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The relevance of atmospheric air monitoring in the tourist strategy of Paris: best practices for Kyiv

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SUMMARY

Sustainability criteria of tourism development defined by the Global Sustainable Tourism Council are recommended to be used for elaboration of requirements for policy documents for tourism development at all levels of management. As France is a world leader in sustainable tourism and Paris is one of the most visited tourist destinations in the world, studying its best practices can be useful for implementation in Kyiv. The analysis of the Paris Tourism Development Strategy until 2022 confirmed that the authorities of the capital and leading experts in the field of tourism in France attach great importance to the promotion of sustainable tourism. The priority principle is the development of tourism in the framework of preserving the quality of life of the local population, as well as maintaining social, economic and natural balance. As transport is one of the biggest polluters of the atmosphere, in order to solve this problem in Paris, a scientific approach is used. In particular, not only the state of air quality and traffic flows of the city is monitored, but information is analyzed and systematized and specific recommendations are worked out for the city authorities, in order they could make specific decisions. Thus, the policy of Paris has good results, because according to the World Report on Air Quality in the Cities of the World, we can see a slight but stable improvement in air quality in the French capital in recent years.



Introduction. France is a powerful receptive tourist market in the world. According to the World Tourism Organization (UNWTO) France remains the world tourism leader in 2019. The number of foreign tourists who visited this country in 2019 amounted to 90.2 million people, that is a third more than the population of the country. According to the research of the independent company Euromonitor International, 19.1 million tourists visited Paris, that takes the sixth place in the world ranking of the most popular tourist destinations (2019). According to the ranking of the best European destinations for travel in 2020, published by the European Best Destination portal, according to the results of the tourist voting, Paris entered the top-10, taking 9th place. However, such level of development of mass tourism definitely causes a number of problems for the environment. As transport is one of the biggest polluters of the atmosphere, the principles of ecological transport infrastructure are important for the sustainable development of tourism in the capital of France. As far as Paris has long been engaged in solving this problem and has some positive results, its experience can be useful for Kyiv.

Method and theory. One of the criteria for the sustainability of tourism, defined by the Global Sustainable Tourism Council (GSTC), is to maximize the benefits for the environment and minimize the negative consequences. These criteria are recommended for using by tourism management organizations. For example, they should serve as a starting point for developing requirements for sustainable tourism programs for public, non-governmental institutions and the private sector. A monitoring system demonstrates effective sustainable management in a tourist destination. Several indicators for its evaluation have been proposed, in particular, active monitoring and public reports on the environment (Global Sustainable Tourism Council Criteria, 2013).

This research had three stages: 1) preparation of the study (problem statement); 2) collection of primary information (analysis of scientific sources (monographic, periodical, cartographic, materials of the Internet)); 3) information processing (comparative, statistical, graphic method, systematization); 4) analysis of the received information (interpretation of the results, formulation of the general conclusions). Results. Currently, the development of tourism in Paris is carried out in accordance with the Strategy for the development of tourism in the city. The development of the document was initiated by the mayor and it was developed for 15 months by professionals in the field of tourism in Paris. The implementation period is scheduled for 2022. The strategy has 59 points, which can be grouped into 4 sectors: 1) updating of the tourist offer of Paris; 2) improving the quality of tourist reception; 3) promotion of sustainable tourism; 4) investment in infrastructure and effective promotion methods.

1. Updating of the tourist offer of Paris. The purpose of this sector is to show the benefits of the tourist program of Paris, as well as acquaint tourists with new tourist places and routes. Among the planned actions are the promotion of the nightlife events, creation of new tourist areas, strengthening the tourist potential of the Seine embankments and opening of new parks.

2. Improving the quality of tourist acceptance. It is planned to improve the accepting system tourists by the city authorities of Paris, in particular, conducting tours in the native language of tourists.

3. Promotion of sustainable tourism. Paris is a home for 11.1 million people, so developing of tourism is especially important while maintaining the quality of life of the local population, as well as maintaining social, economic and natural balance. To achieve these goals, the Strategy provides some measures in accordance with environmental policy, analysis of the existing tourism infrastructure and its impact on the Parisian ecosystem. Particular attention is paid to the development of tourist mobility, improving the quality of public transport and encouraging tourist mobility by public transport.

4. Investment in infrastructure and effective promotion methods. This sector involves the application of innovative technologies in the field of tourism, investment in accommodation and transport infrastructure (Stratégie Tourisme 2022 Plan d'actions - Mairie de Paris, 2017).

