

# The Place of Automobile Tourism and Caravaning in the Development of Domestic Tourism: an Ecological Aspect

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## Abstract

*The paper investigates the pressing issues of the autotourism and caravaning development and their impact on the environment. It also analyzes the state of the caravaning development in the European countries, where it is one of the tourism types preferred by travelers. Despite the coronavirus pandemic, the number of recreational vehicles and caravans is continuing to grow there at the same rate as before the pandemic. The research conducted suggests that caravaning in Russia is developing relatively slow, compared to that in the European countries and the USA. Growing flows of automobile tourists in Russia, including because of the COVID-19 factor, influence negatively on the environment, since the roadside infrastructure does not minimize the negative effects of traveling motorists. The trend of the domestic automobile tourism active development was determined, which is also confirmed by foreign studies. A model for the roadside tourist complex formation was proposed, taking into consideration the ecological approach. Recommendations were developed to optimize activities aimed at creating favorable conditions for the autotourism and caravaning development and minimizing the negative affect on the environment.*

## Место автомобильного туризма и караванинга в развитии внутреннего туризма: экологический аспект

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### Аннотация

*В статье исследуются насущные вопросы развития автомобильного туризма и караванинга и их влияния на окружающую среду. Анализируется состояние развития караванинга в европейских странах, где он является одним из предпочитаемых путешественниками видом туризма и несмотря на пандемию коронавируса количество автодомов и караванов в Европе продолжает расти теми же темпами, что до её наступления. Проведенное исследование позволяет утверждать, что караванинг в России, по сравнению с европейскими странами и США, развивается относительно медленными шагами. Растущие потоки автомобильных туристов в России, и в том числе как следствие фактора COVID-19, оказывают негативное воздействие на экологию, так как придорожная инфраструктура не обеспечивает минимизации негативных последствий от путешествующих автомобилистов. Выявлена тенденция активного развития автомобильного внутреннего туризма, что подтверждается и зарубежными исследованиями. Предложена модель формирования придорожных туристических комплексов с учётом экологического подхода. Разработаны рекомендации по оптимизации деятельности, направленной на создание благоприятных условий для развития автомобильного туризма и караванинга и минимизации негативного воздействия на экологию. Отдельное внимание уделено анализу влияния автомобильного туризма на экологию.*

### Introduction

In the last few decades, the issue of preserving the Earth's ecology has become quite acute. The world leading institutions are conducting their research on the atmospheric and the environmental pollution by the products of large industrial enterprises, transport and other human activities that threaten ecosystems from a particular area to a particular region. The temperature of the planet Earth is rising every year due to the economic and other human activities. The steps to reduce the rate of global warming were taken at the 26th United Nations Conference on Climate Change and the Third Meeting of the Parties to the Paris Agreement. Climate scientists, lawyers and politicians argue that the final deal in Glasgow led to the gradual progress, but at the same time it is not enough to overcome the climate crisis.

According to the international experts, the main cause of global warming is the greenhouse gas emissions into the atmosphere. In turn, the active development of international and domestic tourist arrivals has examples of the negative impact on the environment of travel destinations. Tourists, travelling on buses, cars, RVs / “caravans” and other technical means contribute to the environmental pollution as well as the greenhouse effect.

The ongoing coronavirus infection, which shocked the whole world in 2020, is making significant changes to the travel geography. One of the emerging trends in tourism is an increase in domestic travelling, since many world famous tourist destinations have either closed access for recreational

visits or made it much more complicated for tourists to travel to these places, including mandatory vaccination requirements, two-week quarantines and disavowal of coronavirus vaccines from certain countries. Under these conditions, domestic automobile tourism and, in particular, caravanning is actively developing, which makes it possible to satisfy a person's needs in traveling and spending their holidays outside the permanent residence areas. Moreover, today many travelers are choosing caravans or RVs as the best option for moving around the country and around the world, which can pollute their travel destinations, without a developed infrastructure.

### **Materials and Methods**

The methodological basis of this study is the Simon Kuznets Ecological Curve (ЕКК) hypothesis [12], which shows the relationship between the economic growth (in our study, a significant increase in the number of personal cars among Russians) and environmental degradation. The works of foreign and Russian scientists, investigating the influence of greenhouse gases on the environment, including the adverse impact of visitors using road transport and other technical means as means of transportation, on the environment of the tourist destinations they visit.

The baseline information was drawn from the open sources: resulting documents of UN summits on environment, Eurostat statistics, international environmental organizations such as the WWF, Greenpeace, an international organization for the protection and conservation of birds and their habitats (BirdLife International), and studies by scientists published in journals indexed in SCOPUS and Web of Science.

