

Ecotourism and sustainable development. Prospects for Ukraine

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The paper analyzes ecotourism's impact on the social, economic, and environmental components of sustainable development. A systematic review of the scientific literature on the topic reveals that the major problem in assessing ecotourism's impact is a lack of a unified approach to methods of measurement and certification in this field. Even approximate estimates show the high economic potential of ecotourism. Processing the data provided by mobile operators, using BigData technologies and the use of electronic visit permits, proves to be the most promising means to record the number of tourist arrivals. This data allows scientists to measure the level of tourism influence on the ecosystem. Studying foreign experience, eco-certification does not cover all objects of ecotourism. Although some countries, notably Australia, already have significant experience in implementing and using national eco-certification programs. In Ukraine, only several hotels and beaches have received eco-certification. Research on the impact of ecotourism on ecology has provided mixed results. We do not practice if ecotourism with caution; it jeopardizes the ecosystems on which its development depends. To promptly identify and prevent all negative consequences of the tourism in Ukraine, it is necessary to create (using foreign experience) tourist observatories. It should integrate the operation of such observatories into the national system of environmental and fiscal monitoring. Further development of this type of tourism in Ukraine requires more investments and support from the government. Therefore, it is necessary 1) to develop and implement a system of tax incentives for small businesses in ecotourism; 2) to enhance fiscal decentralization so that the environmental tax remains at the disposal of local communities and consequently local ecosystems; 3) to adjust the tourist tax base. The paper provides a generalization of the overseas experience, studies by scientists dedicated to the impact of ecotourism on the level of ecological culture of tourists and a local population. It presents conclusions regarding significant potential and opportunities for further successful development of ecotourism in Ukraine.

Keywords: ecotourism, certification, ecological culture, ecology, sustainable development.

Introduction

Environmental Protection has been the focus of scientists since the famous report by the Club of Rome, "The Limits to Growth", prepared under Meadows' direction (1972). Twenty years later, the idea of environmentally friendly socio-economic development was enshrined in the United Nations Conference dedicated to Environment & Development (Rio de Janeiro). At this conference, the UN Commission on Sustainable Development established and adopted a program focused on sustainable development in society "Agenda 21".

At the end of the last century, the sphere of tourism made a turn towards strengthening its ecological orientation. In 1990, the newly established organization The International Ecotourism Society (TIES), for the first time, developed and presented an official definition of ecotourism "responsible travel to natural areas that conserves the environment and improves the well-being of local people".

Since then, ecotourism has been the subject of increased interest from both scientists and international non-governmental organizations. Various aspects of eco-development are discussed at the annual conference on ecotourism in Australia and included in the World Tourism Organization agenda and the United Nations Economic Commission for Europe, the Organization for Economic Co-operation and Development, and the Council of Europe. Thus, by the decision of the General Assembly of the United Nations, the 2002 was declared the International Year of Ecotourism, the 2017– the International Year of Sustainable Tourism for Development. The resolution of the General Assembly of the United Nations on December 20, 2018, "Promotion of

sustainable tourism, including ecotourism, for poverty eradication and environment protection," declares ecotourism a multifaceted activity that can contribute to the goals of sustainable development in its economic, social and environmental components. Ecotourism can contribute to economic growth, alleviate poverty by providing employment, accelerating the transition to more rational patterns of consumption and production, which include promoting the sustainable use of oceans, seas, and marine resources, popularizing local culture, improving the quality and living conditions of the rural population (UN General Assembly Resolution 73/245).

Today, ecotourism is gaining development momentum all over the world (before the outbreak of COVID-19, the annual growth of this tourism sector was 25-30%, while the annual growth rate of tourism has fluctuated over the past three years between 4-7%). We estimate revenues from ecotourism worldwide at around \$1 billion a day. The deterioration of the environment gives an additional impetus to the growing demand for ecotourism, as people would like to see endangered monuments of nature. 1.5 billion international tourist arrivals were recorded in 2019, which provided 10.3% of growth to world GDP. According to various estimates, the ecotourism sector accounted for 25% of the total tourism sector (Interfax-Tourism, 2020), and 30%, according to TripAdvisor.

