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PROSPECTS OF BICYCLE-SHARING IN URBAN TOURISM IN THE REPUBLIC OF KAZAKHSTAN: MYTH OR REALITY?

Summary. In this article the global trends in bike-sharing are revealed. In particular, a brief review of the emergence of and improvement in bike-sharing systems and the number of countries who have introduced bike-sharing, as well as the size of the bike park in various countries, are revealed. The features of the bike-sharing systems adopted in Spain, the Netherlands, and Denmark are considered. The bike-sharing system in the capital of Kazakhstan is shown, revealing the problems faced by the cycling infrastructure in the country. As seen in other countries, the concept of luminous bike paths designed with national patterns was developed, which were planned to be located in parks in the cities of the republic. This project is expected to enhance tourism in the region.

For Kazakhstan, research into bike-sharing is particularly relevant, but lack of suitable cycling infrastructure, inadequate statistics, and inadequate literature on the topic obstructs comprehensive research into the problem, due to which there persists a logical question: is the bike-sharing system in the urban logistics of Kazakhstan a myth or an approaching reality?

1. INTRODUCTION

The process of cycling transport is universal. There is no clear-cut path to promote cycling as a means of transport, or the system of bicycle-sharing [1, 230-232]. European governments stress on a wide range of measures involving various spheres of policy developed through intensive dialogue with local authorities. The choice of transport in western society is now largely driven by increasing environmental consciousness. The government of each country work under the premise that their adult citizens take conscious, responsible decisions when it comes to personal transport [2, 283-284].

Currently, in most developed countries, the number of bicycles owned by the population, as well as the number of kilometers covered by cycling, is significantly increasing. In a majority of developed countries, the pace of bicycle transport development exceeds that of automobile transport [3, 327]. It is noteworthy that 4.5 million bikes are sold annually in Germany. This growth is due to the benefits of bicycle transport, its environment-friendly nature, and the relatively low investment, complemented by significant progress in road infrastructure for bicycle transport, as well as the increasing awareness about pursuing a healthy lifestyle [4, 9-13]. Further, the improvement in the quality of life and health of the population of developed countries correspond to the average rate of growth of carriage volumes by bicycle transport; these data exceed the rate of growth in carriage volumes of other means of transport [4, 686-688; 5, 59-60]. Wide use of bicycle transport and bike-sharing systems resulted in changes in several sectors of the economy and in the social sphere, in town planning policy, recreation, and in other aspects of public life. The concept of cycle transport is spreading rapidly. Currently, in most developed countries such as Germany, the number of carriages fulfilled by bicycle

transport reaches 40% of the total number of passenger carriages [6, 296].

Bicycle transport has several benefits. It provides mobility without distinction by age and income; it promotes good health; it does not involve considerable expenditure and hence is economical and environmentally friendly, it does not produce noise and does not require large spaces for movement and parking [7, 73–74].

The fascinating prospect of bicycle travel makes cities attractive to tourists. In addition, bicycle transport development increases job opportunities in the bicycle industry, in trade and in various spheres of services associated with bicycle traffic, and thereby supports small- (often family) and medium-sized businesses.

Infrastructure for bicycle traffic is not well developed in Kazakhstan, which makes widespread use of bicycles impossible. Lack of bicycle traffic in Kazakhstan prevents the development of a culture of active bicycle use as a means of transport by the population of the country for carriage of passengers and as a form of public transport. City designs also conflict with the practice of this culture: bicycle paths cannot be easily designed and constructed because their design was not a part of the original design process of cities and roads; there are no facilities for bicycle storage and parking spaces, and technical means of traffic management are not suitable for bicycle transport.

Therefore, the concept of bicycle-sharing was not studied. In the current context, the study of the present trends in bicycle-sharing in city tourism becomes very relevant to Kazakhstan.

2. WORLD TRENDS IN DEVELOPMENT OF THE BICYCLE-SHARING SYSTEM

Bicycle-sharing is the system of hiring, usually on a non-commercial basis, a bicycle from one of the automatically controlled stations, going on a journey, and returning the bicycle to any rental store located in the city. Such programmes exist in many European and North American cities [8, 195–196].