The regulation of tourism development in the context of sustainability is one of the most important question for France. In Paris, 44% of emissions of harmful microparticles are from transport (data from the AirParif laboratory). According to French health professionals, air pollution is one of the main causes of premature mortality in the local population. During the peak tourist season, the damage of the health of Parisians is equivalent to "burning 183 cigarettes a year."



In the IQAir ranking of the countries with the most polluted air in 2020, France ranked 20th in Europe. About 600,000 vehicles run in Paris every day. The mayor's office is trying to control the heavy traffic through the introduction of various measures. For example, back in 2015, trucks and buses manufactured until October 2001 were banned from entering Paris. The next step was to restrict (since July 2016) the entry into the city of cars that are over 20 years old. In the same year, the French Ministry of the Environment introduced a system of special environmental coupons for cars and owners of two-wheeled vehicles. Authorities have provided six-color coupons and fuel-powered vehicles were divided into five classes according to the level of harmful emissions. Since January 2017, new rules prohibited the entry of cars with high levels of harmful emissions during peak hours of air pollution in the city. All vehicles for travel through Paris must have a ticket with the specified "environmental class" of the engine. Violation of the ban or lack of a coupon is subjected to a fine from 22 to 135 euros. Thus, the new system allows the authorities to impose temporary restrictions on entry to the capital and nearby suburbs of cars with high levels of harmful emissions. In 2017 French environmentalists demanded to strengthen the existing state system of financial motivation for the purchase of electric cars and cars with a hybrid engine (assistance in the transition from diesel to electric car is 10,000 euros, and from diesel to hybrid is 3,500 euros). Such a special system of discounts has facilitated the transition of more than 40% of motorists to environmentally friendly vehicles.

It is worth noting that such policy of the city authorities of Paris has good results, because according to the World Report on Air Quality of World Cities, we can see a slight but stable improvement in air quality in the French capital (see Table 1). The improvement in air quality in Paris in 2020 is linked to a reduction in vehicle traffic and the cessation of mass tourism due to the situation with COVID-19.

In order to reduce using of private cars by residents of the capital, the Paris authorities plan to make all

Table 1 Dynamics of air pollution in European cities (PM2.5) (according to Worlds most polluted cities 2020)

City	2020	2019	2018	2017
Berlin	11,8	9,7	11,7	8,5
Bratislava	14,2	13,6	17,2	14,9
Budapest	13,8	14,0	16,5	-
Bucharest	15,5	18,4	20,3	-
Kyiv	19,2	16,6	13,8	9,8
Paris	12,2	14,7	15,6	15,4
Prague	10,9	11,5	17,4	15,6
Warsaw	19,2	19,3	-	-

public transport free by 2026 (both on weekends and on weekdays). According to preliminary estimates, this project will cost 3 billion euros annually, but it will significantly reduce carbon emissions. These costs will be covered by taxes, in particular on cars that emit above-average CO2 emissions (since 1 January 2009). Every year these taxes become more severe.

Since 2020, travel in the capital has become free for schoolchildren and students under the age of 18. As for public transport, in the period from 2015 to 2025, 3,700 new ecological buses will be purchased. In particular, in September 2021, the Paris Transport Authority ordered 450 electric buses worth 825 million euros. Framework agreements were signed with Iveco (the largest contract for 180 electric buses), Man, Bluebus, Irizar, Solaris. It is planned that by 2023 the new electric buses will replace diesel buses, which in turn will significantly reduce carbon emissions.

Since 1998, France has been holding a nationwide "car-free" campaign after Great Britain. In 2015, Paris spent his first "day without cars". In September 2021, this traditional action was held under the slogan "Paris breathes". Car traffic was banned throughout the city (except the ring road) from 11 a.m. to 6 p.m., and a fine of 135 euros was threatened for the violation. There was an exception for public and special vehicles, but the maximum speed was limited to 20 km per hour. Most locals support this environmental initiative.

In recent years, the mayor of Paris is trying to increasingly restrict traffic. Many streets are becoming pedestrian, in particular, by 2022 it is planned to create a special zone in the center of Paris with restricted traffic. The aim of this project is to reduce transit traffic. The initiative will affect the first four districts of Paris. Making the center of the capital pedestrian was the pre-election promise of the mayor of Paris Anne Hidalgo. Currently, Parisians can make suggestions and express their views on this project.



