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Analysis of environmental factors' effect on the development of tourism

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Abstract. Balancing of the tourism services' development and natural environment' opportunities is problem during anthropogenic effect is increasing. Migration of the population is increasing with the growing of the globalization process. As a result there is a duality in the development of tourist infrastructure and increasing the influence of tourists

on ecology, changing of ecosystem. The article deals with the factors influencing the choice of tourists, tourist flows, analysis of the countries, where there is the greatest attendance of places of the rest. The correlation coefficient between indicators of environmental safety and tourists' attendance is calculated. On the example of the Kyiv region, dynamic indicators and the relationship between emissions of harmful substances and environmental costs, as well as the number of tourists, were calculated. Three recreation areas on the Black Sea coast in the territory of three different countries are analyzed. Conclusions about different degrees of water's and coastal area's pollution and the Odessa coast's pollution as a whole are made. Pollution of the Black Sea whole loch affects on the environment degradation of cross-border territories and tends to dampen the attractiveness for the recreation's development of the sea rest. The analysis of pollutant emissions and the accumulated waste in the Odessa region is made and the anthropogenic effect on the coastal areas of the Black Sea region in Ukraine, Bulgaria and Romania is compared. The consequences of austerity on the environment preservation are explored and described. It leads to losses that are arise from decrease of the employability of local inhabitants and their diseases, of natural resources' depletion, increasing of probability of natural disasters in the long term. In the article the conclusions about the effect of the tourists' traffic and its' influence on the ecology of the recreation areas and the slow anthropogenic impact on the new territories are made. The ways and solutions of modernization and reconstruction of the objects of the tourism infrastructure are suggested. They should to aim at increasing of the tourism's traffic and enhance new and modern buildings of the recreation infrastructure.

Keywords: tourism, tourism ecology, environmental performance index, countries of the Black Sea Region, waste, anthropogenic load, tourist potential, and tourist traffic.

Аналіз впливу екологічних факторів на розвиток туризму

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Анотація. Збалансування розвитку туристичних послуг та можливостей природного середовища залишається актуальною проблемою через зростання антропогенного впливу. З розвитком процесу глобалізації збільшується міграція населення, в наслідок чого виникає дуальність у розвитку туристичної інфраструктури та посилення впливу туристів на екологію із зміною екосистеми. У статті проаналізовано чинники, що впливають на вибір туристів, туристичні потоки, аналіз країн світу, де є найбільша відвідуваність місць відпочинку. Розраховано коефіцієнт кореляції між показниками екологічної безпеки та

відвідуваності туристів. На прикладі Київської області розраховувались динамічні показники та залежність між викидами шкідливих речовин і екологічними витратами, а також кількістю туристів. Проаналізовано три рекреаційних пункти на узбережжі Чорного моря на території трьох різних країн. Зроблено висновки щодо різних ступенів забруднення води та прибережної території і узбережжя Одеси. Забруднення акваторії Чорного моря впливає на погіршення екологічної ситуації трансграничних територій і знижує привабливість цих регіонів для розвитку морського відпочинку. Проведено аналіз викидів забруднюючих речовин та кількості накопичених відходів в Одеській області та порівнюється антропогенний вплив на прибережні території Причорноморського регіону в Україні, Болгарії та Румунії. Розкрито наслідки економії на збереженні навколишнього середовища, що в довгостроковій перспективі утворюють збитки, спричиненні зменшенням працездатності населення, виснаженням природним ресурсів, збільшенням вірогідності стихійних явищ та захворюваності населення. Зроблені висновки про вплив туристичних потоків на стан екології місць відпочинку і поступове розширення антропогенного впливу на незаймані території. Запропоновано напрями модернізації та реконструкції існуючої матеріально-технічної бази об'єктів туристичної інфраструктури через сприяння будівництва нових сучасних об'єктів туристично-рекреаційної інфраструктури.

Ключові слова: туризм, екологія туризму, індекс екологічної ефективності, країни Причорномор'я, відходи, антропогенне навантаження, туристичний потенціал, туристичні потоки.

Introduction. The ecological problems are mostly due to the human activity and are long-term. Any interaction environment and human which changing the ecosystem has own results and may have cumulative effect. Before the twentieth century the environment was believed to regenerate itself and in conditions of the low strain could come into state of balance. But in conditions of more strong negative strain of human's being and the growing of his livelihoods and landscape modification the ecosystem hasn't reserves for balance and stabilization. And deterioration of the environment could lead to the decrease of the degree of the environmental safety. Needs for rest in the conditions of the high stress of human under urbanization have a first position in modern society, and looking for the ways of the harmonization between recreation area and consumers' wishes made tourism one of the profitable business. It is filling the country's GDP but at the same time it is changing the ecosystem. Often the recreation areas are clear territories and have aesthetic advantages or cultural heritage and, in the majority, have a positive effect on the health of men who are coming to rest. The direction of the tourists' traffic depends on many factors, but however, a constant mass of people has negative affects on the natural environment, which is influencing by constant anthropogenic effects and is worsening, so it leads to the deteriorating competitiveness of these territories. Depletion of natural resources, destruction of historical and cultural values, changes of economic strategy of regions are also become the results of the mass tourism. Under the Globalization the migration of population is increasing and because of it two main trends are appearing – from the one hand, duality in the tourist infrastructure's development is being and, from the other hand, the tourists' influence on the ecosystem and its changes is growing. Tourism is one of the branches of economy of the Black Sea Region, and it's based on the temporary admission for health, cultural, professional, business or other

purposes without having business in the place of staying (Kuzik, 2011).

The Black Sea coast is one of the leaders of the international tourism in Eastern Europe and it affects the natural environment of the countries that it is washed around (Ukraine, Romania, and Bulgaria). Allotments on tourism development, maintenance of historical and archaeological finds and places of recreation are not enough and, as a rule, become a business. Most types of tourism have a positive effect on the social and economic well-being of those territories where they are developing, but often they lead to the environmental and anthropogenic problems (Kostetska, 2018).

