

ANALYSIS OF PUBLIC TRANSPORT IN CHISINAU

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Abstract: At the present stage of urban development, one of the main tasks is to create a safe system of public transport, one that is affordable, economical, reliable and environmentally friendly. The important role of passengers in the city transport economy and in the realisation of the social services dictates the need for harmonious, balanced and effective measures in this domain.

Analyzing the public transport in Chisinau and its organization, we will notice the progress and stagnation, so we will be knowing how to develop investment strategies in the public transport and measures of reducing the exploitation expenses for means of transport, and particularly the optimization of public transport, in result increasing the quality of the services for the passengers.

Keywords: public transport, urban passenger flow, transport agents, average driven distance, public transport fleet, routes, road infrastructure, quality index.

The urban transport is an ample, dynamic and live mechanism. Therefore all the problems and initiations for perfecting and reorganization can be examined only in terms of a systemic approach that is applied only per total in practice.

The main problems of urban transport in Chisinau are directly or indirectly related to the efficient use of energy resources.

Radical transformation processes of the economic and social spheres, the formation of product markets and services and the early integration of the country in the global economic system is unthinkable without creating a reliable system of operational, economic, safe and environmentally friendly transport, oriented towards satisfying the interests of the citizen, entrepreneurs, markets and the entire society.

It should be recognized that in the present moment the transport system of Republic of Moldova does not fulfill these requirements. In this area it still needs changes and capital investments. Tariff liberalization, the price growth of all types of energy resources, the increasement of private and independent transport agents, that are operating as small companies and also other factors have caused the formation and development of the current transport market .

World experience shows that such urban issues as:

- Ensuring the human rights of mobility and supporting the vulnerable groups of society
- Releasing the town center of private transport;
- Ecological and others

Prioritary can be solved through the municipal urban transport .

In recent years, the general mobility of the population increased due to:

- a) the growth of the municipality's territory;
- b) the increasing of the average driven distance;
- c) the city population growth;
- d) the increasing number of private cars;

The system of urban transport management in Chisinau has the following organizational structure as shown in Figure 2.

In Chisinau the passenger transportation services are done by the city companies "Regia transport electric" and "Parcul urban de autobuze " and other 19 agents transporters - administrators of buses and minibuses

Chisinau's passenger stream is served by 22 trolleybus routes, 27 bus routes (including 4 private routes) and 67 microbus routes. The average daily output one the routes of the municipality are : 258 trolleybus 118 high capacity buses (including 25 private), 1840 minibuses. (Fig. 1)

In the base of the study of passenger's flow was established a program of basic routes for trolleybuses: no. 1, 4, 5, 7, 8, 10, 13, 17, 20, 21, 22, 24, 25, 28 and 29 acting up till 22.30 - 23.00 and secondary routes no. 2, 3, 9, 14, 16, 23 and 26 trolleybuses circulation is set up till 20.00 because after each hour the passenger flow is reduced essentially and the capacity of the trolleybus is used ineffective. The activity of buses and minibuses route is between the hours 05.30 - 24.00 depending on the flow of passengers on each route separately. Note that schedules of circulation of buses and minibuses are coordinated with the City Hall.

Fig.2. Structure of urban transport in Chisinau

1. Municipal Chisinau Council
 2. The City Hall of Chisinau
 3. General department of public transport and communication
 4. Administrators of the minibus routes
 - 4.2. Transport of persons or merchandise in the taxi regime.
 5. Transportators agents , transport operators , independent taxi drivers.
- Number of transported people.

From 1 June 2011 to 1 June 2012 on the regular routes of trolleybuses were transported 93.3 million passengers, including paid - 73.3 million (79%) and the free ones - 20.0 million (21%) ; by buses were transported 14.8 million passengers, including paid – 11.5 million (78%), free - 3.3 million (22%); with minibuses in this period were transported approximately 190.0 million. passengers. (Fig3.)

Thus, during the nominated period were transported by trolley, buses and minibuses a total of 298.5 million passenger or calculated per day about 820.000 passengers.

