Assessment of problems and ways to ensure transport accessibility of low-mobility population groups (for example, the "Social taxi" service)

Apreciación de problemas y modos de mantenimiento de la accesibilidad de transporte para población de baja movilidad (por ejemplo, el servicio "taxi social")

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ABSTRACT:
The purpose of the article is to identify the problems and ways to ensure the transport accessibility of low-mobility population groups through the implementation of the "Social taxi" service. Leading approaches to the study of this problem have become desk research methods, methods of expert evaluation and sociological research, generalization and synthesis. The article presents the results of the study of the state of introduction and development of the services of the "Social Taxi" in 75 subjects of the Russian Federation. The main problems of the development of the service "Social Taxi" in the regions of the Russian Federation are generalized. The dominant problems of managing the introduction and development of the services of the "Social Taxi" are outlined, and ways to reduce their negative impact on the quality of services, up to their

RESUMEN:
El objetivo de la preparación del artículo consiste en la identificación de los problemas y los modos del mantenimiento de la accesibilidad de transporte para los grupos de población de baja movilidad mediante la implementación del servicio de "el taxi social". Los accesos principales a la investigación del problema dado había unos métodos de despacho de la investigación, los métodos de las apreciaciones periciales y las investigaciones sociológicas, la generalización y la síntesis. En el artículo son presentados los resultados de la investigación del estado de la introducción y el desarrollo de los servicios del «taxi Social» en las regiones de la Federación Rusa. Son designados los problemas dominantes de la dirección de la introducción y del desarrollo de los servicios «el taxi Social», son propuestos los modos del descenso de sus influencia
1. Introduction

The urgency of the preparation of this scientific article is due, on the one hand, to the narrow focus of the "Social Taxi" service of the scientific community, on the other, the results of the author's analysis of the state of introduction and development of the "Social Taxi" services in 75 subjects of the Russian Federation. For example, in articles Gubin, Voronov & Rementsov (2015), Akhunova & Guk (2017), attention is focused mainly on the types of rolling stock and the equipment used in it, utilized for people with disabilities. In work Moon (2010) the preference is given to the basic scheme of formation of the basic elements of the transport service system for disabled people by the service "Social Taxi". In articles Korableva & Polevaya (2013) and Plohova (2013) an analysis is carried out with reference to a specific subject of the Russian Federation. The paradigm of narrowly focused analysis can also be found in the work Korableva & Polevaya (2013).

An analysis of foreign studies on the transport of low-mobility groups shows that they are mainly aimed at identifying problems in the already established long-term practice of transport organizations carrying disabled people. Thus, in work Cononey, Gannon & Wolsh (2007) the results of a poll of wheelchair users in Ireland are given. The study illustrates the need for taxi drivers to handle a disabled person in the process of providing a transport service from door to door, that is, not only when transporting a disabled person, but also, for example, when loading and unloading a car.

In the article Murray (2010) the organization of the work of the Access-A-Ride service in New York, which is analogous to the "Social Taxi" service in Russia, is examined. The analysis shows that all provided cars are equipped with special facilities for wheelchair users, services are provided to the disabled person in the required quantity and free of charge. In this case, identified and the negative aspects in the work of this service, such as a long waiting time for submitting the machine and others. In work Gremers, Klein Haneveld & Van der Vlerk (2006) issues of taxi route planning software are considered.


Using the "Social Taxi" for disabled people and other citizens with disabilities to travel is much more affordable and comfortable than making a trip by shuttle bus. Among the main advantages of using the service "Social Taxi" should be noted:

- there is no need to get to the bus stop, which is very difficult for the disabled, accompanying persons, especially in bad weather and impassable conditions in rural areas (rainstorm, heavy snowfall, stiff frost, slippery pavement in ice, etc.);
- there is no need for a long wait for the bus on uncomfortable, technically not equipped stops;
- convenience of landing (exit) in the car service "Social Taxi", since the vast majority of shuttle buses are not suitable for the carriage of wheelchair users;
• in some regions of the Russian Federation, the services of the "Social Taxi" are provided free of charge both to the privileged category of citizens and to the persons accompanying them, which positively affects the family budget;
• increasing the role of "Social taxi" services when multiple visits to a health facility are necessary (for example, the hemodialysis procedure is performed 4-6 times per week for life, either until the kidney is transplanted, or until the kidney function is restored).