As a part of the study at its first stage, desk review methods were used, such as analysis of official statistics information, scientific sources on the development of road tourism, caravanning in particular, and expert assessments.

During the second phase, in-depth interviews were conducted with the experts (S.Yu. Lobarev, President of the National Association of Autotourism and Caravanning; V.I. Kruzhalin, Vice-President, Chairman of the Moscow Branch of the National Academy of Tourism; D.N. Ermakov, Doctor of Economics, Professor of Moscow State University named after M.V. Lomonosov) on the trends in the road transportation and caravanning in Russia. Practical steps of converting cars to using the compressed natural gas and liquefied natural gas; prospects for the use of electric vehicles; the operations of companies specialized on the building caravans; and commercial organizations that rent caravans; measures taken by local authorities to minimize the impact of car tourism on tourist destinations were discussed.

General scientific methods such as analysis, synthesis, induction, deduction, analogy and simulation were used to formulate recommendations for optimizing activities aimed at creating favorable conditions for the autotourism and caravanning developing and minimizing negative impacts on the environment

## Discussion

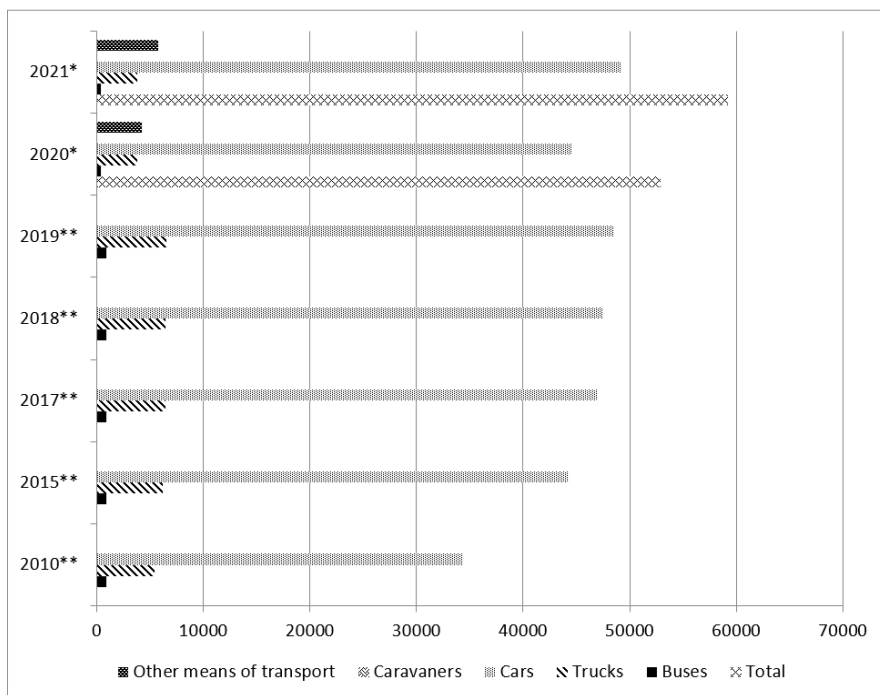
Carbon dioxide, methane, ozone and nitrogen oxide are the main greenhouse gasses, which have a strong impact on the climate, heating the atmosphere of the Earth, which in the near future will lead to new risks for the humanity existence. Carbon dioxide (CO<sub>2</sub>) emissions into the atmosphere, caused by human activities [20], in 2019 alone were about 43.1 billion tons of CO<sub>2</sub>. With the recovery of the economy following a sharp decline caused by the coronavirus pandemic, greenhouse gas emissions in the European Union region began to rise again in 2021. Scientists throughout the world are actively studying the aspects directly related to the human-caused impact on the environment in all aspects and on all continents without exception. Actively developing tourism also contributes to the environment pollution. Coach buses, passenger cars, motorhomes (caravans) and other technical means pollute the atmosphere with exhaust gasses, solid particles, petroleum products and other toxic substances [5, 9, 16].

Moreover, in the era of the ongoing coronavirus pandemic, researchers have noted a new trend in tourism — the use of the domestic market as a way of minimizing losses from the catastrophic decline in international flows. Researchers in Spain [10], Portugal [15], Australia [22], Russia [4] and other countries noted that with significant restrictions on leisure activities in foreign countries, the obvious alternative for a tourist is spending a vacation, honeymoon, holiday in the domestic destinations. The main means of visiting vacation destinations are the own cars and motorhomes.