It is known that up to 500m trips are usually made without transport, but those that are longer than 2 km have usually the transport priority. The average urban driven distance recommended is about 1-5 km.

Results show that an average trip is about 4.8 km. Same numbers we have for a trip with the minibus.

For sustaining the environmental quality parallel to the social , economical and cultural activities , it is necessary to impose public transport in the city life by improving the quality of the services offered by it.

The percentage of the transport agents in the urban passenger stream with the compliance of all quality requirements does not exceed 25%

Unfortunately, the goals and traditional criteria of appreciation of the effectiveness of the public transport only reveals it self by achieving some final quantitative results.

For example, – in the municipal passengers transport contract for buses is often provided as the main index the transported volume. At the optimization of the bus routes system due to the reduction of the transportations number, this index will decrease. So it shows that a large transportation volume is not needed. Serving the population with public transport, the placement of buildings for living, commerce, culture and other centres of attraction for the

people should be organized in such a way that the maximum driven distances should be as short as possible and the necessity of transportation minimal.

The Chisinau road infrastructure consists of 900 streets with a length of 880 km and with the roadway surface about 10 million m². The Length of the sidewalks in a line constitutes 451.0 kilometers (1.8 million M²)

In the period 01.06.2011 - 01.06.2012 at the exploitation of communication paths have been made street repairments, of a total worth of 25249,6 thousand lei (78,700 m² of smooth asphalt), including:

- Works financed from the republican budget - 3682, 5 thousand (smooth asphalt-9300 m²)
- Work performed and financed from the municipal budget 328418 thousand lei (smooth asphalt - 114300 m²)

Electric transport

The report of activity of municipal company "Electric Transport" in the period 01.06.2011-01.06.2012, presents the following indices of activity:

Number of trolleybuses on 30.05.2012 - 320 units

Trolley routes - 23 routes

The average trolley activity on the route - 258 units

Utilization coefficient of the rolling stock - 0.81

The average driven distance - 45.0 thousand km

Average daily number of passengers -300.000 persons

Income from passenger transportation -126.6 million lei

Also it was fulfilled the repairment and prophylaxis of the cable and contact networks - 1200 km, repairs were made on 55 trolleybuses.

With the receipt of new trolleybuses in number of 102 units from the supplier of trolleybuses the consortium "BelkommunMash & Carpat BELAZ Service", since June 2011, it has stabilized the revenue collection, which was declining.

The bus transport

In the account of the municipal enterprise „Parcul Urban de autobuze" as from the accounting evidence, there were 136 buses designed for passengers transportation, of which 125 are involved in the transportation of passengers in the Chisinau municipality and 11 buses operating with an average of 20 -23 years are in conservative state of beeing, needing capital repairment, or disposal due to its malfunctions.

Today the company provides daily 93 buses on the line, serving 24 urban and suburban routes of the city, including 5 routes (or 21.0 percent) in urban traffic routes and 19 (or 79.0 percent) in suburban traffic. The total length of the route is 403 km.

The Average daily output of buses on the a period of time is 86 units, beeing in decline comparing to the same previous period. The decrease was caused by the old age rolling stock, the average age of a bus was 11.8 years compared to the norm of 8 years, situation which also makes additional expenses for maintenance and exploitation.

The volume of passengers for the period 1 June 2011 - June 1, 2012 constituted 14.8 million, of which 11.5 million. passengers (or 77.7 %) with full payment for travel, and 3.3 million with travel facilities.

During the management period was accumulated an income in the amount of 39.2 million lei, including: income from transporting passengers - 36.5 million lei, and incomes from other types of activity - 2.7 million lei.

The decrease of the paying passengers and accumulated income contributed to the reduction of running buses from 88 units per day to 86 units and the extension of minibus routes along with the bus routes.

Analyzing the total volume of passengers over the last years we can observe that the municipal company "RTEC" and "PUA" are losing their positions on the urban transport market. (Fig.4)

Fig.4 Dynamic volumes of passengers transported by "RTEC" and "PUA"
total, paid, free

Transport by minibuses

According to the provisions set out in the passengers and luggage auto transport Regulation, approved by the Government Decision no. 854 from 28.07.2006 to 31.12.2007 there were excluded from activity about 500 minibuses remade from trucks and in time were replaced by buses with smaller modifications and with a bigger number of seats (17-22 seats) designated to transport passengers.