The bicycle-sharing system has developed rapidly in the past ten years; previously, it was an interesting experiment that increased the mobility of the population, and later it became a means of municipal transportation in large and complex cities like Paris and London. Thirteen years ago, there were only six systems, working in six countries: Denmark, France, Germany, Italy, Norway, and Portugal. The largest of them, including 2000 bicycles, was in Copenhagen. Today, as it is shown on the map below, there are approximately 639 such systems operating in more than 53 cities, and the total number of bicycles is about 643,000 [9, 160–161].

The graph below (Fig. 1) shows how rapidly bike-sharing systems have emerged, keeping ahead of any other forms of urban transport. This is particularly true for China, where only two such systems with 2700 bicycles were in place in the year 2008 compared with 124 such systems today; the total number of bicycles in these systems is 753508, and the figure is more than 2/3 of all bicycles used in bicycle-sharing systems in the world. The largest system of bicycle sharing, consisting of 20 000 bicycles, existed in Paris in the year 2008. Five years later, the Chinese city of Wuhan took the lead with about 90000 bicycles being used [10, 229–230; 11, 403–406; 12, 126–128].

Bicycle-sharing systems are not just attractive; they are adaptable to different types and sizes of cities. Bicycle-sharing systems exist in metropolitan cities and small towns as well, with bicycle parks accommodating not more than 50 bicycles. The largest bicycle-sharing systems are in Italy (102 cycles) and Spain (111 cycles) [13, 239–241].

The fourth generation of bicycle-sharing system, prevalent today, is highly innovative – specifically with regard to the availability of mobile and solar docking stations, provision of electric bikes, and the facility to use mobile phones to receive information about available bicycles. Emergence of electric bicycles has contributed considerably to the development of bicycle-sharing systems in urban areas, as such bicycles are attractive to elderly people. Advertising companies play a small role in popularizing the fourth generation of bicycle-sharing systems. Various commercial enterprises have entered the fray: for example, PSBC Urban Solutions is a spin-off company that manages parking in Montreal. This company was involved in the establishment of bicycle-sharing systems in London and New York. In Russia, for example, bicycle-sharing has spread only in Moscow

and Kazan. In St. Petersburg, the project of public bicycle hiring is at the stage of discussion and planning, as reported by velomesto.ru.

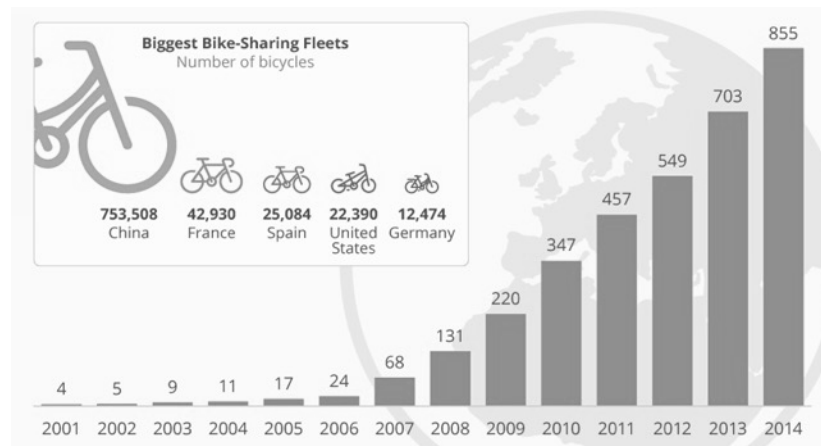


Fig. 1. Number of cities worldwide that offer bicycle-sharing systems

Astana is the only city in Kazakhstan that was actively involved in the bicycle-sharing system; Almaty has begun to construct stations gradually.

As already mentioned above, modern bicycle-sharing systems have advanced. For example, designer Jung Tak has created a whole system of T-Bike sharing, especially for Seoul, focused on the problem of lack of parking places in the city. This unique system includes dedicated parking spaces for bicycles, electric transport for bicycle redistribution, and a special software for smartphones to enable access to bicycle transport, as reported by econet.ru.

