city frame work must be maintained. In other words, an urban transport master plan based on a public transport priority policy should be implemented. The tendency of today should be changed under this basic policy. It is never too late if we start making the difference now.

2. Implementation of Master Plan

2.1 Master Plan

Before the Master Plan was established, the citizens' transport activity was quantitatively analyzed based on various surveys including the person trip survey in the Study area. The model was created after studying the relationship between the socio-economic indices including the population and the traffic demand. Based on this relationship, future socio-economic indices were forecasted. The future traffic demand was estimated with the population forecast by the plan considered to be created in order to induce a future urban structure having multiple city cores instead of one concentrated core.

According to the estimated future traffic demand, alternative plans of future transport network patterns were examined to implement the project goals including the securing of smooth mobility for citizens, creation of an attractive central area, creation of sub urban cores, and improvement of the environment. As a result, a transport master plan that combines the improvement of ring roads and public transport modes, especially a tram system (multi-modal public transport axis development) was established. The proposed master plan to be achieved by the year 2015 will serve for the formation of the future urban structure, for the development of the suburban cores such as Gara de Nord, Obor and Sudului and as a great support for the improvement of the urban environment.

2.2 Feasibility

Although the total investment cost for the 15 year period amounts to US\$ 2,175 million (Lei 33.5 trillion), the economic internal rate of return (EIRR) is 18.8% and the benefit cost ratio calculated with a discount rate of 12%, is 1.4. Therefore the master plan is sufficiently feasible. It is strongly recommended to implement the projects proposed in the Master Plan as a guideline in order to realize a city based on a public transport priority policy and to overcome the tendency to become a private vehicle oriented society.

3. Early Commencement of Priority Projects

A preliminary engineering study was conducted on five projects among the projects to be implemented at an early stage.

a. Linkage of Inner Ring Road by the Basarab Overpass

The objective of the Basarab overpass project is to provide the missing link of the Inner ring road which was separated by the railways. The tram route also will be linked as will the road. The project will resolve the future traffic demand in the circumferential direction and the EIRR shows a high value of 30.7%. Since this project is one of the most important projects in the entire transport network, its early commencement is recommended

b. Improvement of Bottleneck Piata

The piatas of Gara de Nord, Obor and Sudului are the connecting points of the public transport system such as metro, tram, trolley bus and bus, and also important intersections for vehicle traffic. These piatas are expected to be developed as future sub-cores for business and commerce. The aims of the project are to make passenger transfer between public transport modes easy and comfortable, to manage smooth traffic flows at the intersections and to complete the transport functions through the development of parking and other facilities. Because of high EIRR of 24.7%, implementation of the project at an early stage is expected.

c. Parking System Development in Central Area

If the present tendency of vehicle concentration into the central area continues, traffic control will be difficult and pollution problems such as exhaust gas will become more serious. Therefore a parking system development project is studied in order to restrict vehicle use in the central area. The parking facilities will be provided at the fringes of the area restricted to vehicles, and public transport will be the principal transport mode in the central area.

In the historical district of the central area, pedestrian malls, small piatas and green spaces will be developed for citizens and tourists in order to promote urban revitalization and urban tourism.

d. New Public Transit Corridor

Tram is the most important transport mode in the Study Area at present and in future. It can provide rapid and high capacity trunk transport axes the same as a metro by establishing a segregated track, introducing new types of vehicles and public transport priority signals. The project is to introduce a new type of tram on the route Colentina - Central area - Alexandria which has high demand. It is necessary to prepare well in advance for the creation of a trunk public transport axis.

e. Fare System Improvement

In order to make public transport more convenient and to promote citizens' use of public transport, a fare system renovation such as common ticket introduction is necessary. The prevention of free ride is also an important issue to improve operating income.

4. Fund Resources

The implementation of projects proposed in this Master Plan requires a lot of funding. Basically, the funds for the projects should be covered by those who benefit from the implementation of the

projects (the beneficiaries-pay principle). Although the existing tax rates need to be raised and new taxes must be created for this purpose, the residents must bear the burden but, on the other hand, can lead a more comfortable life in an improved living and transport environment.

To obtain funds minimally required to implement a project according to the beneficiaries-pay principle, the city of Bucharest needs to raise and earmark a gasoline tax or raise the parking fees to obtain its own fund sources for the transport facility improvement fund. Furthermore, the city should create a city planning tax to be used as the project fund. However, since these fund sources are not sufficient, the creation of a public transport tax, as seen in the cities of Western Europe, should be examined to provide the necessary funds.

On the other hand, a project that needs a great deal of funding for construction, such as the tram system that urgently needs high technology, requires foreign funds from international or bilateral institutions with favorable conditions.

However, private funding via the concession method, BOT method, PFI method, etc. should be utilized for projects with good revenue expectations.

The project implementation entities can provide 1,832 million dollars of the total investment cost. For the remaining 324 million dollars, such options as the introduction of a new public transport tax or of private funding using the concession method should be examined.

5. Institutional Reform

Institutional reform related to various tax collecting systems such as the introduction of a city planning tax is necessary to secure the funding resources, and close coordination among various implementation authorities is also necessary to advance the project implementation efficiently. The present transport committee, which is steered by the municipality, should be completed, and the establishment of a permanent secretariat with a planning and coordinating function is recommended.

Since the cooperation of citizens is essential for various institutional reforms, it is necessary to disclose information and to create opportunities to listen to citizens' opinions.

6. Improvement of Business of Public Transport Operation Entities

For the sake of continuous supply of public transport services, the public transport operation entities must have an improved business basis to depend less on subsidies. For this purpose, clear identification of earnings and costs for each mode and route, improvement of productivity through simplifying the organization, and various measures for decreasing free riders and increasing passengers are required.

7. Further Issues

Feasibility studies and basic designs are necessary to prepare the fund procurement and to implement the projects proposed under the Master Plan, especially the priority projects.

The Master Plan is the guideline for the future transport orientation from a long-term viewpoint and thus must be periodically reviewed as the socio-economic situation changes. The traffic survey result and other databases on which the Master Plan is based must be properly maintained and, preferably, updated and expanded in the future.