2. Methodological Framework
The methodological basis of this study was the work in the field of ensuring transport accessibility of low-mobility population groups, as well as creating an accessible environment for them. To analyze the development of the relatively new social taxi service in Russia, the authors of the article used methods of economic and statistical analysis, the initial information for the analysis was official statistics (Russian Statistical Yearbook, 2014).

Also, desk methods of the research, methods of expert assessments and sociological research were used.

To generalize the results of the research, generalization and synthesis methods were used, which made it possible to make author's estimates of the problems and ways of ensuring transport accessibility of the low-mobility groups of the population (on the example of the "Social Taxi" service).

3. Results

3.1. Assessment of the distribution of the "social taxi" service in the regions of the Russian Federation"

One of the important problems is the uneven development of the services of the "Social Taxi" in a number of subjects of the Russian Federation, municipalities. Most of the country's regions have implemented the services of the "Social Taxi", but there are subjects of the Russian Federation in which the service "Social Taxi" is poorly developed or nonexistent. Based on the data received from the subjects of the Russian Federation, the service "Social Taxi" is absent in the following subjects of the Russian Federation: the Chuvash Republic, the Republic of Crimea, the Chechen Republic, the Republic of Ingushetia, the Republic of Tatarstan, the Republic of Kalmykia, and the Nenets Autonomous District.

An important omission in the organization and development of the service "Social Taxi" is the absence in some regions of the Russian Federation of services for the rural population. So, in the Altai Territory and the Republic of Bashkortostan, these services are provided only in two cities of each of these regions. In the Magadan, Vladimir regions, some other subjects of the Russian Federation in rural settlements, the services of the "Social Taxi" are not provided. In the Republic of Dagestan, as already noted, the service "Social Taxi" services are only in one rural area.

The analysis showed the absence of a unified approach by the subjects of the Russian Federation to the definition of a preferential category of citizens who have the pre-emptive right to receive the services of the "Social Taxi". This is another problematic issue that needs to be addressed. In most regions, the services of the "Social Taxi" are rendered to disabled 1st and 2nd groups using wheelchairs, with disabilities of the musculoskeletal system accompanying their persons; participants of the Great Patriotic War; children with disabilities and their accompanying persons.

Based on the results of the study, the authors of the article identified 5 subjects of the Russian Federation with the most complete membership of the users of the service "Social Taxi" (Table 1.)
| №  | Subjects of the Russian Federation            | Composition of the category of citizens entitled to use the services of the "Social Taxi"                                                                                                                                                                                                                                                                                                                                 |
|----|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------
| 1  | Yamal-Nenets Autonomous District           | 11 population groups:                                                                                                   
|    |                                             | - citizens registered at the place of residence (stay) in the district and having restrictions on movement, incapable of self-service;                                                                                       
|    |                                             | - lonely citizens who do not have relatives who can provide them with assistance and care if the per capita income of these citizens is lower than the subsistence level in the district;                                                                                                                
|    |                                             | - participants, disabled veterans of the Great Patriotic War (WW2) and similar categories of citizens;                                                                                                                                  
|    |                                             | - widows and widowers of deceased invalids or participants of the Second World War, who did not remarry;                                                                                                                                  
|    |                                             | - persons who worked in the rear during the period from June 22, 1941 to May 9, 1945 for at least 6 months, excluding the period of work in the temporarily occupied territories of the USSR;                                                                                                           
|    |                                             | - disabled people of fighting;                                                                                                                                                                                                           
|    |                                             | - persons awarded the title of Hero of the Soviet Union;                                                                                                                      
|    |                                             | - Siege of Leningrad: those who lived in the besieged Leningrad in 1941-1943. and was awarded the "Resident of Leningrad besieged" sign;                                                                                                         
|    |                                             | - persons awarded the title of Hero of the Russian Federation;                                                                                                                  
|    |                                             | - persons awarded the title of Hero of Socialist Labor;                                                                                                                      
|    |                                             | - disabled persons in the scope of rehabilitation measures provided for by an individual rehabilitation program for a disabled person                                                                                                        |
| 2  | Saint-Petersburg                           | 10 population groups                                                                                                     |
| 3  | Baikonur City                              | 8 population groups                                                                                                      |
| 4  | Altai region                               | 7 population groups (if there are 4 cars, services are provided from 3,483 to 5,068 recipients)                                                                              |
| 5  | Amur region                                | 6 population groups                                                                                                      |