3. DEVELOPMENTAL PECULIARITIES OF THE BICYCLE-SHARING SYSTEM AS THE FORMATION SYSTEM OF BRAND OF TOURIST TERRITORIES IN DIFFERENT COUNTRIES OF THE WORLD

For the analysis of bicycle-sharing systems, 3 regions were chosen – Spain (Barcelona), the Netherlands (Amsterdam) and Denmark (Copenhagen).

Spain. The “Bicing” bicycle transportation system began its official work on March 22, 2007. This project was started by Americans in Rennes (France) in 1998, and then in Norway (Oslo, Bergen, Trondheim) and Stockholm (in Sweden), as well as in Singapore, as reported by letsbikeit.ru.

In Barcelona, the initial budget was 1.6 million euros, while the total cost of the ten-year programme was 22.3 million euros.

At first, 14 parking places with specially designed red–white bicycles appeared in the center of Barcelona. These bicycles were light (an aluminum and steel composition was used for their construction), had adjustable seat heights, had three speeds and had a convenient luggage carrier above the front wheel; thus, they instantly won the appreciation of the locals, which was also in part due to a well-designed educational campaign [14, 155]. The urban bike soon became a phenomenon. By July 2007, the number of parking places had increased to 100, and the number of bikes to 1500. Promotional prices for a new service attracted 80 million subscribers in the four months, with an average number of about 1000 people per day. Taking into consideration the popularity and rapid consumption of this medium-priced, noiseless means of transport, the municipality decided to increase the number of parking places to 380 and the number of bikes to 6000 by the summer of 2008. These figures were four times greater than the figures given in the original plan [15, 472–473].

Fig. 2 Typical parking of bikes in Barcelona.



Fig. 2. A typical bicycle parking of the “Bicing” system (Near the Spain square, as well as the Ramblas Street)
Note: the authors’ photo.

After registering oneself on the city’s cycling system for a nominal monthly fee of 24 euros a year (during the promotions an annual pass could be bought for as low as 6 EUR), the participant receives their card by post, which gives them the right to an unlimited number of cycling trips. The cost of this annual card is lower than the total cost of four T10 cards (using a T10 card one can make 10 trips on public transport in Barcelona), and the sum of these four cards is insufficient for daily use throughout the month.

Each parking place designed for 10–15 bicycles is equipped with a special terminal. One can see the number of available bicycles on the display of this terminal. If all bicycles are busy, and there are no available bicycles in this parking place, the display shows information on the nearest parking places where one can find available bicycles. This information can be received online on the system’s site [16, 77–81].

Fig. 3 reflects the map of Bicing stations, and all existing and planned bicycle roads are marked on this map [17, 549].

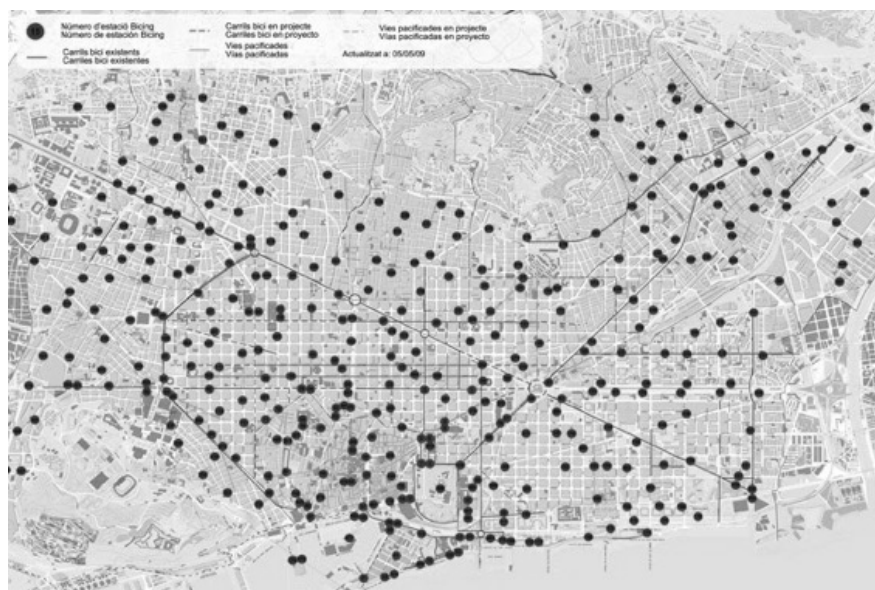


Fig. 3. The map of Bicing stations in Barcelona

It is also important to note that there are well-developed bicycle infrastructure, traffic lights, and traffic signs strictly reserved for bicyclists in Barcelona. Fig. 4 illustrates a typical bicycle path with a dedicated traffic light [18; 1080–1082].



