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The Shortage of vehicle parking spaces in Tashkent city

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ABSTRACT

One of the problems which urban policymakers come across is the shortage of car parking places in a different part of the city. The current policy paper relates to identify possible causes of shortage and provide a possible recommendation that can solve the parking challenges. Furthermore, the policy alternative is evaluated based on the five main assessments that help in the decision-making process.

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Toshkent shahrida avtomobil to‘xtash joylari tanqisligi

Kalit so‘zlar:
Avtomobil to‘xtash joylari
tanqisligi,
Iqtisodiy holat,
Avto to‘xtash joylariga talab
va taklif,
Shaharsozlikdagi
qiyinchiliklar,
Avtoturargohlar
qurilishining narxi.

ANNOTATSIYA

Shaharsozlik sohasida faoliyat olib boruvchi mutasaddilar duch keladigan muammolardan biri – shaharning turli hududlarida avtomobil to‘xtash joylari yetishmasligidir. Mazkur maqola ushbu muammoning yuzaga kelish sabablari tahliliga va uni bartaraf etish bo‘yicha mumkin bo‘lgan tavsiyalar ishlab chiqishga qaratilgan. Shuningdek, taklif etilayotgan yechim qaror qabul qilish jarayonida muhim ahamiyat kasb etuvchi beshta asosiy mezon asosida baholab chiqiladi.

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Дефицит автостоянок в городе Ташкенте

Ключевые слова:
Дефицит парковочных мест для автомобилей,
Экономическое положение,
Спрос и предложение на парковочные места,
Проблемы городского планирования,
Стоимость строительства парковок.

АННОТАЦИЯ

Одной из проблем, с которой сталкиваются специалисты в сфере градостроительства, является нехватка автомобильных парковочных мест в различных районах города. Настоящая статья направлена на анализ причин возникновения данной проблемы и выработку возможных рекомендаций по её устранению. Кроме того, предлагаемое решение оценивается на основе пяти основных критериев, имеющих важное значение в процессе принятия решений.

INTRODUCTION

The increasing role of cities in the development of society has been observed throughout the history of humanity. Especially in the XX century, it began to develop rapidly both vertically and horizontally. New peculiar features have appeared in quantitative, qualitative forms and their territorial development. The capital of Uzbekistan is Tashkent city which involves itself more than 2 and a half million people (exactly 2,554,900) according to the statistical information of 2019 and can be considered as an example of development. Based on the statistical data, the transport of Tashkent city consists of approximately 500 thousand (exactly 494.403) million in 2019. Nowadays, as the population and transport owners of Tashkent city continue to increase rapidly, and it will appear some challenges to implement massive projects, in using lands of Tashkent effectively, as well as take effective measures to provide comfortability for the residents of a city in city's road.

The current policy paper's objective is to identify the causes of parking lot shortage, as well as the advance of policy recommendations to implement for improving the availability of parking areas according to the secondary data obtained. Apart, the policy paper concentrates on the analysis of the international practice that relates to the objectives of the paper.

Furthermore, the question arises, why is it so important to use the land for car parking purposes and the solving the infrastructure problems? Each people use the vehicles for different aims such as personal or organizational, servicing, delivering goods or people, etc. It means that transportation and infrastructure can be considered as an integral part of daily activities for the population of the city. It has an important vital role in social life and the existence of compatible lands for parking of transportation and infrastructure situation has to be considered in the current period. The sustainability of transport such as owning personal or organizational vehicles can be assessed by several economic, social, and environmental indicators. Unfortunately, the existence or absence of suitable parking places and lands for the number of vehicles and the current infrastructure problems in capital relate to the scope of urban planning and management. Nowadays, the increasing of transportations will significantly impact to both effective usages of lands and the cities infrastructure.