The Australian organization Ecotourism Australia Limited reported that in 2013/14, all certified Australian tour operators' total annual turnover exceeded \$1 billion, showing that ecotourism is no longer a niche but has become mainstream (Ecotourism Australia, 2020). There is special training on ecotourism for bachelors and masters in some countries, which shows the growing popularity and importance of the field (Masis & Alfaro, 2018). The basic principles of ecotourism, according to TIES, are to minimize human impact on the environment, raise awareness and respect for local culture, provide direct financial benefits for the ecology, create economic benefits for both local population and private sector, construct and operate facilities with a low level of environmental impact (TIES, 2020).

We should mention that ecotourism in Ukraine is in the process of development. Therefore, given the growing interest in ecotourism in foreign practice and its development potential in Ukraine (Zyma & Golub, 2015; Voitovych & Hrymak, 2017). In this paper, we would like: 1) to summarize the major results of foreign research to assess the impact of ecotourism on all the components of sustainable development; 2) to assess the state of ecotourism certification in Ukraine, 3) to outline possible ways for Ukraine to increase the funding for its development.

Materials and Methods

The research paper is based on the analysis of scientific data available on the Internet, such as 1) materials of the Ministry of Environment and Natural Resources of Ukraine, 2) materials from international scientific conferences, 3) UN General Assembly resolution, 4) information collected by various international organizations of nature protection and tourism (The International Ecotourism Society, World Tourism Organization, Ecotourism Australia). The paper aims to clarify the concepts of "ecotourism" and "sustainable development". It targets identifying and systematizing scientific studies on ecotourism dedicated to the conservation of animate and inanimate nature, ecotourism's socio-economic status, and the level of both locals' ecological culture ecotourists.

To determine the dynamics of growing scientific interest toward ecotourism, we have searched for scientific publications on the subject. To find relevant data, we used the scientometric database Web of Science by keyword "ecotourism" in abstracts, keywords, and article titles from 1990 to 2019. We presented the search results on the database using a graphical method based on Microsoft Excel spreadsheets to improve visual perception.

Results and Discussion

1. Ecotourism as an object of scientific research

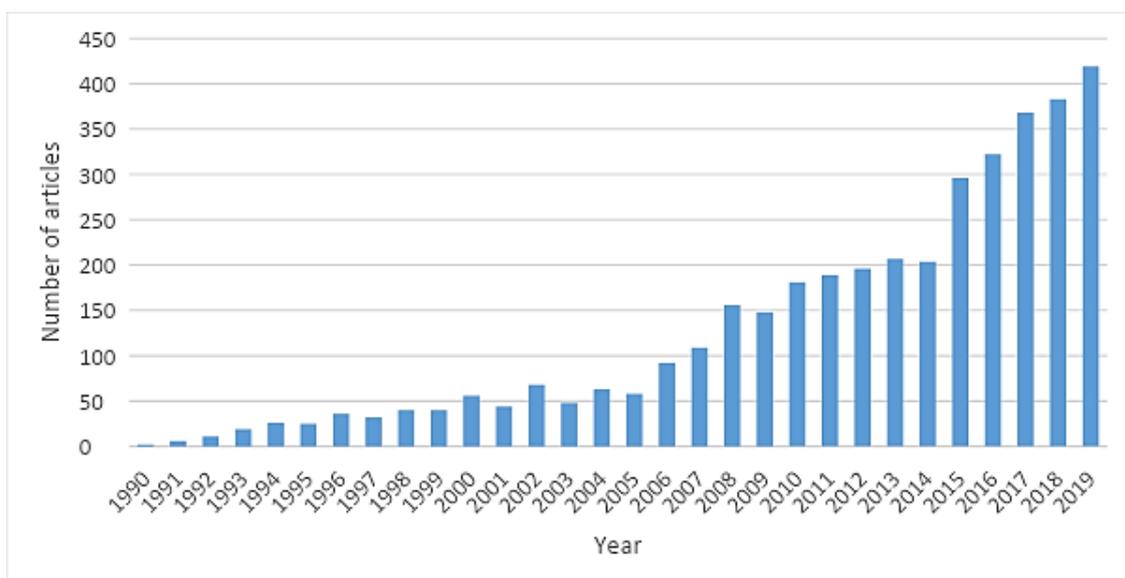
The scientific literature analysis on the research topic has revealed an ambiguous interpretation of "ecotourism". The problem of the concept definition does not cease to attract the attention of scientists around the world. There are separate studies devoted to the definition of ecotourism conducted by Mtapuri and Giampiccoli (2019), Wondirad (2019), Donohoe and Needham (2006), Fennell (2001), Diamantis (1999). As reported by Stronza et al. (2019), ecotourism originated in the 1980s, at the dawn of sustainable development, to channel tourism revenues into environmental protection and development. It was fully reflected in the first official definition of ecotourism (TIES, 1990, Table 1). To form a correct idea of the concept, here are the most common elements collected from different definitions of ecotourism by Fennell (2001): 1) references to places of tourism; 2) environmental protection; 3) culture; 4) benefits for locals; 5) education. The change in the environment over time has affected the change of emphasis and conceptualization of the term. As a result, in 2015, TIES revised the original definition of the term 'ecotourism' (Table 1) by adding 'education' and 'interpretation' to its definition, which are valuable ecotourism functions. These functions contribute to the development of the ecological culture of tourists and local communities.