While automobile tourism began its history in the beginning of the 20th century, caravanning most likely began it in the 1930s. The end of the last century should be considered as the time of the final development of caravanning as a recreational industry. Caravanning became especially popular in the United States, where it had the most favorable environment for its development. The evolution of the Caravanning in Europe is facilitated by its well-developed infrastructure. Caravan Salon in Düsseldorf is popular amongst caravaners. In Germany, the number of campsites exceeds 4,000 and the automobile tourism industry employs over 170,000 people [1]. According to the statistics of the European Federation of Caravan Manufacturers (EUROPEAN CARAVAN FEDERATION), the total number of motorhomes and caravans registered as a means of transportation in Europe reaches 1,353,140 and 4,044,900 units respectively. The coronavirus pandemic [2, 8, 13] which led to a decrease in international tourism flows by 74%, and a reduction of jobs in the hospitality industry, did not affect the registration (acquisition) of motorhomes and caravans by European residents. In 2020, 236,119 caravans were registered, in 2021 — the number of registered caravans / motorhomes increased up to 259,393. [7].

There is also the other side of this. The growth of automobile tourism and caravanning, as one of its components, leads to negative consequences for the environment. According to the expert data in the European Union, the share of greenhouse gas emissions from road transport is about 8% [6]. The transport sector accounts for a large share of emissions in Europe and is one of the few sectors with increasing emissions.

Of the 59 million vehicles in Russia, 49.259 million are passenger cars, about 3 million are motorcycles, and 3,000 are motorhomes (caravans). It’s worth noting that the car fleet of Russians is steadily growing: in 1994 — 11.5 million, in 2010 — 33.8 million, 2015 — 40.9 million, and as of 2021 — 49.259 million (fig 1.). The number of tourist arrivals remains extremely low, amounting to some 2,500 visitors, due to poorly designed customs regulations, lack of campsites and security concerns. A third of the foreign caravans visit Russia only as a transit.



Sources: \*AVTOSTAT analytic agency. \*\* Rosstat.

Fig. 1. Vehicles in Russian Federation (thousands)

Caravaner’s League was established in 2010. The number of caravaners is still low. Today, there is only one company producing motorhomes in Russia — CARAVAN CENTER. Their equipment is mostly used for expeditions, e.g. studying rare species in the Far East. Therefore, their activities cannot be deemed strictly aimed at caravaners. At the same time, caravanning facilitates diversifying tourist services, developing new tour routes and establishing new accommodation types — camping. Campings provide the tourists with convenient parkings on the way, as well as with access to the electricity, water tank refilling and waste disposal, toilets and showers. Compliance with these measures makes caravanning a truly eco-friendly type of tourism.

The hotel business is actively developing in Russia [17], including Russian hotel chains [11]. However, the lack of road infrastructure that meets the world standard remains the “Achilles heel” of the Russian reality. To give an expert assessment of the roadside infrastructure development, individual indicators of the hospitality industry facilities commissioning from 2017 to

2020 were analyzed (table 1). The analysis shows that the introduction of the motel and camping accommodation capacity (2019 — 493 places; 2020 — 511 places) lags ten times behind this indicator for hotels. For more than 49 million passenger car owners (excluding their family members), the increase in the number of services provided while traveling, taking into account the arithmetic error margin, tends to zero.

Table 1

*Selected performance indicators for tourism organizations  
(based on the sum of OKVED-2 codes in the collective group “Tourism”)  
(at 01.09.2021)*

Name of statistical indicators	Measure unit	2017	2018	2019	2020
Commissioning of tourism facilities (units):					
hotels	spaces	12 460	12 191	14 489	11 711
sanatoriums	beds	1 287	664	840	188
holiday homes	spaces	850	2 794	1 415	847
tourist bases	spaces	817	417	580	804
motels	spaces	99	177	67	404
campings	spaces	3	105	426	107

Federal State Statistics Service. Retail trade, services to the population, tourism / Selected indicators of the activities of organizations in the tourism industry (according to the sum of OKVED-2 codes included in the collective grouping “Tourism”. — URL: <https://rosstat.gov.ru/folder/23457> (date of circulation 10.01.2022 r.).

For example, in Western Europe and in the United States there is a huge number of campsites (RV parks) along the highways that provide all the necessary services for travelers: drinking water supply, electricity, sewerage, shower, bath, kitchen, garbage collection areas, places for walking animals etc. [14].