The aim of the article is to analyze the modern stage of the touristic branch and main factors of influence on the tourism traffic in the different countries, to identify the anthropogenic effect on the recreation areas, to comparative recreation areas with the same nature conditions, but different economic state and stress, and so to give the advance estimate of the recourse opportunities of this type in the field of the research.

Analysis of publication. Methods of analysis, synthesis, comparison, general environmental value, mathematical modelling, statistical, methods of valuation and monitoring are used in this article.

Despite the tourism and rest popularity, anthropogenic effect on the tourism recreation isn't explored enough (Barros, 2015). Natural environment hasn't enough recourse for regeneration and is constantly impoverished, but the increasing anthropogenic impacts and globalisation may lead to catastrophic results (Mowforth et al., 2015). In human influence on the recreation areas needs to take into account the degree of such influence, and mainly it depends on the number of vacationers. Tourist traffics depend on many factors. Petrova and others (Petrova et al, 2018) believe that the price for the rest is a major factor of affecting the choice of tourists and depends on the cost of travel to the rest zone and the cost of

living in a place of rest.

Bolan (2008) and others outline, that the main factors that influence the consumer’s choice in the field of tourism are the image of places of recreation, advertising in products of the film industry and the mass media.

Today the popularity of social networks that have a set of advertising and influence the choice of product or service is increasing all over the world. Exploring the influence of social networks on the choice of tourists and the importance of advertising services in the choice, Park (2016) and others have concluded that the level of the tourism’s development is correlated with the development of innovation and tourism infrastructure. It should also be noticed that the development of innovation in any branches of business has a very positive effect on the innovation of the whole national economy (Pukala, 2016; Odinkova, 2019).

Results. According to the State Statistics Service of Ukraine in 2015 the transfers from the state budget on innovation were decreased in 6.25 times in comparing with the previous year, the amount of own funds on innovation, increased in 2.05 times, reaching UAH 13,427 bln and share of 97% of the total costs (Labunska et al, 2017). In the analysis of state programmes and investment proposals (Petrova et al, 2018; Lukjanova, 2019), all strategies except of two ones are focusing on the development of local infrastructure and the promotion of travel for residents within the country, regardless of the country’s specialisation in a particular type of tourism and international trade practices in the field of services. In addition,

the value chain of the tourism product is realized both at the national and global level (Koval et al., 2019a). In conditions of the growing of the population’s welfare, the level of education and changing citizens’ interests and values, their free time encourages, as well as the opportunity to spend this time on active rest appear. So the number of tourists around the world is increasing and the impact on the natural environment increasing too. The tourism economy in many countries is of a short-term (seasonal) and is mostly based on the private business, when the purpose is to maximise profits with minimise the costs.

Long-term forecast of tourist flows is very important for investment planning in the tourism business (Koval et al., 2018), which is directly related to the attractiveness of the regions and the ability to effectively implement migration policy and solve environmental problems. Determining the attractiveness of recreational zones, first of all it needs to analyze the properties of tourist traffic in these areas, which basis on the estimation of the number of visitors, the degree of human-induced effects, the volume of tourist consumption and other indicators.

Analysing the tourist flows, it needs to study the consumers’ purpose and the attractiveness of recreation areas. Let looking the factors of influence on the development of the recreation area (Fig. 1).

The main factors which influence on choosing of the place of the rest are:

Exclusivity that characters the degree of using of exotic, not standardised, non-unified, original outsourced services in a particular tourist product (Borysova, Borysova, 2019).

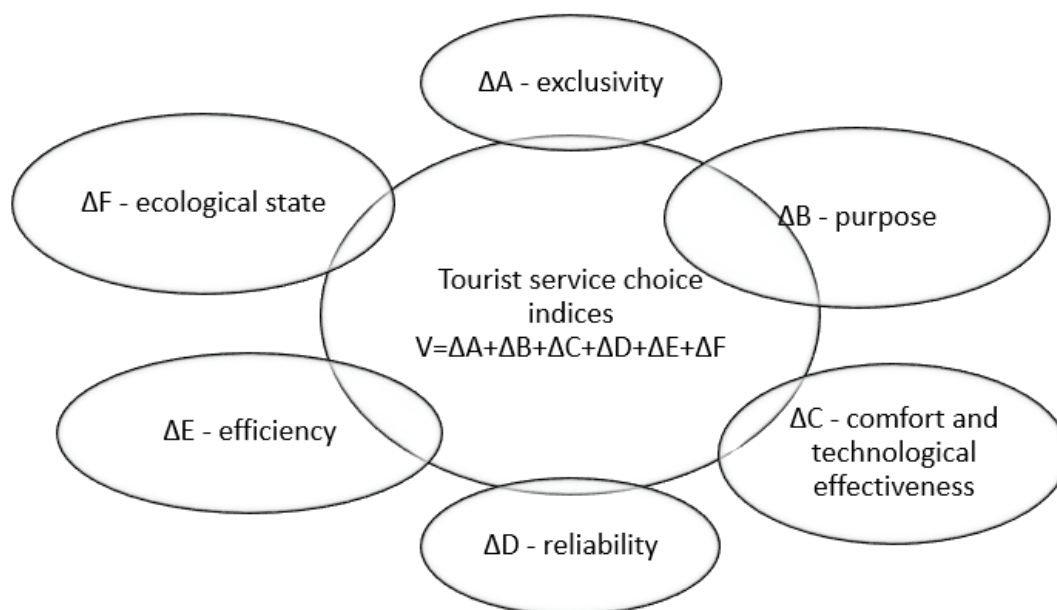


Fig. 1. Factors influencing the choice of a recreation area for the average consumer. Source: compiled by the authors

Exclusive services mean services, offered only for this tourist product. The exclusivity indicators are important for a particular segment of tourism services. In case of an individual tourism programme, these indicators will be one of the key in the customer's decision to buy the offered service. Exclusivity is typical for the segment of high-value travel programmes that don't fit into the framework of the standard offer. The exclusivity indicators show the uniqueness and individuality of this tourist product (Baev, 2012).