The definition of TIES (2015) clearly outlines the major components of ecotourism: nature conservation, community, and sustainable travel. Ecotourism involves nature conservation, community, and environmentally friendly travel. Thus, those who practice ecotourism should adhere to the following principles: 1) minimize physical, social, behavioral, and psychological impact; 2) raise awareness and respect for the environment and culture of both locals and tourists.

A diagram below illustrates the dynamics of the number of scientific publications on ecotourism, indexed in the scientometric database Web of Science (1990-2019, Fig. 1).

Table 1. Definitions of ecotourism by official organizations

Organization	Definition of ecotourism
The International Ecotourism Society (TIES), 1990	"Responsible travel to natural areas that conserves the environment and improves the well-being of local people."
The International Ecotourism Society (TIES), 2015	"Responsible travel to natural areas that conserves the environment sustains the well-being of the local people and involves interpretation and education". Education is inclusive of both staff and guests.
Ecotourism Australia (Ecotourism Australia, 2020)	"Ecotourism is ecologically sustainable tourism focusing primarily on experiencing natural areas that foster environmental and cultural understanding, appreciation and conservation."
The World Tourism Organization (UNWTO, 2020)	Ecotourism refers to forms of tourism with the following characteristics: (1) All nature-based forms of tourism in which the primary motivation of the tourists is the observation and appreciation of nature and the traditional cultures prevailing in natural areas. (2) It contains educational and interpretation features. (3) It is not only organized by specialized tour operators for small groups. Service provider partners at the destinations are small, locally owned businesses. (4) It minimizes negative impacts upon the natural and socio-cultural environment. (5) It supports the maintenance of natural areas which ecotourism attractions by (a) Generating economic benefits for host communities, organizations, and authorities managing natural areas with conservation purposes; (b) Providing alternative employment and income opportunities for local communities; (c) Increasing awareness towards the conservation of natural and cultural assets, both among locals and tourists
International Union for Conservation of Nature (IUCN) (Ceballos-Lascurain, 1996)	"Environmentally responsible visiting of relatively unspoiled natural areas, in order to enjoy and appreciate nature (and any accompanying cultural features - both past and present), that promotes conservation, has low negative visitor impact, and provides for beneficially active socio-economic involvement of local populations."
Ecotourism Australia (Ecotourism Australia, 2020)	"Ecotourism is ecologically sustainable tourism focusing primarily on experiencing natural areas that foster environmental and cultural understanding, appreciation and conservation."

**Fig. 1.** Number of scientific articles in ecotourism field, Web of Science (1990-2019).

Analysis of these dynamics reveals a direct relationship between interest in ecotourism and the growth of research. The peak surges in the number of scientific publications in 2002 and 2015-2017 are explained because by the UN General Assembly's decision; it declared the year 2002 the International Year of Ecotourism, and 2017 – the International Year of Sustainable Tourism. In 2015, two notable events took place: the UN summit on sustainable development and the largest ecotourism conference in the history of TIES, where were reconsidered the definitions and crucial principles of ecotourism. The Global Ecotourism Conference (GEC07) in Oslo, 2007, caused an increase in the number of publications from 2007 to 2008. The whole conference focused on ecotourism's achievements and problems since the World Ecotourism Summit in Quebec City, Canada

(2002). Some observe that it has conducted the highest number of research on ecotourism in areas with low-income economies, such as Asia, Africa, and Latin America. However, the most interested in this field are scientists from the United States, Australia, Great Britain, and Canada (Wondirad, 2019).