If, by analogy, we consider the possibility of using campsites, parking lots for motorhomes/caravans in the USA and Western European countries and in Russia, then it should be stated that in our country there are practically no places equipped for these purposes. Therefore, the sewage, food waste and other consequences of the caravanner’s activities are the nature’s burden. This is one of the unresolved problems negatively affecting the state of the environment in Russia. This is also not yet monitored by the Ministry of Natural Resources and the Environment of Russia.

“Due to the coronavirus [6] pandemic, the entry into most countries is limited, the ability to buy air and train tickets is also limited, and many people have a new look at motorhomes (mobile homes).” Moreover, traveling by car, according to experts, is 30–40% cheaper than by train or by plane.

The study shows that in the context of the coronavirus pandemic in a number of countries, including Russia, the number of car tourists is growing, that solves the environmental problems and create economic conditions for the growth of the local tourist destinations welfare, but it also causes sig-

nificant harm to these territories. The emission of exhaust gasses into the atmosphere, the number of which in Russia is growing every year, causes significant harm to the environment. Currently, an attempt is being made to switch to the use of compressed and liquefied natural gas as fuel for cars, the use of which significantly reduces carbon dioxide emissions into the atmosphere. However, at the same time, only about two percent tourists use these kind of fuels (Table 2).

Table 2

*Cars using natural gas as a motor fuel in Russia and its separate regions (units) (end of 2020)*

Region	Total	Those with the option of natural gas used as a motor fuel		
		Total	Compressed natural gas	Liquefied natural gas
Russian Federation	49 259 028	1 012 917	118 268	894 649
Moscow	4 061 245	7 670	1 518	6 152
Moscow Oblast	2 839 371	7 084	892	6 192
St. Petersburg	1 771 034	2 678	2 458	220
Vladimir Oblast	429 834	7 958	92	7 866
Komi Republic	271 949	217	217	–
Stavropol Krai	776 711	3 530	3 530	–
Sverdlovsk Oblast	1 855 543	358 833	31 643	327 190
Altai Krai	793 194	74	30	44
Kamchatka Krai	171 495	64	15	49

Federal State Statistics Service. Official site. — URL: <https://rosstat.gov.ru/folder/23455> (date of circulation 20.01.2022 г.).

Leading countries around the world provide significant subsidies [3] and offer incentives for switching to electric vehicles to minimize air pollution and fossil fuel consumption, analyze trends and policies in the field of electric vehicles [21], actively introduce electric vehicle charging networks [6]. A few years ago the ghost “Yo-Mobile” — introduction of an industrial line for manufacturing passenger electric-driven cars at one of Russian car factories was wondering around Russia [23]. At this stage, the transition to an environment-friendly type of passenger road transport in the country has been temporarily suspended. Today, the Russian business community does not show commercial interest in the promising direction of creating more environmentally friendly passenger cars, the use of which would significantly reduce the emission of harmful substances into the atmosphere.

## Results

Conducted qualitative research in the form of in-depth interviews with representatives of the tourism business, public tourism organizations and central executive bodies in the field of regional tourism, as well as panel studies with independent experts, resulted in:

1. Identifying the issues to be solved. The main issues in the development of this type of tourism are associated with the low technical level of roads, the backlog of road construction, with errors in accounting for “road parameters”, as well as underdeveloped roadside infrastructure. The shortcomings of the current caravanning system include: the absence of commercial organizations providing services for renting motorhomes (caravans) (only one enterprise); an insufficient number of accommodation facilities (mini hotels, campsites, motels, hotels, organized recreation areas, parking lots) compared to the number of Russian passenger cars; high prices for accommodation; low quality and low density of regional roads [19]. Besides, it is the lack of awareness about the existence of caravanning in Russia, both within the country and abroad; lack of domestic manufacturers of motorhomes (“caravans”); low level of competition in the caravanning market; insufficient number of service stations for the road trip enthusiasts.

In addition, there are currently no marketing campaigns running, and no caravan booking websites, which by today's standards of consumer gadgets use, is clearly a missed opportunity.

Of course, the problems currently far outweigh the opportunities for the caravanning development in Russia. Travelers need campsites, parking lots, better service (specialized for this type of tourism). However, there are significant prospects for the automobile tourism development in Russia: the widespread development of road infrastructure, a sharp increase in the car park among the country's population, and the development of the service sector.

2. Substantiating the model for the development of roadside tourist complexes, taking into consideration the environmental approach. An eco-friendly approach to motorhome travelling involves creating a harmonious environment for their use (fig. 2).