Currently the Chisinau minibus fleet consists of 1840 units, of which:

- ≡ Up to 5 years - 10%
- ≡ 5-10 years - 43%
- ≡ 10-15 years - 41%
- ≡ 15-20 years - 6%

Urban minibuses are priority Mercedes-Benz type "Sprinter" which is characterized by reliability and economy and low emissions of gases. These minibuses according to the European classification are in the M2 category , A Class – Easy class buses for the transport of passengers in the quantity corresponding to the number of seats in the bus. This condition is not respected by transporters due to an increased number of passengers at stations during the rush hours.

The activity of the private minibus transporters is obviously more efficient than the urban bus fleet. But the unjustified increase of the general minibuses, the unfair competition with AUP and RTEC are leading to the apparition of problems, primarily for their own activity. In the case when they are driving "parallel" units of transport that belong to different transport companies , none of them can provide the actual exploitation of the rolling stock. Following this , appears the need of investments in the means of transport and requirements for price increase

According to our estimations at this stage, the general number of minibuses correspond to the requirements of the population (about 1800 units) in transportation. But the increase of their number will lead to a deepening in the existing problems created by them.

Conclusions

For public transport to be profitable, you need to follow certain quality parameters of passenger services as: accessibility, reliability and convenience.

In the DGTPCC, the control of the quality services provided by the passenger transporters is assured by the public transport management. In order to improve the public service of the passenger stream in Chisinau , were made several measures, including:

- There were introduced some modifications in the public transport network: a new bus route was opened no. 148 „Street Melestiu (City Hospital no. 1)- village New Goiania " bus route no. 141 „ Cricova - str.Bulgara " the trolleybus routes had been prolonged no. 22 to bd. Dacia and no. 28 to bd. Iu. Gagarin, the minibus routes were extended: no. 103, no. 119 till Street Arheolog Ion Casian-Suruceanu, no. 116 - up to Gradina Botanica street , nr. 161 – till the Andrei Doga street, modified the minibus routes no. 180 to establish the circulation on Armeneasca Street, no. 169 - Street Bucuresti, and so on;
- 102 contemporary trolleybuses of AKCM-321 model were purchased (factory "Belcomunmaş" Minsk city) with low floor (adopted for the transportation of disabled people), according to the public-private partnership project implemented jointly with the European Bank for Reconstruction and Development (EBRD) and European Investment Bank (EIB). The trolleybuses were distributed and are currently working on the municipal routes.
- Municipal company "Electric Transport" made repairs on 55 trolleybuses and 3 trolleybuses were renovated , at 4 trolleys the doors were changed, and at 35 were put soft chairs. 16 pillars were changed and it was made a prophylactic repairs of 1200 km of network of contacts, replaced the contact wire on a distance of 5 km;
- M.C. "Parcul Urban de Autobuze" had equipped 40 buses with special automatic announcement of the stations name (when the driver presses the button) and other useful information for travelers (route no. 3, 5, 23 and "A "). A MAN model bus was equipped with modern electronic audio-visual broadcast with full information and using GPS (without drivers involvement)
- For the improvement of the road safety and increasement of the transport capacity , the Chisinau City Hall had decided through the disposition no. 411-d of 24.05.2011, that on the street M.Kogălniceanu the public transport was diverted on a part of the roadway and there was established the routes for trolleybuses number 3 and 4 Street on Bucuresti Street, and itinerary routes no. 104, 124, 127 and 129 on Street A. Şciusev

In the period under analyzation in Chisinau there were recorded 439 road accidents involving passenger transportation : (trolley - 101, bus - 54, minibus - 153, taxi - 138), of which 311 traffic accidents are produced by the transport drivers fault (trolley - 64, bus - 31, minibus - 112, taxi - 114), after which 342 people were injured (trolley - 95, bus - 6, minibus - 138, taxi - 108), 6 people died in accidents involving mini-bus on route.