At the same time, in a number of regions of Russia the number of users of "Social Taxi" services is extremely small (Table 2).
### Table 2
Subjects of the Russian Federation with a minimum number of users of the service "Social Taxi"

<table>
<thead>
<tr>
<th></th>
<th>Region</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Irkutsk region</td>
<td>Disabled persons of the 1st group using a wheelchair</td>
</tr>
<tr>
<td>2</td>
<td>Astrakhan Region</td>
<td>Disabled persons of the 1st and 2nd groups, children with disabilities</td>
</tr>
<tr>
<td>3</td>
<td>Khabarovsk region</td>
<td>Disabled persons of the 1st and 2nd groups, children with disabilities</td>
</tr>
<tr>
<td>4</td>
<td>Bryansk region</td>
<td>Disabled persons of the 1st group and children with disabilities under the age of 18 who are unable to move independently and who need constant help from others, and who have medical indications to provide special means of transportation (wheelchairs)</td>
</tr>
<tr>
<td>5</td>
<td>Kirov region</td>
<td>Disabled persons with musculoskeletal disorders</td>
</tr>
</tbody>
</table>

In addition to the data in the table, it should be noted that in the Astrakhan region, with 2 cars, for example, for 9 months of 2014, the service "Social Taxi" provided services to only 279 users.

#### 3.2. Financial provision of social taxi services

As it was shown by the analysis based on the available data, the task of financing activities in the sphere of ensuring accessibility of priority facilities and services in the lives of people with disabilities and other low-mobility groups under the subprogramme 1 of the state program "Affordable Environment" is decided by the regions and the federal center on co-financing terms.

Decree of the Government of the Russian Federation of January 24, 2017 No. 68 set the maximum level of co-financing of the expenditure obligation of the subject of the Russian Federation from the federal budget by constituent entities of the Russian Federation for 2017. The maximum level of co-financing (in percent) for each region is different, taking into account the estimated budgetary security of the subject of the Russian Federation. For example, the highest level of co-financing for 2017 was established (The website of the Federal service of state statistics, 2017) for the city of Sevastopol (Figure 1).

#### Figure 1
Regions of the Russian Federation with maximum and minimum co-financing of social taxi services in 2017, %
Regions such as the Ulyanovsk Region, the Khanty-Mansiisk and Yamal-Nenets Autonomous Districts have the smallest share of co-financing of social taxi services among all regions of Russia - respectively. The consequence is the almost complete absence in these regions of ensuring the transport accessibility of the low-mobility population groups through the expansion of the "social taxi" service. The only exception is the Yamalo-Nenets Autonomous District, in which, as indicated in the table, the largest number of population groups - 11 groups - have the right to receive the services of the "Social Taxi".

3.3. The main problems of ensuring the transport availability of low-mobility groups of the population through the extension of the "social taxi"

The analysis of the organization and development of the services of the "Social Taxi" on the basis of factual data obtained from 75 constituent entities of the Russian Federation, the application of the Pareto-analysis made it possible to identify a number of issues, with subsequent identification of the most important problems requiring a decision at the level of the Government of the Russian Federation, the State Duma of the Russian Federation, and subjects of the Russian Federation. Solving precisely dominant problem issues will allow subjects of the Russian Federation and municipalities to ensure consistent and ubiquitous growth of the quality of "Social Taxi" services, to increase the social and economic efficiency of services. It was important not only to identify the main problems, to confirm their relevance, but also to offer ways to solve them.

In the 21 regions, the services of the "Social Taxi" during the study were free. However, not all of these subjects receive free services from all citizens of the preferential category. For example, in the Stavropol Territory, out of 2,064 people a year using the services of the "Social Taxi", 1082 people benefited from the total number of beneficiaries out of the total, that is 52 percent. In Astrakhan and Arkhangelsk regions, only one trip per month is free of charge, the remaining trips are paid.