When elaborating a plan for a natural area developing for the automobile tourism, the territory water complex features, flora and fauna should be taken into consideration. Moreover, the size of the roadside buildings themselves should not be large. This will avoid significant damages to the natural environment and protect natural landscapes. Some requirements for a comfortable microclimate should also be observed: lighting, isolation, noise conditions. Only if all of the above requirements are met, it will be possible to create an ecological environment, comfortable for living during the tour.

The most favorable areas for the development of caravanning in Russia are the forests of Komi, Altai, the Caucasus, the territory of Baikal, the Krasnodar Territory and the Crimean Peninsula. These are extraordinarily distinctive regions, which, undoubtedly, combine ecological uniqueness and natural diversity.

3. Substantiating the current trend in the development of the automobile tourism and caravanning in the coronavirus pandemic era and the need to form a roadside infrastructure that minimizes the negative impact of technical means on the environment. The active influence of automobile tourism and, in particular, motorcaravanning, on the development of Russian regions. The tourist potential of Russia is not fully used by the Russians, which is why



there is an urgent need to create quality conditions for tourists to relax developing a targeted state policy.

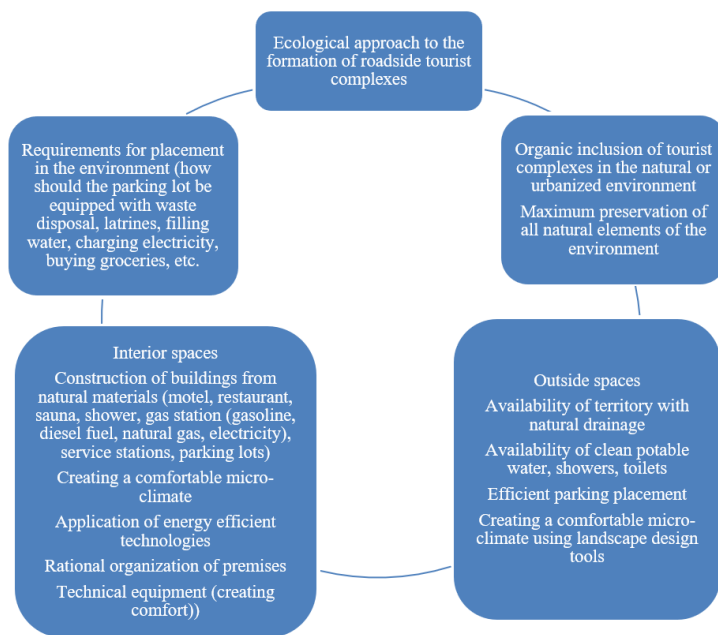


Fig. 2. Model of the formation of roadside tourist complexes, taking into account the ecological approach

Even today, despite the coronavirus pandemic, owners of passenger cars and their families are traveling on vacation and on weekends. The increased activity of car travel is also related to safety issues. In the pre-pandemic period a tourist preferred to take a train or a plane and fly to Sochi, now, many people are striving to significantly reduce the number of interpersonal contacts, including when using transport. Besides, during the high season, the prices for air tickets and railway tickets in Russia increase by 2–3 times, since the airlines also have an obvious monopoly collusion, and Russian Railways is a monopolist. Hotel owners do not lag behind the carriers in raising prices for the accommodation.

Caravanning provides opportunities for the development of internal and external tourism, because: it is self-sufficient; contributes to the development of roadside services; creates new jobs, develops the service sector. It maintains the significant expansion of the hotel industry; low cost of travel; the ability to use lands prohibited for commercial use (sanitary zones, zones with floating soil); allows to increase the prestige of Russia in the international community, as a country that develops such an innovative and the demanded type of tourism. In addition, the parallel development of roadside infrastructure and car tourism is the most promising in terms of investment. Its improvement may become an additional opportunity for the Russian regions, as the caravan parks may be settled based on the existing recreation centers during their reconstruction.

According to the estimates of the National Association of Automobile and Motorcycle Tourism and Caravanning (hereinafter — the Association), the routes will help increase the income of the country regions by four to five times, the number of overnight stays in accommodation facilities by four to six times, which will increase the level of the hotel infrastructure income. A significant advantage is the off-season recreation, that is, making a trip will not depend on the prices of tickets, tourist products.