General overview about land usage for parking purpose in Tashkent city

The economy and social environment of the country have developed significantly over the previous decade. Based on statistical data in recent years, the production of vehicles has rapidly increased in the last 5 years and the economic reforms for

purchasing transports by population was provided transparency. The measures in improving the vehicle trade relations and sustainable developments have an important vital role in increasing the number of transports in Tashkent city. The 17 national sustainable goals were adopted in 2018 in order to identify the challenges and applicable solutions in Uzbekistan. These goals mainly focused on sustainable research that is water usage in areas, gas emissions, etc. However, the effective usage of lands for parking purposes is not investigated in practice that has not only negative effects on the natural environment but also inconveniences from urban perspectives in the city. Based on the Cabinet Ministers Decree "On measures to implement national goals and objectives in the field of sustainable development for the period up to 2030" it should be noted that this decree is a motivation for providing safe and affordable transport systems by 2030. For this reason, effective land usage for car parking purposes should be considered by local public administrators in improving convenience for the capital's population. Tashkent city is situated in an area of 334.8 km^2 and administrative territory divided into 12 districts except for the district of Yangihayat that was newly established based on the President's decree in November 2020 (Table 1) [1].

Table 1.

Administrative division of the city of Tashkent

Name of the district	Area, *ha*	Population, thousand people
Almazar district	3378	364.9
Bektemir district	2138	33.6
Mirabad district	1672	139.4
Mirzo-Ulugbek district	3617	279.9
Sergeli district	4893	179.45
Uchtepa district	2820	272.5
Chilanzar district	3043	238.4
Shaykhantakhur district	2717	340.9
Yunusabad district	4106	336.9
Yakkasaray district	1400	122.9
Yashnabad district	3715	235.2
Yangihayat district	N/A	N/A
Tashkent city	33500 (except Yangihayat)	2554.9 (except Yangihayat)

Car parking is one of the important challenges in the activity of urban policymakers not only in developed but also in developing countries. The increasing number of car ownership will lead to suffering from lack of parking lands that appears the imbalance of car parking availability. Due to the ineffective planning of land usage and incorrect calculations in urban planning, the car parking problem will arise in cities.

As the temp of economic condition for involving vehicles in city's population is becoming more and more sustainable the need of additional car parking lands is more and more relevant nowadays. The statistical numbers show that the 140 open and closed parking areas were constructed in a total capacity of above 27.400 cars and the expansion of parking lots shows 6.9 % in 2015 [2]. The governmental actions in 2017 were based on increasing additional 20 parking slots through the elimination of

private garages in the streets of houses, flats, etc. It had to provide a total area of 25.6 hectares with the 8470-vehicle capacity. Unfortunately, the objectives were not fully achieved even the private garages were demolished [3].

Table 2.

The length of roads and the area of open parking lots in the districts of Tashkent

Name of the district	Area, *ha*	The parking area, *ha*	The length of the streets, *m*	Length of streets with two-way landscaping, *m* (share of the total length, %)
Almazar district	3378	20.1355	420 305	117 397 (27.5 %)
Bektemir district	2138	12.7165	271 358	68 995 (26 %)
Mirabad district	1672	10.5139	207 530	54 787 (26.4 %)
Mirzo-Ulugbek district	3617	20.5281	448 951	122 561 (27.3 %)
Sergeli district	4893	30.7755	609 351	161 478 (26.5 %)
Uchtepa district	2820	17.5641	350 017	96 334 (27.5 %)
Chilanzar district	3043	19.5105	380 804	98 247 (25.8 %)
Shaykhantakhur district	2717	15.9223	354 243	93 166 (26.3 %)
Yunusabad district	4106	26.1738	524 864	133 315 (25.4 %)
Yakkasaray district	1400	8.4201	158 768	39 692 (25 %)
Yashnabad district	3715	24.2385	431 857	120 920 (28 %)
Yangihayat district	N/A	N/A	N/A	N/A
Tashkent city	33500 (except Yangihayat)	206.4983(except Yangihayat)	4 158 48(except Yangihayat)	1 106 892 (26.6 %) (except Yangihayat)

The table shows that the total area of open public parking is 206.5 hectares (2.065 km^2), while the area required to accommodate 494.403 cars available in Tashkent is 6.2 km^2. The occupancy rate of parking lots was investigated by daily monitoring of 113 parking lots at different times of the day (morning, afternoon, evening) for 1 month. According to the results of observations, it was found that the degree of filling public parking reaches 100 % only in the daytime, not exceeding 20-30 % in the morning and evening hours. At the same time, the yards of residential buildings and roadsides of small streets are filled with cars, making traffic difficult and creating danger for pedestrians [4].