Fig. 4. The bicycle path with a dedicated traffic light in Barcelona (Near the world-famous monument of Antoni Gaudí “Sagrada Familia”). Note: the authors’ photo

City authorities also promised to add 22 km to the existing 128 km of bicycle roads and further bring the total length up to 200 km, though Barcelona’s “diameter” is only about seven km.

The French company JCDecaux, almost simultaneously with a similar system of urban bicycles “Sevici” organized in Seville, implemented similar projects in Gijon and Córdoba in Spain. An allocation of 1500 bicycles for 1.6 million residents was planned in Barcelona, and 2500 bicycles located in 250 stations to 700 thousand people in Seville. However, the programme failed from the start: only two bicycle stations with 20 bicycles were opened during the promotional period from April to July; these stations worked strictly according to traditional office schedule and not round the clock. Perhaps the company failed to pay due attention to the Andalusian city, because, at the same time, it launched an even more ambitious project in Paris, where it was planned to present 20600 bicycles located in 1450 stations to 2 million city residents by the end of the year 2007 [19, 96–99].

Barcelona must undoubtedly be considered a role model for implementation of bicycles in the system of municipal public transport.

Netherlands. “The Copenhagenize Company published a ranking of cities with the most well developed bicycle transport organization. Three of five places are occupied by the Dutch cities Amsterdam, Utrecht and Eindhoven, and this fact proves the leadership of the Netherlands in this field”.

Almost everyone has a bicycle in Amsterdam. From 8 years of age, citizens use this mode of transport for a variety of purposes ranging from traveling to work to walking their dogs.

Utrecht is very popular among tourists who cycle. This city is situated in the center of the Netherlands; it is one of the largest railway junctions of the country, but this fact does not affect its reputation as the “bicycle city”. About 313 thousand people live here, and almost 40 per cent of them use bicycles. Utrecht has tens of kilometers of bicycle roads, and a large number of parking places and rental stores. A bicyclist is a full-fledged and respected participant in the traffic. This makes Utrecht retain its leadership among small bicycling towns, which is primarily due to the large number of bicycle roads and parking places. The city was ranked 3rd, after Copenhagen and Amsterdam [20, 1246].

“Almost all highways in the Netherlands dubbed by bicycle roads. Specialized traffic lights regulate the intersection of car and bicycle roads. In addition, there is a network of bicycle roads, not

tioned to road. These roads are numbered and their intersections are equipped with stands. Most of the crossroads are circular interchanges, and bicyclists ride there having the priority right” (Business Sunrise, 2014).

The distribution of bicycles in the Netherlands is a part of state policy; it should be noted that 10% of all funds for above-ground transport are allocated to the development of bicycle transport. Special bicycle paths are established in cities; they are outlined with white lines or with some other dedicated color; there are convenient and ample parking places; everyone can take their bicycles in public transport. The total length of bicycle roads in the Netherlands is 15000 km. [21, 47–51].

Denmark. Denmark can be called the “country of bicycles” in Europe; the ordinary Dane notches 893 cycling kilometers per year. It is not an overstatement to say that, for the Danes, the bicycle is not a luxury but a means of transportation.

“Bicycle roads are kept in ideal order. The total length of ten bicycle roads of national significance is 3300 km; these bicycle roads of national significance are complemented by local roads. We can say that Denmark is the country of bicycles, and Copenhagen is the capital of the country of bicycles” (Teachpro.ru, 2014).

Copenhagen has 300 km of bicycle roads and 1000 municipal bicycles are made available to citizens for their trips within the city without any payment. Each street in Copenhagen has its own bicycle road. One can take a bicycle without any payment and for any term. A 20 krone coin is inserted into the automated banking machine near the bicycle counter and the bicycle is taken. After returning the bicycle to one of the 100 bicycle counters, the coin is returned.