Direction, which characterises the customer's targets of travel and wishes in choosing a recreation area (sea vacation, mountains, health improvement).

Aesthetic component that reflects the harmony, integrity of the coverage of the tourist programme, compliance with the social expectations, the level of skill of the staff and is a complex picture that comes from the person's senses.

The indicator of comfort and technological effectiveness, which includes both climatic conditions and the recreation area level according the factors of quality of services, infrastructure development, equipment, additional services, etc. First of all, the staff's professionalism, the internal culture of the organisation, the business philosophy, and other factors of the technological factor.

The reliability indicator, based on the person's wishes to stay in a safe place, and guarantees the fulfilment of all conditions of staying in the recreation area.

The indicator of economic efficiency which taking into account price parameters and its correspondence of quality of received services.

The indicators of the ecological state of the recreation area, which may include the atmospheric air, water resources, the presence of places of ecological anthropogenic load, the availability of waste accumulation territories and the general level of littering of the territory, etc. (Koval et al., 2019b).

To calculate the attractiveness of the recreational area, such indicators as statistics of tourist traffic and statistics of tourist income and expenses are used. Compared to the arrival statistic, which gives the general idea of the volume of tourist flows, there is statistic of the stay duration, which includes the characteristics of tourist trips. It help to take an information about transit and final trips and to used it in studying the demand of different groups of tourists for accommodation services.

Since 2008 the Environmental Performance Index (EPI) has been calculated. It is the quantification and benchmarking of environmental policy indicators

in 180 countries all over the world. The EPI ranked countries according the effectiveness in several categories, which are grouped into two groups: ecosystem viability and environmental health (Hsu, 2014). The following indicators are analysed: environmental health; air pollution affecting human health; air pollution affecting the condition of ecosystems; water (which affects human health); water resources (affecting the ecosystem); biodiversity; forest; fishing; agriculture; climate change and energy (Athanasoglou, 2014).

In the Fig.2 we see, in comparison with 2016, in 2018 the situation has deteriorated in all countries, except Switzerland, what became the leader in the environmental performance index in 2018. This fact demonstrates the ecological and economic stability of this country and the development of technologies of economic attractiveness. But in general case there is a deterioration of the situation all over the world. In particular, low incomes countries are the most affected by the inability to use environmental standards, low health indicators and other factors of the quality of population's life. Often, such countries are suppliers of raw materials and other resources, a place of accumulation of environmentally dangerous enterprises with a low level of remuneration. Countries with the high environmental standards such as Switzerland, where the financial institutions are the main source of incomes, are more stable and have high living standards, which create favorable conditions for local residents. With further depletion of natural resources and deterioration of the ecological state, the situation will change in the negative side, affecting public health and creating additional risks, reducing work capacity and thereby worsening the country's potential. We will have a situation when the consequences of austerity on the environment preservation lead to losses that are arise from decrease of the employability of local inhabitants and their diseases (hospital vacations, increased mortality and childhood diseases), of natural resources' depletion, increasing of probability of natural disasters (flood, desert, fire and etc.) in the long term (Kvach et al., 2018).

If we analyze the EPI index and GDP we can make a conclusion about that there is a direct close link between them. We see, when economic situation of the state is better, the costs of improving the environment are increasing. When analyzing EPI indicators and the number of tourists arriving in Fig. 3 we found a weak dependence.

The correlation coefficient is 0.41, which indicates that the quality of the environment affects

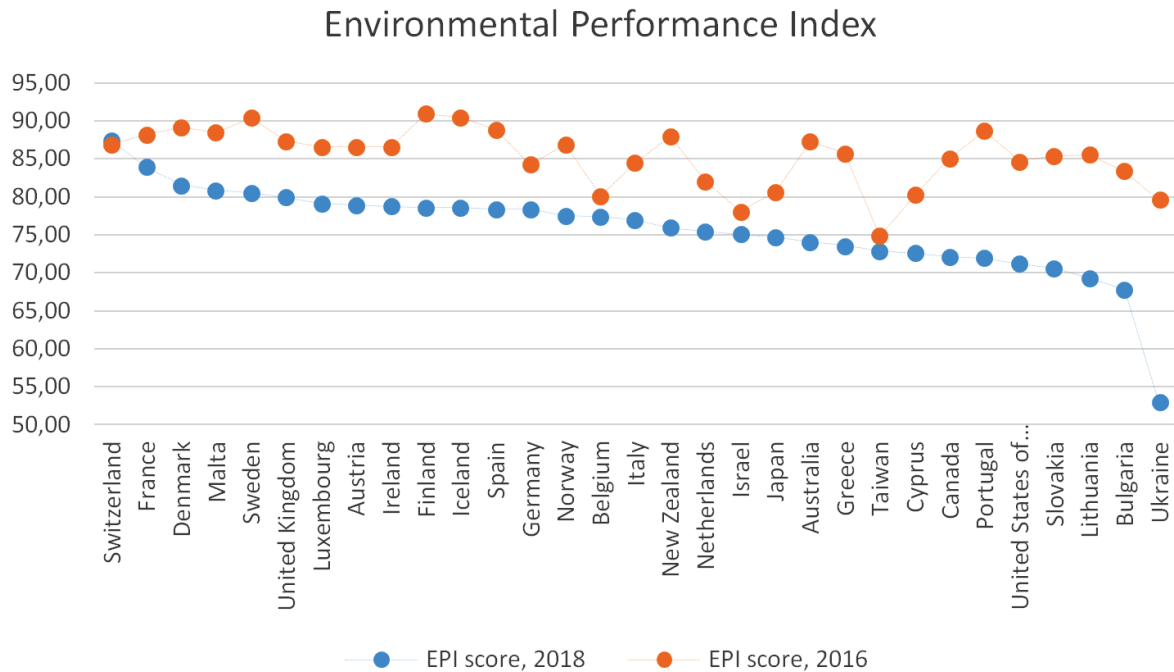


Fig. 2. Environmental Performance Index in different countries. Source: compiled by the authors according to Wendling et al. (2018)

the choice of tourist destinations and is one of the factors of determination of the consumer’s choice of the tourist services. However, a small indicator of dependence shows that other factors of choosing of a place of rest have impression too. Let see the influence of the ecological factors on the tourism development on the example of Kiyv Region in

detail. The correlation coefficient between the current costs on the environmental security and the amount of the contaminants’ emission is 0.54 (Fig.4) and it shows the direct middle connection between the exploring index. However, continuous accumulation of contaminants is reducing the attractiveness of this region as the recreation area. Allocation is not enough