2. Certification in ecotourism

The formation of a unified approach is fundamental to the definition of ecotourism. It is impossible to control the process if its participants have different views on the same subject. The successful development of ecotourism requires harmonizing the definitions, and it declared their consolidation at the level of legislation at the International Summit of Ecotourism in Quebec (Canada, 2002) (World Ecotourism Summit Quebec, 2002). In our study, we will proceed from the definition of TIES (2015) for the reason of its official status. It most fully reflects the current level of socio-economic development in the world community. It convinces some scientists that the market (business) and environmental protection are incompatible concepts. We take a different view and believe that the market can encourage tour operators to improve environmental protection when consumers are aware of the value (including economic) of balanced ecosystems. Potential ecotourists must ensure that tour operators provide environmentally friendly services and products. This requires an appropriate certification of travel services and products. Certification is essential to ensure the effectiveness in business partnerships between entities operating in the ecotourism market; it forms the awareness of ecology damage in future consumers. Besides, certified travel agencies and tour operators will receive additional marketing benefits over other ecotourism market participants.

We should note that certification in this field has covered far to all objects of ecotourism. However, several countries have much experience developing and using eco-certification and accreditation programs on the national level. Australia, for instance, developed Australia's National Ecotourism Accreditation Program (NEAP) in 1996, later renamed the Australian EcoCertification Program. They developed primarily this program as a tool to identify genuine ecotourism products. It bases the certification criteria on the essential components of ecotourism: 1) an environmentally sustainable and nature-oriented product; 2) it includes interpretation; 3) provides benefits to local communities and considers cultural features (Thwaites, 2007). Implementing this program has helped raise the standards of ecotourism in Australia and increase the income of certified tour operators. It later became the basis for developing modern eco-certification programs, including the Green Globe 21 International Ecotourism Standard.

EA currently offers the following certification programs for ecotourism (Ecotourism Australia, 2020):

- EcoGuide certification (launched in 2000);
- ECO certification (replaced NEAP in 2003);
- Climate Action (launched in 2008);
- Respecting Our Culture (transferred from Aboriginal Tourism Australia in 2008);
- ECO Destination Certification (launched in 2018).

EA certification programs are based mainly on the self-assessment model. The certification process takes place in several ways: 1) remotely by documentary verification; 2) personally by an expert who travels to destination destinations; 3) by a comprehensive independent third-party audit. EA certificates cover all components of sustainable development. Climate Action Certification aims to reduce carbon emissions and implement measures to adapt to climate change. The Respecting Our Culture Certification confirms the implementation of procedures that protect cultural authenticity at the local level (Ecotourism Australia, 2020).



Fig. 2. Hotels in Europe that received the "Green Key" certificate in 2020

There are also international eco-certification programs, about 17 of which specialize only in tourism. Elements of tourism infrastructure such as restaurants, hotels, campsites, and other temporary accommodation belong to the certification objects. The hotel sector is the most important source of income in tourism infrastructure, and it is relatively energy-consuming. Hotels and other accommodation types contribute to the generation of 21% of the total CO₂ produced in the tourism industry (World Tourism Organization (UNWTO), 2008). The International Key Environmental Certification Program "Green Key", coordinated by

the Foundation for Environmental Education (Denmark), reduces these indicators. The aim of the program is to conduct environmental certification of hotels and other temporary accommodations. The program issues international certificates with further entering the database (Green Key, 2020). The Green Key program also has an educational component that enhances both employee's and ecotourists' environmental culture.

Over 3,200 hotels in 65 countries have currently passed the Green Key environmental certification (Green Key, 2020). Ukraine has also joined the program. In 2020, the Maison Blanche Hotel, in the Kyiv region, was awarded an eco-certificate (Figure 2). 13 Ukrainian beaches received the Blue Flag certification in 2020 (Table 2). They carry the Blue flag certification out under the Foundation for Environmental Education (Denmark). Currently, 4,671 beaches in 47 countries have received the Blue Flag certificate worldwide (Blue flag, 2020). The "Blue Flag" Mission sees its primary goal in environmental education, reducing the impact of human activities on beaches and piers. The certification's primary criteria are: 1) environmental education and access to environmental information, 2) seawater quality, 3) environmental management, 4) safety and service.