In the near future a system of tax deductions for bicyclists will be introduced. GPS and GPRS fixed to the bicyclist’s helmet will signal the number of kilometers traveled by the bicyclist per day [22, 1156].

Recycle bins placed at certain locations, counters that calculate the number of bicyclists riding on a road for 24 hours and at all times, steps on which a bicyclist can place a foot and relax, and, of course, dedicated parking spaces for bicyclists are other measures that make the life of bicyclists comfortable.

Well-designed bicycle parking spaces are designated around the city; they can be considered an essential part of street design. All these aspects make obvious the fact that bicycles are an integral part of the transport system of the city.

4. ASTANA IS A PIONEER IN THE DEVELOPMENT OF THE BICYCLE-SHARING SYSTEM IN KAZAKHSTAN

From the excellent outcomes seen from the bicycle-sharing system in foreign countries, we can say that the implementation of such a system in small towns and cities of the republic of Kazakhstan will give new impetus to the development of a convenient transport system, which can also contribute to improving public health and attract tourists to these regions.

The “Astana Bike” bicycle renting station started its work in Astana on July 7, 2014. The bicycle stations are located in the central part of the left bank of Astana (coverage area is 13.5 sq. km); several of them are situated on the right bank of the capital at a distance of 300-500 m. They are solar-powered and at the end of the season (Oct. 31) they can be easily dismantled (Fig. 5).

The French company “Smooove” provides these bicycles; this company has implemented similar projects in cities of the Russian Federation, in France, in Georgia, in the United States, in Italy, and in the United Kingdom (Inform.kz, 2014).

The bicycle is a high-quality product that is adapted to the conditions of bicycle-hiring. The season ticket’s price is 5 thousand tenge (approximately 15 US\$), plastic card – 1 thousand tenge (approximately 3 US\$); however, all trips between stations up to 30 minutes away are free of charge. In case of exceeding the indicated period one has to make a time-based payment for the hired bicycle: 100 tenge for 1 hour (approximately 0,3 US\$), 250 tenge for 2 hours (approximately 0,8 US\$), and the third hour is 500 tenge (about 1.6 US\$), for each subsequent hour - 1 thousand tenge (about 3.2 US\$).

It was also planned that, subsequently, bicycle roads, parking places, and bicycle rental agencies would appear in Astana.



Fig. 5. Bicycle parking places of “Astana Bike” system on the Yesenberlin Street
Note: the authors’ photo

A master plan for the development of the main city guarantees the development of proper infrastructure for bicyclists. The number of amateur bicyclists among Astana citizens increases every year. Some of the citizens cycle for fitness and health; others cycle for leisure; and for some the bicycle is a means of transport.

The latter group is very small. In fact, it is one thing to ride to your holiday cottage or in the neighborhood park, but quite another to cycle to work navigating traffic every day. However, the simplicity, safety, maneuverability, and low cost of this kind of transport influence the popularity of bicycles in contemporary Astana. Bicyclists can become full-fledged participants of traffic if we can resolve infrastructural and cultural problems.

Incidentally, the right to be called a vehicle is enshrined to the bicycle by law. It is too early to assess whether the bicycle can take the place of the car for the citizens of Astana, as it happens in many European and Asian cities. The car has a special place in the minds of our people. For many of them the car is not just a means of transportation, it is the reward of long-term work, and, essentially, an indicator of well-being. However, it should be borne in mind that the team of fans of pedal and environmentally friendly transport, nevertheless, is growing steadily.

The demand for bicycles is reflected in the sales reports of sports shops. 200 bicycles were sold in specialized sales outlets this year, and the same number of bicycles was sold in the markets. The most popular among the citizens of Astana are multi-speed walking bicycles; less often they buy mountain bikes and the bicycles for the stadium. The price of the “two-wheeled horse” is about 25–30 thousand tenge (approximately 75–90 US\$). Clients of specialized shops are ready to spend, on average, 100–125 thousand for bicycles. Cycling enthusiasts often apply to rental agencies. There are no statistical data on bicycle rental agencies; however, there are five or more bicycles rental agencies near the municipal park and in the alleys around it.