In May 2018, a new type of river taxi (SeaBubbles) was tested in Paris. In the future it will run on the Seine and will be one of the most environmentally friendly modes of transport in the French capital. This project, worth 10 million euros, is funded by the French insurance group MAIF.

Such an environmentally friendly mode of transport as bicycle (Velib) is very popular in Paris. It is considered a very convenient way of transportation, especially for tourist purposes. Its use improves the environmental situation in the city. Today (September 2021), 57 municipalities have 1,400 rental stations and their number is constantly growing, and bicycle paths have a total length of 1,000 km. The bike can be rented for one trip, one day, one month, or a year. Also, there is a flexible system of discounts. For example, if to rent a bike for a year, the monthly fee will be 3.10 euros. The cost of a daily rent is equivalent to one trip on public transport. Bicycle rental rates for young people under the age of 27 (€ 2.30 for mechanical and € 7.10 for electric bicycles per month) and students (€ 1.55 for mechanical and € 4.15 for electric bicycles per month) are reduced (Souscrire un forfait, 2021). On a car-free day, it is available to rent both a mechanical and an electric bicycle for free for 45 minutes to encourage sustainable mobility. Thus, it is proposed to protect the environment and benefit your own health.

For those who wish to explore Paris in a familiar manner, such as guided tours, the city offers its vision of such leisure in the context of a responsible attitude towards the environment and sustainable tourism. Guests of the capital are offered excursions by bicycle (VIP Versailler Bike Tour), segways (Paris Segway Tour), electric scooters (Paris Electric Scooter Tour).

The Paris authorities also offer both locals and tourists to use "car sharing". According to research by the French Environment and Energy Agency, one car-sharing car replaces about ten private cars and nine parking spaces. This mode of transportation is environmentally friendly, as it helps reducing congestions and emissions into the atmosphere. It is also very convenient and much cheaper than a regular taxi. Using of this method of transportation is also beneficial for tourists, because sharing a car with other travelers significantly reduces transport costs. Many short-term rental services use electric cars, for example, electric car Citroen Ami is used since the spring of 2020. It is classified as "ATVs" because of its small size and low power and according to European standards. It is available to drive such a car from 16 years old and without a driver's license.

Despite all measures mentioned above in August 2021 at the suit of environmental organizations Amis de la Terre and Greenpeace, the French Supreme Administrative Court, recognizing the fight against air pollution in French cities is not very effective, fined the state 10 million euros (Elena Yatsenyko, 2017). It is worth noting that this process is a long one, because in July 2017, at the suit of environmentalists, it was decided to oblige the government to take measures to improve air quality in the 13 largest cities in France. Three years later, the court found that the situation had not changed in eight cities, noting the worst air conditions in 2020 in Paris and Lyon. The government now has six months to rectify the situation, otherwise the fine will increase.

The executive body of the Kyiv City Council has prepared the Development Strategy (Kyiv City Development Strategy until 2025, 2017) for the effective development of the capital of Ukraine. The tourism sector is considered there as one of the sectors that will help to increase the level of competitiveness of the city's economy. Operational goals have been set for all sectors of urban development. Aspects of sustainable tourism development are not discussed in this document. In particular, in order to improve the tourist infrastructure, it is planned to arrange tourist and excursion transport stops in the city center. The development of tourism in Kyiv is carried out in accordance with the developed Program (City Target Program for Tourism Development in Kyiv for 2019-2021, 2018). This document states that tourism is recognized as one of the priority areas of socio-economic development of the city, but information about the plans of the city authorities to develop tourism on a sustainable basis is missing. The main goal of this Program is "... creating favorable conditions for recreation and strengthening the health of residents and guests of the city... (On approval of the city target program for tourism development in the city of Kiev for 2019-2021, 2018)". Instead, there are no operational goals to achieve the main goal, in particular by improving the environmental situation. As for the above-mentioned arrangement of tourist and excursion transport stops in the city center, the Program provides for their equipping with road signs and markings.



According to the IQAir rating of the most polluted countries in the world (PM2.5) in 2020, Ukraine was ranked 43rd in the world (106 countries in total) and 8th in Europe. Quarantine restrictions due to the coronavirus pandemic have led to significant reductions in air emissions in many countries. Unfortunately, in Ukraine and in its capital, Kyiv, the situation has not improved, but there is a clear trend towards deteriorating air quality (see Table 1).