Table 2. Beaches in Ukraine which received "Blue Flag" certification in 2020*

Region	Beach name
Odessa	Morye Beach, Fontanka
Odessa	Yacht Beach, Fontanka
Odessa	Prichal 1 Beach, Odesa
Odessa	Caleton Beach, Odesa
Odessa	Chornomorsk City Municipal
Dnipro	Good Zone Hotel Beach, Pishjanka, Dnipro
Kyiv	Troieschyna Beach
Kyiv	Pusha Vodicia Beach,
Kyiv	Galera Veselka Beach
Kyiv	Molodizhnyj Beach, Dolobetsky
Kyiv	Venezia Beach, Hydropark
Kyiv	Dityachiy Beach, Hydropark
Kyiv	Zolotiy Beach, Hydropark

* Note: based on the Blue flag (2020).

As seen from table 2, only five beaches from 31 have received the Blue Flag certificate in Odessa, where the coastline is 30 km. The beaches in Odessa have trouble with the cleanliness of the territory and the quality of drinking water, which are prime criteria for passing Blue flag certification.

3. The impact of ecotourism on the environmental component of sustainable development

The positive impact of ecotourism on the conservation of endangered species has been studied well enough and confirmed by several scientific works. The impact of ecotourism on the conservation of cetaceans, for instance, is considered in the work of Walker and Hawkins (2013), lemurs in Buckley's work (2010). Buckley believes that ecotourism works only when local communities realize they can profit from tourism based on the conservation of natural resources, one of the basic ecotourism principles (Buckley, 2010). The impact of ecotourism on the conservation of sea turtles has been studied in the works of Vasconcellos et al. (2013), Hunt and Vargas (2018); coral reefs in the works of Diedrich, (2007), Spalding et al. (2017). Diedrich (2007) observes that, on the one hand, recreational maritime tourism is one of the many threats to the Belize Barrier Reef, but it is a motivation and a source for its conservation. Lindsey et al. (2005) have concluded that there is a sufficient income level from ecotourism to preserve the wild dog population in South Africa. Walpole (2001) reports the positive impact of ecotourism on the increase in the number of Komodo dragons (*Varanus komodoensis*) in Komodo National Park (Indonesia).

Buckley et al. (2016) have analyzed the impact of ecotourism on the further viability of some populations and got favorable results (cheetahs, New Zealand sea lions, orangutans, African penguins). A study by Gutierrez et al. (2020) confirms the conservation of medium and large terrestrial species because of the impact of ecotourism in the Lapa Rios Ecological Reserve (Costa Rica). According to these scientists, in the studied reserve, a "living shield" reduces the danger to wildlife from fires, deforestation, and gold mining.

Many scientists report the preservation of inanimate nature because of the practice of ecotourism. Hunt et al. (2015), Broadbent et al. (2012), for example, have investigated the effect of ecotourism on the state of land in Costa-Rica. They have concluded that ecotourism has reduced land degradation and, sometimes, has even led to their full recovery. Moskwa (2010) has discovered that most landholders deem ecotourism as an important tool for land conservation. Buckley (2010) thinks of ecotourism as a tool of protection against deforestation, poaching, and wildlife hunting. Boley & Green (2016) report a close symbiotic relationship between ecotourism and the conservation of natural resources. According to Anup et al. (2015), ecotourism has helped preserve the social and cultural heritage of the Annapurna Conservation Area (Nepal) and has also improved the economic development and living standards of the local population.

Some researchers do not have such a positive view of the ecotourism influence. Honey (2008) is wary of ecotourism impact. She states that ecotourism should be practiced with caution; otherwise, it jeopardizes the ecosystems on which its development depends. In her opinion, ecotourism offers a set of principles and practices which can change the operation of the tourism industry. There are concerns regarding the negative ecological impact of transport (aircraft, cars) have been expressed by some participants of a web conference on the Sustainable Development of Ecotourism (2002), (Sustainable Development of

Ecotourism Web Conference Report, 2002). Air travel is the largest source of greenhouse emissions. One participant claimed each passenger handles one ton of carbon dioxide released into the atmosphere during an eight-hour flight. To be sustainable, ecotourism has to solve the aviation problem, enabling travelers to minimize ecological damage. Gossling et al. (2002) also point to the negative effect of long-haul flights on the state of the Seychelles ecosystem.