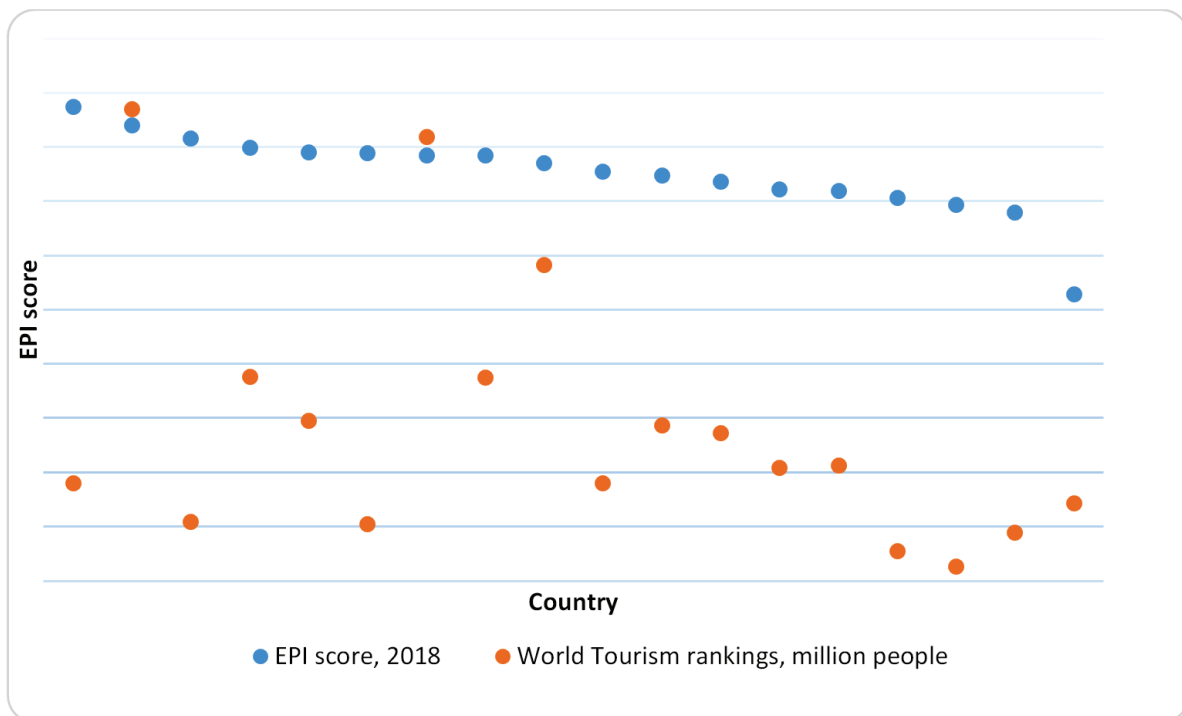


Fig. 3. Environmental performance indices and the number of arriving tourists in 2018 Source: compiled by the authors according to Wendling et al. (2018)

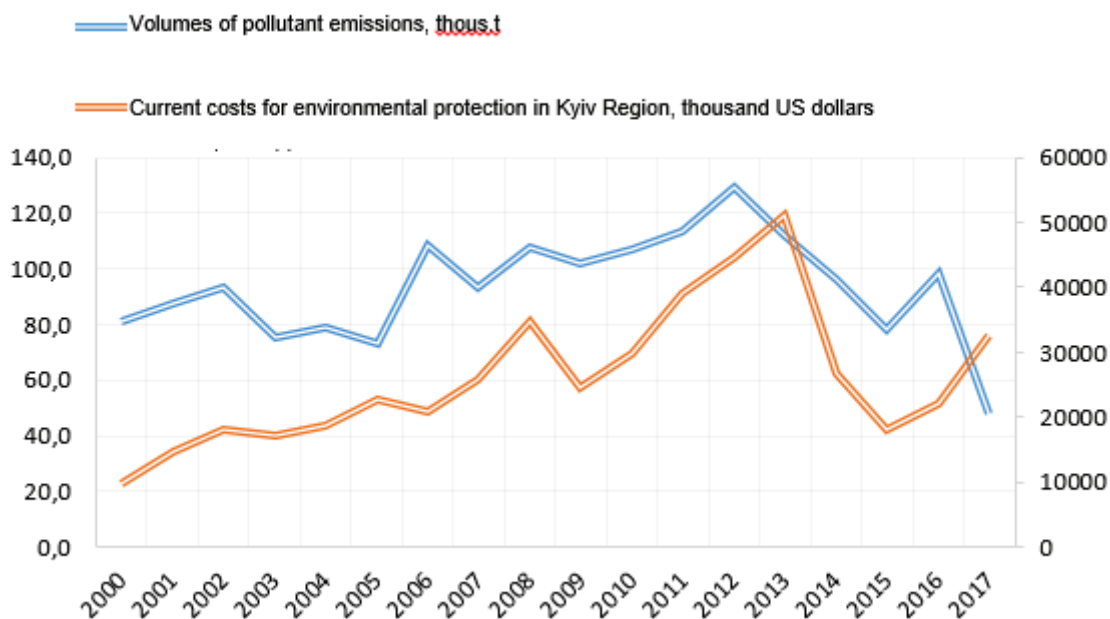


Fig. 4. Dynamics of pollutant emissions and current costs of the environmental protection in Kyiv Region
Source: compiled by the authors according to State statistics service of Ukraine (2018)

to stabilize the environment, and private entrepreneurs often don't care about the environment and try to maximize profits by minimizing costs.