The start of the domestic production of bicycles is evidenced by the popularity of bicycling. Throughput of the constructive and designer bureau working under the brand “Nomad” allows the production of up to 25 thousand bicycles per year. The manufacturer promised his clients a full update of the model range this season. Paying tribute to traditions and making Kazakhstan products recognizable in the market, the manufacturer decided to name sports bicycles after famous Kazakh racehorses.

According to the Kazakhstan legislation, you can ride a bicycle from 14 years of age and drive a moped from 16 years of age. However, many specialists emphasize the fact that a 14-year-old child hardly understands the dangers associated with bicycle riding and hardly has the psycho-physiological qualities for self-dependent trips in an urban setting.

In order to avoid conflicts between drivers and pedestrians, an “ideal” bicycle should move on a specialized road on the carriageway. Such a specialized road in Kazakhstan is in Almaty, and its length is about 2.5 km.

Certainly, the idea of separation of bicyclists from other members of the traffic has some potential drawbacks. For example, when there are no specialized tunnels and bridges for bicyclists, regardless of whether they move on the road or on the specialized bicycle road, bicyclists become participants of traffic at intersections.

Investigation into the administration of passenger transport and motor roads of Astana shows that up to 2030 bicycle roads with a total length of 74 km will be laid in the capital of the country. The master plan of Astana city approved by the Decree of the Government of Kazakhstan in 2011 provides these infrastructural changes in the capital. The project includes bicycle roads, as well as parking spaces, benches, and rental agencies. In addition, it was planned to construct a highway crossings at intersections where bicycle roads meet main city streets with a constant flow of traffic, and set up traffic lights and ramps. There are three types of bicycle roads: independent roads for bicyclists; bicycle roads that are a part of the public road and separated from the carriageway by a concrete guardrail or marking; and bicycle roads that are a part of the pavement and separated from the pavement by markings or a border.

In addition, it was planned to open special bicycle storage places where one can leave their bicycles while going on a trip. The framework of such large-scale tasks involved laying 4 km tracks that were laid in the year 2011 on Korgalzhyn road. Until the plans of urban planners are realized, bicyclists in the capital will have to rely on the accommodating behavior of drivers and pedestrians.

The relevance of the project is also confirmed by the proposed world exhibition, EXPO-2017, where, the experts prophecy, the “Astana Bike” will become very popular among visitors and guests of the capital, particularly given that the key topic of the upcoming exhibition is “Energy of Future”.

In general, despite all of the difficulties, the existing system of “Astana Bike” may be considered a striking example and an important step in the development of a campaign focused on the development of the bicycle-sharing movement in our country. The bicycle-sharing system should be an example for other cities in Kazakhstan, and authorities of the regions must try to look for an opportunity to implement such ideas in their cities and suburbs.

The system of automated bicycle rental “Astana Bike” was a part of the 12th Kazakhstan International Tourism exhibition “Astana Leisure”, which was held from the 24th of September to the 26th of September in 2015. This exhibition was visited by more than 5000 residents of and visitors to the city, who were educated on the achievements of the “Astana Bike” system.

150 bicycle stations with 1000 working bicycles were introduced in Astana in October 2015.

The procedure for subscription to urban bicycle rental was simplified for citizens and visitors (residents of the Republic of Kazakhstan) on September 15, 2015; now, one needs only an identity card.

Proof of address, a bank-card, or a reference from one’s place of work/school is not required during the card registration now. Using an SMS-code, tourists can hire a bicycle through the bicycle-hiring system. After registration on the site velobike.kz, one can choose the tariff and make an online payment. While registering, one has to mention one’s phone number and then an SMS is received, which has a password, which is then entered into the monitor on the bicycle and it can be taken out.

The launch of the Internet application “velobike.kz”, which is available for installation through Google Play and App Store, was a significant step for project realization.

The tariff and rules and regulations can be viewed by everyone and can be compared to the prices of “bicycle sharing” and «Astana Bike» systems: 150 tenge per day, 300 tenge for two days, 400 tenge for three days and 600 tenge for the week.

The “bicycle sharing” system in Astana holds different promotional events. For example, users with cards issued in September and October 2015 were exempted from subscription fees in the bicycle season of 2016.

Through such promotional campaigns, the bicycle-sharing system of the capital contributes significantly to making the country more attractive to tourists.