The cost of paid trips is noticeably different in the regions. So, in the Amur region the cost of the trip is from 110 ruble. for every kilometer up to 360 rubles for each hour - the maximum cost of all 75 subjects of the Russian Federation. In the Lipetsks region the cost of the trip is 5.5 rubles for 1 km in the city of Lipetsk, 4.0 rubles for 1 km in the region - the minimum fee from all RF subjects with paid services. It is also important that the number of preferential category
Important aspects of the quality of the services being examined are the possible number of orders (periodicity), organization of the order of the car ordering of the service "Social Taxi" and the waiting time for the recipient of the service to begin its real implementation. In most of the subjects of the Russian Federation, there are no restrictions on the number of possible orders. At the same time in the Kaliningrad region, where only disabled persons have the right to use the services of the "Social Taxi" (free of charge), transport services are provided for no more than 5 hours per quarter. In Sevastopol, citizens entitled to receive the service "Social Taxi", the service is provided 8 times a month on preferential terms (the recipients of the service for the purpose of following hemodialysis are served in the required amount).

No less important problem in the introduction and development of "Social Taxi" services is the insufficient level of awareness of the public about the "Social Taxi" service. The analysis of the data received from the subjects of the Russian Federation showed the lack of information among a part of the population that badly needs the services of the "Social Taxi".

In order to increase the level of awareness of citizens experiencing difficulties in movement without special assistance, subjects of the Russian Federation and municipalities need to write to the people who have the right to use the services of the "Social Taxi" in writing the entire range of data on the service: telephone, e-mail, address, list of necessary documents for the potential beneficiary of services, the cost of services (including the size of the fare for the accompanying person), the procedure for filing an application for the arrival of the "Social Taxi", the duration of execution of the order, etc.

**Figure 2**
The main problems of development in the regions of the Russian Federation, the service "Social Taxi"

<table>
<thead>
<tr>
<th>The main problems of development in the regions of the Russian Federation are the services of the &quot;social taxi&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absence of a unified approach by the subjects of the Russian Federation to the definition of a preferential category of citizens who have a pre-emptive right to receive the services of the &quot;Social Taxi&quot;</td>
</tr>
<tr>
<td>A complex, inconsistent approach to establishing the cost of &quot;Social Taxi&quot; services to citizens of preferential categories is typical for many regions of the Russian Federation</td>
</tr>
<tr>
<td>Segmental degree of development of &quot;Social Taxi&quot; services in a number of subjects of the Russian Federation, municipalities</td>
</tr>
<tr>
<td>The lack of &quot;Social taxi&quot; services for rural population in some regions of the Russian Federation</td>
</tr>
</tbody>
</table>

The number of recipients of services for a certain period of time (per year) is extremely important for the effectiveness of the work of the "Social Taxi" service. At the same time, the number of recipients of services is important not in itself, but in conjunction with the number of citizens who have the right to service "Social Taxi". The researched 75 subjects of the Russian Federation render services of the "Social Taxi" for only 9.5% in the course of the year to the disabled and inactive disabled people.

Such a state of transport inaccessibility for a global number of disabled people unable to independently move to medical institutions, general education organizations, and other priority facilities requires urgent measures to develop (and in some regions - to introduce) the services of the "Social Taxi": a significant increase in the number of vehicles to boarding wheelchair
users; organization of the "Social Taxi" service in rural settlements; increase in the number of social services personnel.

To eliminate or minimize the problems identified in this study, it is important to develop measures for the development of the "Social Taxi" service in the regions of the Russian Federation.

### 3.4. Recommendations for ensuring transport accessibility of low-mobility population groups through the extension of the "Social Taxi" service in the regions of the Russian Federation

The dynamics of the process of pragmatic, widespread reduction of the adverse impact of the identified problems on the quality of the services of the "Social Taxi", bringing them to a partial manifestation, and somewhere and until complete elimination is achieved in the following ways.

Firstly, the services of the "Social Taxi" need to be documented to give priority to the implementation of the above-mentioned subprogramme 1 of the state program "Affordable Environment".

Secondly, the introduction of the services of the "Social Taxi" and the maximum degree of development (in each constituent entity of the Russian Federation and the municipality, with full coverage of the services of needy citizens) should become mandatory for the Ministry of Labor and Social Protection of the Russian Federation, RF subjects, municipalities.