In 2017, we have a deviation from the general trend: current costs have increased with the emission reduction of pollutions. However, this doesn't mean improvement of the environmental situation, because of the corruption schemes and imperfection of the control authorities for the using of monetary resources, a significant part of the funding doesn't reach its purpose, and the effect of accumulation of toxic substances and the continuous deterioration

of the ecological state are continuous. However, the amount of pollutions has decreased because of the decreasing of the production and economic instability in the country. But in Kiyv Region the service sector is rapidly expanding that has less impact on the ecosystem and gives a hope to improve the environmental situation and reduce the depletion of natural resources.

In the Kyiv Region there is an increase of tourists (Fig. 5). However, the tourist potential of Kyiv Region is increasing due to the factors of influence such as cultural, historical and business, which increases the



Fig. 5. Number of tourists arriving in Kyiv Region, served by the tour operators. Source: compiled by the authors according to State statistics service of Ukraine (2018)

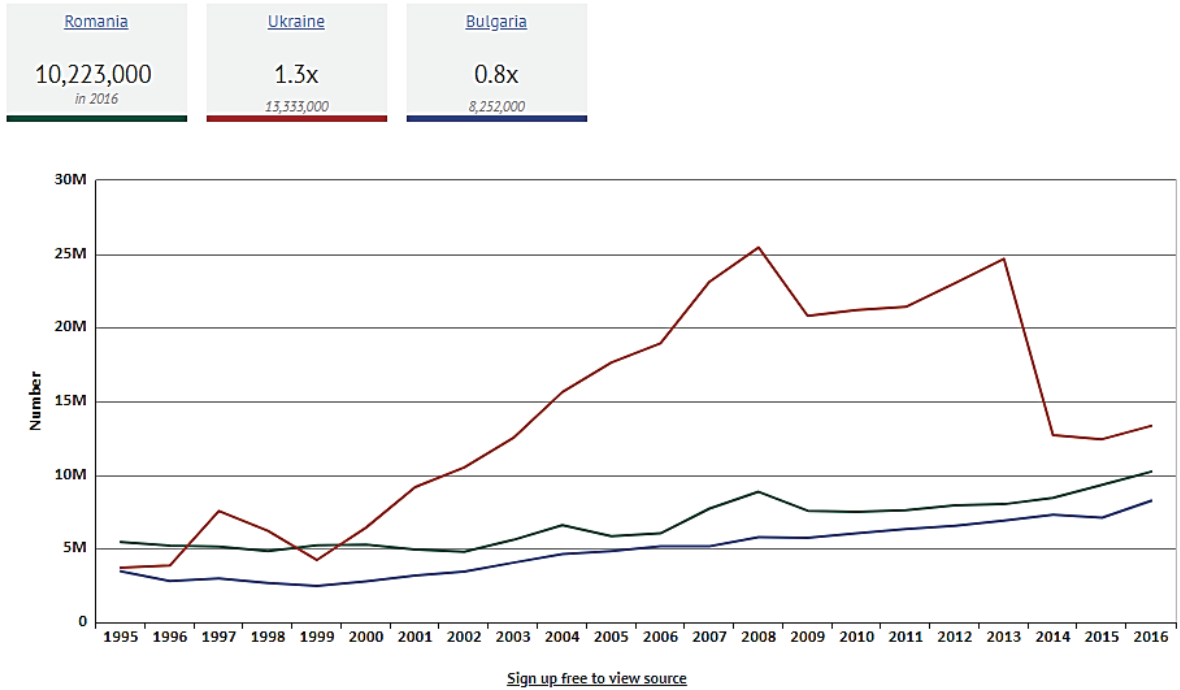


Fig. 6. International inbound tourists in Ukraine, Romania and Bulgaria. Source: compiled by the authors according to World Bank (2017)

tourist flow in this area, however, the ecological factor isn't the first priority in choosing a tourist destination. There is another situation on the coastal area of the Black Sea Region. One of the indicators of the quality of the recreational area near the reservoirs is the state and purity of water resources. Therefore, we can observe a significant reduction of the attractiveness of recreational areas in the port area, where there is a permanent impact of navigation on the quality of water in the coastal area (Athanasoglou, 2014).

As we can see in Figure 6, the flow of tourists has

been significantly decreased in Ukraine since 2014, which correlates with the beginning of the political and economic instability of the country. While in the territory of Bulgaria and Romania there is a steady increase in the number of the arrived tourists, which also has a positive effect on the GDP of the countries. One of the most famous recreational areas in Ukraine is Odessa, which is washed by the Black Sea.

Let's analyse the situation in Odessa Region of Ukraine (Fig. 7), characterised by the large coastal zone, the sea and developed infrastructure