Certainly, the promotion of bicycling will contribute not only to a healthy lifestyle, but will also reduce traffic density, lowering the load on the traffic network and the development of urban infrastructure.

5. DEVELOPMENT OF THE BICYCLE-SHARING SYSTEM IN ALMATY: A SOCIAL PROJECT FOR THE SOUTHERN CAPITAL

Almaty is a city with complex infrastructure and it is impossible to change it in one day. However, changes still occur. In recent times, the number of bicyclists on the streets has increased noticeably. Certainly, we cannot say whether the level reached is comparable to that of European cities, or whether there is a real competition between bicycles and other vehicles, but the fact cannot be denied that there is an increasing interest in the bicycle (or bike, as it is popularly called) as a means of transportation.

According to the research conducted by GEF UNDP (Global Ecological Facility of the United Nations Development Programme) only 1% of the citizens of Almaty city ride bicycles. For comparison, in Copenhagen and Oslo, 85% of city residents travel around the city on two wheels. The absence of cycling infrastructure in Almaty has significantly complicated the day-to-day use of bicycles as the main mode of transport. The bicycle road network has not been developed, bicycle parking places are set up very slowly, there are no dedicated traffic lights, and there are no qualitative indicators and road markings for easier orientation.

It is important to note that the road network of the Kazakh metropolitan city did not originally include bicycle roads. Meanwhile, in Paris, the Mayor Jean-Claude Decaux began development of a bicycle road network in 2001. For example, the first bicycle road in Copenhagen appeared in 1910 (the first bicycle road was laid in Almaty at the end of 2010); now its total length is 390 km, and more than 40 thousand Danes use them. Moreover, the number of bicycles exceeds the number of citizens by 20 thousand.

Of course, the Scandinavian mentality is very different from ours: middle class families and members of political leadership use bicycles. According to the opinion of Paul Krasovitsky, a member of the initiative group “Velo-Almaty”, Almaty is well adapted for experienced cyclists but beginners may face problems. In addition, a majority of citizens are skeptical about bicyclists as participants of traffic, believing that there is no place for bicycles on the roads. Taking into consideration the hazards on the road and the improper behavior of car drivers, bicyclists are afraid to ride on the roads.

In 2010 the initiative group “veloalmaty.kz” and the community of bicyclists “velostan.kz”, collaborating with the Global Environment Facility, presented a project to the local authorities to construct bicycle roads totalling 110 km. The authors note that promotion of cycling was one of the aims of development of sustainable transport in the city. The objective is to increase the number of sustainable transport modes to 55 % by the year 2023.

Today there are only three bicycle roads in Almaty: cycling enthusiasts pursued the construction of the first bicycle road on the avenue of Abai in 2008; there are also two remote bicycle roads: along the Talgar route and along the Raiymbek Avenue and the Momyshuly street; however, these bicycle roads are little used.

Participants of the “veloalmaty.kz” demand the construction of about 500 bicycle-parking places in the city. The absence of convenient and safe parking areas also discourages people from using bicycles. The city already has about 100 bicycle parking places; most of them are not equipped with roofs, as reported by forbes.kz. They are located near universities, schools, sports shops, fitness clubs, and shopping and business centers.

This active lobbying made it possible to construct the first bicycle road with a length of 2.5 km three years ago. In addition, the group initiated measures focused on the support of cycling.

Therefore, in 2013 “Velo-Almaty” co-organized bike rides within the framework of the conference “Velocity 2013” and organized a bicycle march in honor of the week of sustainable mobility. Moreover, in September 2013 it launched the project “Veloshkola” (Bicycle riding school). The activities of the community “Velostan” are noteworthy. About 3500 people entered this community in two years. “Velostan” organized the bike ride in honor of the 15th anniversary of Astana in July; with the support of the Mayor of Almaty, Akhmetzhan Yesimov, Olympic champion Alexander Vinokurov and Ilya Ilyin it organized the bike ride in honor of City Day in September, and in October in collaboration with the International Cycling Union it organized “Tour Almaty – 2013”.

“The launch of two automated bike rental stations within the project “Almaty bike” was an important step in the development of cycling in Almaty. There are 30 places for bicycles. 16 bicycles may be parked at the automatic station located at the intersection of Abai Avenue and Baitursynov Street. The second station is located near the Sports Palace named after B. Sholak. There are 14 parking places for bicycles.