The development of the automobile tourism in the territories is possible with the participation of three parties: the administration of the region; owner (investor) (construction and operation costs); relevant organization (in the field of tourism; at the moment — League of Caravaners). An excellent example is the Far East region. Tours are organized there to the places of Arseniev and Dersu Uzala expeditions. There are convenient trails for walking and for cars, there are decks for crossing streams in the reserve area. However, a poorly developed automobile network “freezes” the region for the development of automobile tourism.

4. Coming up to the representatives of the Russian regions authorities with practical recommendations that provide for the development of automobile tourism:

— the viability of including specific measures for the development of roadside infrastructure, taking into consideration the needs of tourists (equipment of sites for parking motorhomes, the possibility of maintenance) in the tourism development programs of the regions;

— the differentiation of the automobile tourism and caravanning as a priority type of amateur tourism in the tourism legislation. It is necessary to introduce a definition of caravanning into the current legislation at the state level, as well as to amend the customs duties on motorhomes and caravans (currently, the customs duty is up to 35% of the price of a motorhome);

— further development of roadside infrastructure (motels, campsites, hotels) to improve the traffic safety, since drivers and auto tourists do not always have the opportunity to organize their rest while traveling;

— forming a competitive environment in the caravan and motorhome rental market. It should be noted that the car rental in Russia is by 50% more expensive than in Europe. Low competition among Russian caravanning companies makes this type of tourism less profitable for trading companies developing new automobile routes, creating “connected tours” (autotourism and simultaneous immersion in the ecology of the destination) both directly by tourism business professionals and public organizations created by lovers of autotourism and caravanning.

5. Revealing a paradoxical phenomenon — the number of car tourists is growing by leaps and bounds, and the amount of emissions of air pollutants by road transportation in Russia is decreasing (fig. 1 and table 3). Thus, in 2015, air pollutant emissions amounted upto 13,819 thousand tons upon the availability of 44,253 thousand cars, 6,230 trucks, 873 thousand buses (table 5). In 2020, the number of cars and trucks, buses and other technical vehicles did not decrease but the amount of emissions into the atmosphere from vehicles decreased by 2.7 times.

6. Substantiating the need for statistical accounting of automobile tourists and caravaners. Currently, the number of cars owned by the population is known — about 47 million. But the share of automobile tourists and caravaners remains unknown.

Table 3

*Dynamics of emissions of the most common air pollutants by road transport, thousand tons [18]*

Year	Total	Component				
		CO	VOCs	NO <sub>2</sub>	Soot	SO <sub>2</sub>
2012	12 679	10 091	914	1 419	24	75
2015	13 819	10 707	1 411	1 504	26	78
2017	14 448	11 195	1 478	1 570	27	81
2018	15 108	11 701	1 544	1 648	28	85
2019	5 291	3 745	432	979	30	37
2020	5 137	3 639	416	950	28	37

An expert assessment suggests that a significant part of automobile tourists (about 17.5 million people) is such a social group in Russia as “travel-restricted citizens” (representatives of defense and law enforcement agencies: the Russian Federal Security Service, the Russian Armed Forces, the Russian Emergencies Ministry, the Federal Agency of Government Communications and Information, the Russian National Guard, the Ministry of Internal Affairs, the Federal Protective Service, citizens with access to state secrets, and members of their families). Income from professional activities allows them to have a car, but they do not have the opportunity to travel to the world tourist destinations. Therefore, it seems that this social group and members of their families make up the bulk of both domestic tourists and amateur tourists (automobile tourists) in the Russian Federation.

### Conclusion

Russia has ample opportunities for developing caravanning. After all, this innovative type of tourism makes it possible to independently traveling long distances to the places where the tourist wishes. In addition, in modern realities, as the world studies show, caravanning is the most environmentally friendly type of tourism. For greater popularization of this type of automobile tourism, it is necessary to develop roadside infrastructure (camping sites — places for recreation), make caravan rental affordable for everyone, improve the quality of roads and introduce service stations for motorhomes and caravans. It is mobility and independence in choosing a place to stay that makes caravanning so attractive.

The number of motor vehicles is showing a steady growth trend (2010 — 33.8 million units; 2015 — 40.9 million units; 2021 — 49.259 million). Despite the fact that there are currently only about three thousand motorhomes (caravans) in Russia, their number will also grow rapidly, especially as the coronavirus era is still ongoing, having an impact on the decline in

foreign tourism flows. In connection with this circumstance, by the end of 2020–2021, a growth trend in domestic tourism, including car tourists, was also studied. In this connection, the negative impact on the environment in recreation areas increases significantly. Therefore, facilities should be immediately provided to minimize the negative impact of travelers on the nature in places of mass recreation.

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