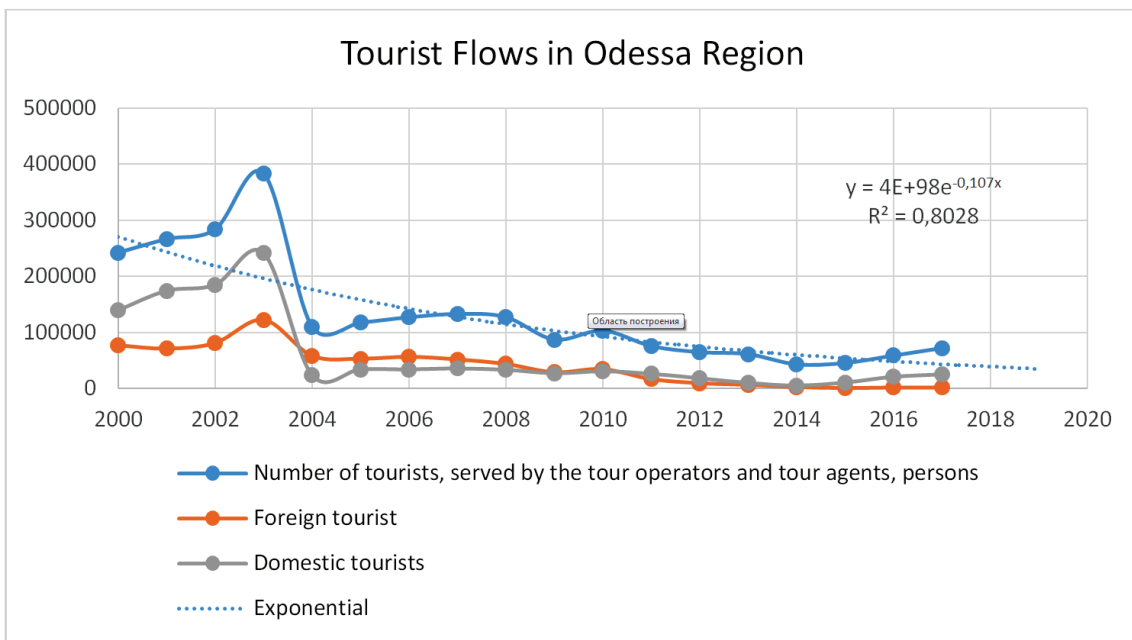


Fig. 7. Tourist Flows in Odessa Region in the time interval. Source: compiled by the authors according to Knoema (Knoema, 2018)

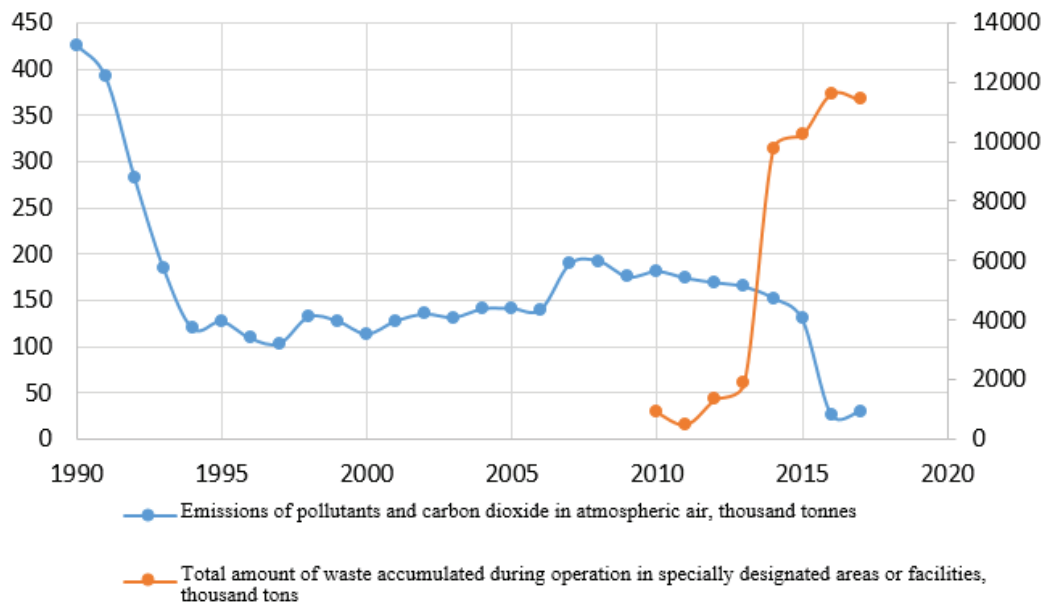


Fig. 8. Dynamics of Pollutant Emissions and Number of the Accumulated Waste in Odessa Region
Source: compiled by the authors according to State statistics service of Ukraine (2018)

for recreation and sanatorium rehabilitation. As we can see from Figure 7, the data of tourist flows correlate with the economic situation in Ukraine. Therefore, it was a sharp decline in 2014, a year of political changes and economic instability, but then the situation was getting better and the number of tourists was increasing to the level of 2011, which was also because of the decrease of tourist traffic in the Crimea. Another factor influencing tourist traffic in Odessa Region is the price policy. Choosing the place of the rest, tourists often prefer to spend time in such countries as Turkey and Bulgaria, which are the alternatives due to environmental and purpose factors, in these countries tourism infrastructure is better established. Also in Odessa Region there are many industries which influence to the ecological state and the problem of the utilization isn't solved.

As we see from Fig. 8, in case of the pollutants decreasing which are falling into the atmosphere, the amount of the accumulated wastes which are falling into the waste landfills is increased and together with filtrate poison the soils, ground waters and the Black Sea water area.

Therefore, according to the State Statistics Service of Ukraine (2018), in 2018 there are 617 landfill in Odessa Region with the total area of 952.39 hectares. Another problem is the liquid household waste that enters the sea by removing the pipeline to a depth of more than 5 meters. In Ukraine there is old filtering equipment and the waste is almost non-filtered, thus worsening the Black Sea water area. This creates additional risks for living organisms and adversely affects the health of tourists and population.

Thus, in Odessa Region there was an incidence of intestinal infections, skin diseases and respiratory tract. According to this decision we can conclude that there is the negative impact of the industrial production and accumulated waste and general anthropogenic load on the recreational zones of Ukraine and the reduction of their tourism potential (Koval, Mikhno, 2019). Pollution of the Black Sea water area leads to deterioration of the ecological situation in other countries bordering Ukraine. This reduces the attractiveness of the regions for the development of seaside rest. However, these countries have a flexible price policy, thereby increasing tourist flows.

Let compare the number of tourists and anthropogenic impact on the coastal areas of the Black Sea region in Ukraine, Bulgaria and Romania.

The eastern part of Bulgaria runs along the Black Sea coast and has a length of 394 km, while the length of the Romanian coastline is 256 km and Ukraine is 1006 km (Fig. 8) (Suciu, 2016).