At the stations, you can rent a bicycle, make a trip and return the bicycle at any other station. Everyone can do it at any time” (Mygorod.kz, 2014).

As regards the financing of these initiatives, “Velo – Almaty” received significant sponsorship from the US State Department as well as from the United Nations Development Programme. One of the insurance companies continuously supports the projects of “Velostan”. However, the main part of the budget comes from the activists’ own funds.

While speaking about the prospects of development of cycling in the city of Almaty we should note that it was planned to open about 200 automated bicycle-hiring outlets in the southern capital.

Taking into consideration the experience of the Netherlands it will be interesting to set up illuminated bicycle roads with national decorative patterns in Almaty and Astana for familiarizing visitors, tourists and local people with the culture, art, and traditions of the Kazakh people. An example of such a bicycle road is presented in Fig. 6 [23, 143].



Fig. 6. The construction variant of illuminated bicycle road in Almaty and Astana cities

Note: the authors of the article designed an example of illuminated bicycle road

Nevertheless, while organizations of bicyclists and enthusiasts of bicycles exist, we can discuss the prospects of bicycle culture development: in the future, probably, we should wait for an increase in the number of cyclists on the roads of the southern capital.

6. CONCLUSION

Taking into consideration the global trends in the development of the bicycle-sharing system, we can note that cycling in Kazakhstan is characterized by the following distinct features:

1. The development of cycling as a mode of transport is extremely low.
2. Road infrastructure for cyclists is virtually absent, and its administration is poorly controlled. As a result, the bicycle road networks and the quality of bicycle roads do not meet the demands of bicycling.
3. The absence of legal structuring and a proper accounting system of subjects of bicycle transport system complicates the organization of the transport market, an objective assessment of the condition of the industry and targeted impact on the transport market, reduces the effectiveness of the decisions on the measures promotion or their restrictions, about the regulating of the

relationships between the participants of bicycle carriage.

4. Cycling infrastructure develops in cities of republican status, such as Astana and Almaty, whereas small towns are not given adequate consideration; thus, bicycle-sharing systems are not implemented there.

The main risks in the development of the bike-sharing system in Kazakhstan, which could potentially interfere with the outcomes, are: (1) investment risk – the probability of occurrence of unforeseen financial losses in a situation of uncertainty in investment conditions; (2) the risk of accidents involving cyclists; (3) the risk of breaking the bicycles – so we need to carefully prepare the bike for hire with the replacement of all broken parts to the new; carefully and competently operate the bicycle equipment, proceeding from the principle of prevention the repairs; (4) the risk of bike theft.

The main measures of state support for the development of bike-sharing in the Republic of Kazakhstan must be the following:

1. The state should implement a framework for the regulation of bike-sharing activities on the basis of a legal framework with the use of economic regulators, avoiding a departmental approach and considering the bike-sharing complex as a single transport complex state with all of its positive and negative effects.
2. The most important task of the government's economic policy in the near future should be the development of an infrastructure for the bike-sharing system with the adequate traffic growth and the load on the roads.
3. During the implementation of the state cycling policy, by ensuring the operation and further development of the industry, a clear delineation of the roles of national, regional, and local transport, depending on the level of problems to be solved, is required.
4. It is necessary to develop an optimal policy in bike-sharing production in Kazakhstan and to implement the repair of bicycle equipment, including the implementation of “company” service on bike-sharing enterprises, without resorting to using products from foreign manufacturers.

As a result, the project (optimistic forecast) will significantly increase mobility (transport mobility) of the population due to massive use of bicycles. Tourists will be offered sightseeing tours on bicycles. In the future, it is expected to start using cycling routes for the development of Segway excursions. Information on the most interesting sights of the city will be posted on the official website of the project, and made available through QR-codes. Also, the mobile application will be developed, which will show bicycle-parking locations and how many bikes and free spaces are available at bicycle parking lots.

In case of non-realization of the project (a pessimistic forecast), the roads will continue to be overloaded with automobile traffic, the condition of the environment will deteriorate, and the number of people actively involved in cycling and hiking will reduce.

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