In April 2020, there was a situation when the air in our capital was the most polluted in the world (According to the IQAir rating) (see Fig. 1). According to experts, the state of the air in Kyiv is not influenced by industrial enterprises, but by road transport. More than 80% of all harmful emissions into the atmosphere of the capital are carried out by road transport. In summer, when the number of cars in the capital decreases, we have a much better situation with the air condition (see Fig. 1). Congestion has become a frequent phenomenon both for the center and for other administrative districts of the capital.

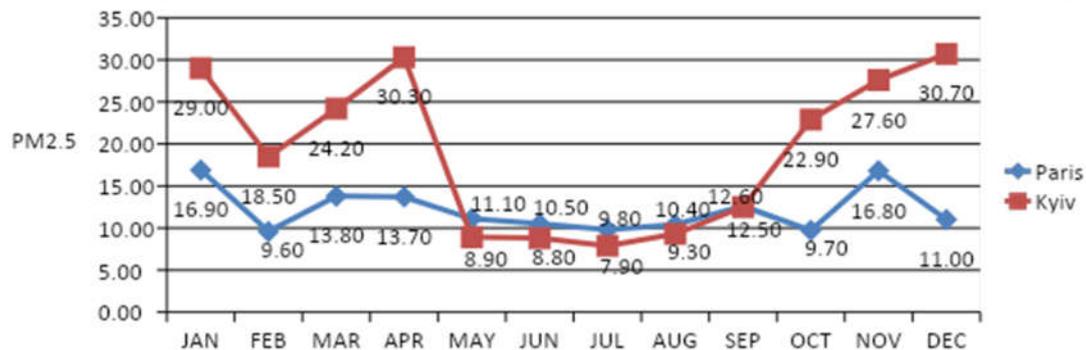


Figure 1. Dynamics of air pollution in Paris and Kiev in 2020 (according to Worlds most polluted cities 2020)

Uncustomed cars with European license plates are a big problem for both Ukraine as a whole and Kyiv, as most of them are worn-out vehicles that do not have special devices to neutralize harmful substances. In 2020, more than 353,000 used cars were imported to Ukraine. While city authorities in Paris and other cities around the world are seeking to get rid of old cars, in particular, to motivate their elimination, Ukrainians are bringing this waste to their country, that by the way is very profitable for developed countries, because there is no need to spend extra money on their disposal.

Half of the cars in the fleet of Ukrainians have an average age of over 20 years. The capital's public transport needs urgent reform. Due to the construction of new housing estates and office buildings, the green areas of the capital are being destroyed. The capital needs to develop a new transport strategy, which by the way was announced by Mayor W. Klitschko back in 2017, during a visit to Kyiv by the German Minister of Transport, but this strategy never appeared.

Conclusions. The Global Sustainable Tourism Council recommends that the criterion of maximizing environmental benefits and minimizing negative consequences be taken into account when developing tourism development programs on a sustainable basis. For the development of tourism in the capital of France, mayor initiated and specialists in the field of tourism developed a strategy for the development of tourism in the city. One of the sectors of this strategy is the promotion of sustainable tourism. This sector provides measures to analyze the tourist infrastructure and its impact on the ecosystem of Paris. Particular attention is paid to measures to improve the quality of public transport, as air pollution is one of the main causes of premature mortality of the local population. As transport is one of the biggest polluters of the atmosphere, the principles of ecological transport infrastructure are important for the sustainable development of tourism in the French capital. It should be noted that in order to solve this problem in Paris, a scientific approach is used, in particular, not only the state of air quality and traffic flows are monitored, but mainly, information is analyzed and systematized and specific recommendations are developed for the city authorities and then they make specific decisions. For example, in order to reduce using of private cars by residents of the capital, it is planned to make all public transport free by 2026. Public and environmental organizations closely monitor the effectiveness of the government. And although the policy of the city authorities of Paris had positive results, in August



2021, according to the decision of the Supreme Administrative Court of France, the state received a fine of 10 million euros for ineffective fight against air pollution. Kyiv is one of the most polluted capitals in Europe, but no significant steps have been taken by the authorities to improve the situation. The state document "City Target Program for Tourism Development in Kyiv for 2019-2021" does not mention the problems of sustainable tourism development. In our opinion, it is worth studying foreign experience, in particular in Paris, and implementing it in our capital.

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