As we see from Fig. 9, Ukraine has the largest percentage of buried waste (95%), while in Bulgaria it is the smallest (64%). This shows both the higher cultural and economic level of the country, and the less littered territory and the best environmental status. In 2017, the number of tourists in Ukraine was 14.2 million people, in the territory of Bulgaria - 8.9 million people, in Romania - 2.8 million people, so we can notice that the coast of Romania (analysing the number of vacationers on 1 sq. km) is most affected by anthropogenic influence because of the availability

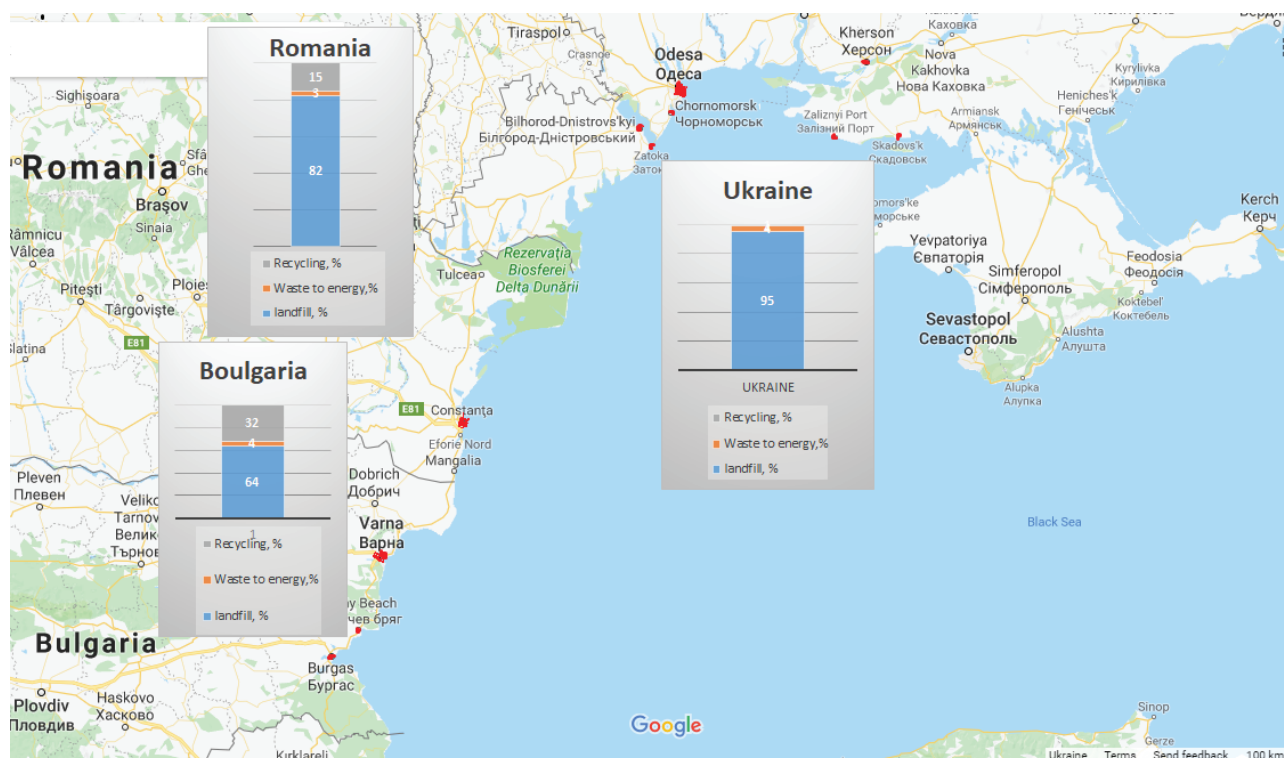


Fig. 9. Coastal areas of the Black Sea region of Ukraine, Bulgaria and Romania according to Google earth and data on waste management. Source: compiled by the authors

of zones for rest and has limited capacity to restore the environment because of the poorly developed tourism infrastructure, the government's reluctance to invest in environmental protection and deterioration of the water of the Danube, affecting the areas of the Black Sea.

The tourism in Bulgaria is more attractive for vacationers due to the developed infrastructure and advertising campaigns. However, the activity of large industrial enterprises negatively affects on the environment and worsens the water resources.

Ukraine is a leader in the pollution of the water area with sewage and pollution of the air. A special feature is ignoring the legislation and ecological norms by lots of entrepreneurs in order to achieve maximum profits due to deterioration of the environment. Analysing the indicators of the environmental pollution, the development of tourism infrastructure, we can underline that Bulgaria is more attractive for tourism and has larger tourist flows in looking for sea recreation, while Ukraine is the worst alternative and has the most polluted water area with sewage and general pollution because the operation of large industrial enterprises.

Let see the tourist traffic in the big cities on the examples of Odessa, Varna and Constanta, they are the important transport hub, cities with the population density, developed industries and place for recreation with a lot of sanatoriums.

As we see from the Table 1, the largest concentration of tourists is observed in Odessa, which is the largest city among the exploring cities. A main feature of this city is the construction of a large number of recreation areas and hotels. However, if we analyses the quality of service and environmental characteristics, the leader among the tourists will be the city of Varna, which has the lowest environmental impact and has a less powerful port. In Constanta, a powerful port was built, which is one of the largest elements of water pollution, but it contributes to the increasing of the tourist flow through the operation of the marine transport hub. The analysis of the data stated in Table 1 showed that Odessa has the greatest environmental impact, as a result of a change in the natural landscape because of the construction of a recreational zone, and due to the general pollution of the territories and the accumulation of waste that merge into the reservoir or that are buried.

The largest tourists' traffic in Odessa is due to the decrease of recreational areas in Ukraine through the Autonomous Republic of Crimea Annexium, the development Odessa as the sea hub and cultural centre, relatively inexpensive rest with the minimum costs for transfer for Ukrainians and the propositions from the service sellers.