METHODOLOGY

An essential part of each study is the choice of a proper method of data collection, the data collection process, as well as the description of the incentives. In this policy paper, the combination of qualitative and quantitative approaches was used that helps to bypass some limitations that can appear in using only one method. However, the data of current policy paper was obtained from the extensive literature that relates to the objectives of paper.

The secondary data which shows the statistical numbers and quantities of car ownership, concepts, numerical and graphical illustrations have to be taken into consideration. The statistical data for the paper was gathered through governmental and international sites as well as scientific journals and articles that provided the needed information.

However, the following causes can be considered as limitations of current policy paper. First of all, the absence of primary resources such as interviews, surveys, etc from professors or organizational servants could not be organized because of the quarantine restriction in Uzbekistan. Secondly,

The policy paper consists of four chapters. The first chapter includes the introduction and methodology as well as the general overview of land usage for car parking in Tashkent city. The second chapter highlights the problem description part that illustrates the nature of problem and appropriate governmental actions. Chapter three mainly focuses on policy options contributing to the solution of the problem. Moreover, each of the policy alternatives was evaluated according to five main assessment criteria in it. The final chapter concentrates on the major findings of the study and offers a set of policy recommendations.

Problem description

The low quantity of car parking areas in the centre of city

Each person in society prefers to own a personal vehicle for a particular purpose. However, it has negative impacts not only on the environment but also on people themselves. Because nowadays one of the main problems which are transportation has to face is the reducing of free areas for parking in cities. Based on analysis of statistical data, the number of vehicles exceeds the average quantity of space needed for parking. Like modern foreign cities, constructing areas with high buildings in the parts of Tashkent city is one of the main issues that have a significant impact to reduce free space that can be used for parking. As proportionally to the number of buildings it demands the available road network, increasing the parking areas and transportation enterprise instead of decreasing free spaces. The parking challenges in cities appear because of the imbalance between the supply and demand of car parking. It means the number of parking demands exceeds the quantity of parking supply. This imbalance can be a result of the following causes.

First of all, the historical or old buildings which are situated in the central districts of Tashkent city such as Almazar, Yunusabad, Uchtepa districts are incompatible with car parking. Especially, in the district of Almazar buildings are situated near to each other and the streets are narrow that impossible for parking. From urban perspectives, the density of old buildings shows quite a higher percentage than newly constructed buildings. It means that one of the reasons for the imbalance number of demand and supply of car parking is the density of streets or old buildings in some parts of Tashkent city. As the temp of production and purchasing vehicles is increasing rapidly, that kind of narrow streets or old buildings might not accommodate itself all types of transportation based on the capacity of them.

Secondly, the giving free space for constructing of new buildings will bring itself the reduction of lands for car parking areas in the centre of the city which has a high concentration of daily activities. Because the ownership of vehicles by governmental and commercial organizations' staff is the main cause of that concentration. Especially, it can be observed in the Mirzo-Ulug'bek and Yunusabad because the majority of governmental organizations are situated there. Based on an analysis of literature the vehicle parking exists in three forms that are on-street, off-street, and car parking lifts [5].

Thirdly, one of the reasons for the difference in supply and demand of parking quantity is the incorrect number of vehicle owners in districts that leads to the wrong result. Because the demand and supply of parking areas are based on the number of

vehicles. For this reason, parking lands should be constructed with proper data which involves itself expected rate of car owners. Additionally, it should be noted that the rate of income of society has a vital role and should be taken into consideration. Because for the activity purpose these classes use the vehicle based on their will.

Lastly, illegal activities such as providing free areas for some purpose based on money reward can be considered as against the law. Because each free area is directed to a particular city planning such as children playground or car parking. Furthermore, some construction companies will change the construction of specific floors that include the garages in the low level of building It means that the corruption and failure of carrying out the construction on the basis of the contract can be considered as causes of the imbalance car parking. In other words, the gross violation of construction planning and zoning requirements are the basic reason for imbalances.

Policy options

Based on the previous chapter, it can be argued that Tashkent city faces one of the urban planning challenges especially parking lots that should be tackled properly. This chapter of the policy paper mainly focuses on solutions to the problem presented in the previous chapter.