Thirdly, to address the dominant problems identified by the author, constant attention, periodic assessment of the development status of the "Social Taxi" service with the subsequent adoption of adequate measures are required.

Fourth, the solution of the set tasks is possible only if there is an increased demand from the leaders of all levels of federal, regional and municipal authorities.

Fifth, the solution of the particular problems in question requires sufficient funding - for free and low-cost services, the expansion of the social services staff involved in the provision of "Social Taxi" services, the acquisition of a sufficient number of specially equipped cars (proposals for the forms of financing the "Social Taxi" services "are described below in the text). Preferential category of citizens of the service "Social Taxi" should be provided regardless of place of residence, i.e. in each city, a city-type settlement, a rural settlement of the subjects of the Russian Federation. To solve such a difficult task, expert assessments will require at least 10 years with unflagging attention to its implementation.

Authors are invited to develop and implement a uniform for all constituent entities of the Russian Federation of the mandatory preferential category of citizens who have the pre-emptive right to receive the services of the "Social Taxi".

The solution of all the above-mentioned especially important problems is impossible without the solution of a particularly significant task - the financial provision of the work of the "Social Taxi" services in each constituent entity of the Russian Federation, without which it is impossible to solve most of the problems listed and investigated. In addition to the above-described co-financing of the "Social Taxi" service, it is also possible to involve socially-oriented non-commercial organizations (SO NCOs) in the provision of services.

It is necessary to work out the maximum amount of fare. Taking into account the different approaches of the regions to approve the amount of travel for privileged categories of citizens on the cars of the service "Social Taxi", it is advisable to specify the maximum tariffs for trips to socially important objects and back in the government's decision. It should not be allowed to set a limit for each hour, that is, based on the travel time, because long trips from remote rural settlements, high traffic in cities can lead to the denial of service recipients from the "Social Taxi" because of the duration of the trip and the corresponding increase in cost services. The fare must be levied regardless of the client's waiting time during the visit to the medical
organization (waiting for admission from doctors, the process of providing medical assistance, obtaining medical documents, etc.), processing administrative and legal acts related to the re-registration of disability, documents for social services, vouchers for sanatorium treatment, payment documents, housing and communal issues, etc. Charging for the waiting time significantly increases the cost of the service, which reduces the availability of "Social Taxi" services.

4. Discussions

Questions of researching the problems and ways of ensuring transport accessibility of the low-mobility groups of the population through the provision of additional services were handled by Akhunova & Guk (2017), Cononey, Gannon & Wolsh (2007), Lubinka et al (2016), Maloletko (2015), Moon (2010), Plohova (2016), Serova (2016), Orfield (1991), Zlotnikova et al (2017), and others.

Some of the authors (Moskaleva, 2015; Vinogradova et al., 2015; Rudenko et al., 2015; Moskaleva, 2016; Rudenko et al., 2016) of this article have repeatedly written about the need for state support for the development the interaction of the state and socially-oriented non-profit organization.

At the same time, the researches of the mentioned authors concerned certain aspects of ensuring the transport accessibility of low-mobility groups in specific regions or specific services. Within the framework of this study, a broader problem was posed and solved - to identify the most common problems of the distribution of the "Social Taxi" service in the Russian Federation and to determine ways of eliminating or minimizing these problems. The author's study confirmed the hypothesis that without the state regulation of the process of rendering the "Social Taxi" service, it is not possible to solve the problem of ensuring a single level of transport accessibility of low-mobility population groups in all regions of the Russian Federation, or at least a minimum permissible level.

5. Conclusions

The conducted research has allowed to formulate and describe the most common problems of providing transport accessibility of low-mobility population groups by providing the "Social Taxi" service in the Russian regions, and to describe the best practices in the dissemination of this service.

The measures proposed by the authors to improve the management of the introduction and development of "Social Taxi" services in the Russian regions will improve the social and economic efficiency and quality of services for disabled people, other low-mobility groups of the population, and fulfill the targets of the state program "Affordable Environment".

Identified as a result of the research, the main problems of ensuring transport accessibility of low-mobile groups of population through the provision of the "Social Taxi" service, as well as the proposed measures for the development of this service can be used both at the regional and federal level in developing a set of measures to ensure transport accessibility of low-groups of the population both in the Russian Federation and in other countries.

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