Actuality of environmental research about Odessa Region proved the needs of the need for the implementation of a comprehensive system

Table 1. Comparative characteristics of the cities of Black sea regions

Indices	Odessa	Varna	Constanta
Permanently residing population, persons	1,093,120	335,177	297,503
Number of vacationers per year, thousand persons	5,700	966	874.7
Port cargo turnover per year, million tonnes	24,163	10	51.8

Source: compiled by the authors according to (NISR, 2018; NSIRB, 2018; State Statistics Service of Ukraine, 2018)

conception, which includes rational tourism and recreational nature using. If the tourist industry became strengthened economically, guests will be at least 5 million a year, however, within the ecologically safe limit must be no more than 24 million tourists a year. And the businessman must obey the Ukrainian legislation and the recreation area should be given a special status, which is more strictly conducted monitoring, environmental and economic assessment, inventory of resources suitable for tourism, their certification, registration, definition of the legal regime of tourist resources for compliance with regulatory requirements. It is necessary to make a modernization and reconstruction of the material and technical base of the tourist infrastructure objects more often. And it would be made according to all environmental standards, increasing the number of parks, beaches, cultural institutions and improving these territories.

The index of water pollution for all list of components, including pH of hydrogen, biological oxygen consumption and dissolved oxygen was calculate. The $C(i)/\text{maximum permissible concentration (i)}$ will find the actual concentrations to the MPC and the result list will be sorted. The IRS is calculated strictly for the six indicators which have the highest values of the reduced concentrations, despite of whether they exceed the MPCs or don't. In exploring regions the biggest anomaly was in Odessa, in selected samples of water exceeded the maximum permissible concentrations of suspended matter, hydrogen sulfide and iron, as well as reduced oxygen concentrations example. It should be noted, that in all exploring points there was an increase in the number of sulfates and a decrease of the oxygen content compared with the control point (deserted coast at a distance of 5 km away from Varna).

A large number of tourists enhances the problem of human waste and increases the speed of the emergence of illegal landfills. Despite EU's requirements for sorting and recycling of garbage,

only 1% of waste is recycled in the country. Because of using the old methods of waste and making of accumulated garbage masses and drainage in liquid wastewater reservoirs for many years, the risk of morbidity of the population in the territory of the Odessa region, including tourists, is increasing. Other recreational areas on the Black Sea coast are also affected. If you use the multiplier of the standard landfill area, then the landfill impact factor needs to be increased by 84 times (Skripnik, 2014). That is, when the liquid household waste is poured into the reservoir, the area of influence must be increased by 84 times.

In many places of rest (sanatoriums, boarding houses) untreated household wastewater accumulates in cesspools in volumes exceeding $1 \text{ m}^3 / \text{day}$ and is taken to landfills of liquid household waste located in the coastal protective strip or these areas are equipped with pipelines that discharge waste directly in the sea. Places of discharge of liquid waste according to sanitary and epidemiological standards should be located at a distance of at least 4 km from places of accumulation of people or living quarters. However, in the Odessa region there is a constant storm of untreated waste in the water area at a depth of about 16 m and a distance of 150 m or less from the beach (Word and Case: Analytical Portal, 2018). If to take into account these data, the water area within a radius of 336 km is poisonous. In its waters may be increasing of salts, heavy metals, and other poisonous elements. There is a proliferation of bacteria and other dangerous microorganisms that can cause morbidity and epidemics. Flora and fauna of the Black Sea is changing and it can lead to the disappearance of certain species of living organisms and increase the number of others, and in the future - to the ecological catastrophe.

Prevention of environmental pollution by human waste is a serious problem, and the current practice of sustainable development in Ukraine is limited. There is a need for a radical change in the

behavioral principles of all participants, and for this it is necessary to focus on increasing environmental responsibility (Popova et al., 2019). Therefore, it is necessary to fully understand the long-term benefits of avoiding of human waste for the environment and economy (Sushchenko, 2018).

According to the results of the research it can be argued that the coastal area of Ukraine and Romania is clogged, and taking into account the constant garbage and litters not only domestic but also industrial waste, the being of large landfills that pollute rivers flowing into the sea and landfills along the coast with filtrate from which comes directly into the waters of the Black Sea, the recreational areas are high-risk areas and, instead of the health-improving effect, may be the cause of diseases of tourists.

Conclusions. In nowadays the attractiveness of the service sector is increasing in Ukraine and all over the world. Tourism, as one of the key elements of society's life, has a major impact on such important sectors of the economy as transport and communications, building, agriculture, production of consumer goods, and others and increases the country's GDP. However, the impact on the natural environment, landscapes, and anthropogenic impact on the ecosystem are increasing.

Choosing a place for rest and vacation there are various factors of influence, one of which is the ecological component of the recreational zone. Often untapped and protected areas are becoming more popular for recreation than well-known equipped places and territories. Very often nature isn't ready to self-regeneration, and according the Pigou's theory, negatively externals are above profits. An analysis of the country's environmental performance indicator has shown that tourism traffic is higher in countries with a higher EPI than in countries where the environmental state and compliance with environmental legislation are lower.

In Ukraine, main problems are the depletion of territories and low compliance with environmental legislation. On the basis of a comprehensive analysis of the sphere of processing and utilization of human waste, it has been discovered that because of the incompleteness of the institutional transformations, in Ukraine environmentally hazardous and economically unjustified method of dealing with solid household waste is operating since the years of planned economy. That is why human waste was storing and drainage into the reservoir, which affects the state areas near disposal places. It is based on the false assumption that the natural environment is capable of absorbing both industrial and domestic waste.

Analyzing the recreation areas in the Black Sea region, we have seen that nature can't be restored independently under anthropogenic stress. The Odessa Region, as a place of recreation and tourist accumulation, is a high-risk area, and the present state of waste management affects the Black Sea water area at a distance of 336 km from waste points, and with a constant accumulation of these areas, this territory becomes considerably higher. Analyzing the places of recreation, it is concluded that Varna is the best alternative for the recreation on the Black Sea coast and has a lower anthropogenic impact than the city of Odessa.

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