Construction of underground vehicle parking lifts

Based on analysis of the current situation the system of vehicle parking is based on the previous century system that should be modernized in the terms of urban policy. In order to solve the current policy paper's problem, it would be considered the measures of quality and quantity. The current parking lots in Tashkent city relate to the quantity that can be groundless in the centre of city. However, *the construction of underground vehicle parking lifts* has a positive impact on urban design and can solve the parking lots challenges in the city. Based on the foreign experiences this policy option plays a vital role in solving parking issues. Furthermore, the policy alternative can provide convenient opportunities for car owners and suitable for environmental requirements such as security, safety walking. Because parking lifts can save from accidental natural damages, thieves, transport accidents, etc. It has many positive impacts to solve the policy paper's issue.

On the other hand, it would be evaluated for a subsequent policy decision. The evaluation criteria are performed in terms of the five main commonly used criteria, which are *effectiveness, efficiency, equity, implementability / feasibility, and flexibility / improvability*. It should be noted that the above-mentioned results and opportunities can be considered as the effectiveness of the policy option. However, the policy alternative can be against to efficiency criteria because the cost of constructing this type of parking lot will exceed the benefits from it. For this reason, the construction of lifts can be difficult in some parts of Tashkent city such as in the old part or past the subway line, etc. Fortunately, in the terms of equity and feasibility criteria, the policy alternative is fairly the cost and benefits distributed among all stakeholders and the developed cities have already successfully implemented the type of lifts. Considering the terms of flexibility, the construction of underground garages has weaknesses that cannot be transformed that appear issue in improvability. Overall, the advanced policy alternative has advantages and disadvantages that should be tackled with additional data.

Shrinking the length of parking line and initiation of smart parking

One of the possible policy alternatives is *shrinking the length of parking lines and initiation of smart parking* system in the three forms of parking lots. It would be better to determine the possible width and height of vehicles and locate them separately based on the

types. In the one part of parking, land should be constructed for SUV's type of cars. It means that marking parking lines according to the type of car will prevent overcrowding in lots and provide free space. Furthermore, the special application will be installed to the navigation of vehicles, phones that show information of free parking place and the system includes itself sensors. The driver can manage places for parking. Modern software and technologies can help the drivers in economizing an amount of fuel that has negative impacts on the atmosphere. Furthermore, it will help to decrease the traffic congestion in city road and find the near parking lots for driver's destination. In other words, the management of places and modern technology can help to meet parking demands.

Based on the above, it should be noted that the effectiveness of this policy option can be considered as the correct management and utilization of parking lots. Furthermore, the policy alternative can be for efficiency criteria because the cost of equipping cars with special technology and remarking will not exceed the benefits. Fortunately, in the terms of equity and feasibility criteria, the policy alternative is fairly the cost and benefits distributed among all stakeholders and the policy alternative can successfully be implemented in life. Considering the terms of flexibility, the shrinking length of the parking line cannot appear the challenges in improvability. Overall, the advanced policy alternative has advantages in all five main assessments.

Conclusion and recommendations

Including vehicle parking near buildings or offices has a negative impact on urban design. As the car parking demands the free places it will force to construct buildings far distance each other. However, it will make the walking to get bus station, markets, and another place difficult. In other words, solving parking problems in the city will appear another social inconvenience for society. Furthermore, the facades of buildings and city road planning will be changed by the impacts of vehicle parking places. It means that the increasing parking places will instead of the pedestrian or bicycle ways. For these reasons, the parking challenge can be considered as a harmful land usage in urban policymaking. The major purpose of the current policy paper is to identify the existence of vehicle parking in Tashkent city as well as providing effective policy alternatives.

Based on the analysis and synthesis, the urban policymakers should consider the vehicle parking needs to prevent the natural harmful and traffic challenges that appear because of incorrect calculation urban planning. For this reason, it would be better to advance ***the shrinking the length of parking lines and initiation of a smart parking*** system that can help to economize the place of parking lots. The distribution of places for the vehicle types provides additional free space for parking. In other words, the management of land allocation for parking purposes should be modernized. Because the urban planners should accept that the parking structure is a land use and should improve the appropriate condition not only for the drivers but also for other classes.

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