The problem of CO₂ emissions from transport involved in the tourism sphere remains relevant until these days. The share of the carbon emissions from tourism-related transport in 2005-2016 has increased from 17,9% to 22,1%. According to forecasts from 2016 to 2030, this indicator is about to increase to 22,8%. Total human-made emissions: 2005: 26,400 Mt of CO₂; 2016: 32; 100 Mt of CO₂; 2030: 37,800 Mt of CO₂ (World Tourism Organization and International Transport Forum, 2019).

We observed many efforts within the concept of sustainable development to minimize the negative influence of ecotourism in the last decade and implemented a three-year project (2016-2019) of the IUCN, Mediterranean Experience of Ecotourism (MEET), which concentrated on the development of an ecotourism model for the Mediterranean (based on the European Charter for Sustainable Tourism). Its goal to reduce the damage from tourism to nature reserves by optimizing the seasonal tourist flows. The project comprises 10 Mediterranean countries (IUCN, 2020).

The project resulted in an innovative online course on product development for ecotourism that started on October 28, 2020. The course focuses primarily on nature reserves employees, tour operators, associations of sustainable tourism. It comprises two modules. It generates the first module on the proven MEET method; it focuses on ecotourism's product development. They devote the second module to measuring the ecological footprint from ecotourism products using the MEET DestiMED calculator. The MEET DestiMED calculator allows ecotourism providers to measure the impact of its components (including food and beverages, activities and accommodation, transfer, and mobility) on the environment.

The Modern Hotel Energy Solutions project reduces the CO₂ emissions from hotels. The UNWTO has started the project in cooperation with a group of leading UN and EU energy companies and tourist agencies. The project provides help, technical support, and training on the use of renewable energy sources for small and medium-sized businesses in the EU, contributing to efficient energy use (UNWTO, 2020).

4. World experience in organizing eco-monitoring of tourist destinations

The intensification of tourism has led to an increase of anthropogenic impact, and appeared a need to monitor the dynamic of changes in the environment in places of tourism and ecotourism in particular. Hence, appears a necessity in an organization and conduct of eco-monitoring in tourist destinations and ecotourism destinations in particular. It includes a system of observation, evaluation, and forecasting. Eco-monitoring does not involve management but is a source of information, essential for making environmentally important decisions. The international community has already taken the first steps in this direction. The International Network of Sustainable Tourism Observatories (INSTO), established in 2004 and based on the UNWTO, manifests the internationalization of eco-monitoring at tourism sites. INSTO aims to monitor the economic, social, and environmental impacts of tourism at the destination level (UNWTO INSTO, 2020). INSTO continues its development and currently includes 31 observatories around the world (Fig. 3). China is the leading country in the number of observatories. China operates nine observatories, Europe has six (Table 3).

Table 3. INSTO observatories in Europe as of 30.11.2020 *

No	Observatory	Country	year of admission to INSTO
1.	The Aegean Islands Observatory	Greece	2013
2.	The Croatian Sustainable Tourism Observatory	Croatia	2016
3.	Navarre Tourism Observatory	Spain	2016
4.	The Sustainable Tourism Observatory of South Tyrol	Italy	2018
5.	The Alentejo Sustainable Tourism Observatory	Portugal	2018
6.	Algarve Sustainable Tourism Observatory	Portugal	2020

* Note: based on UNWTO (2020).

INSTO regularly holds conferences with experts and network partners. These conferences exchange modern technologies along with experience in the measurement of monitoring objects (the satisfaction of locals with tourism, tourism seasonality, tourism financial flows management, water and energy management, carbon emissions, and solid waste management) in recreational areas.

Table 3 illustrates that INSTO in Europe is in its infancy. The observatories are in places of nature reserves. The observatory websites display the results of monitoring (in dynamics) in the observation area. It requires members of INSTO to measure and report on the following sections: tourism seasonality, employment, economic benefits for the area, water management, wastewater management, solid waste management. Each observatory differs in its structure and focus. INSTO pays great attention to the processes, innovations, methods, and tools used in the monitoring. The observatories act as analytical centers that promote communication, cooperation, and management of the tourist area based on the got data.

Using the European experience for Ukraine will be advisable since it has nature reserves which in a world practice are mainly associated with ecotourism. As of January 1, 2020, the Nature Reserve Fund of Ukraine comprises 8512 territories and objects with 4.418 million hectares of land and 402500.0 hectares in the Black Sea. The percentage of protected areas in Ukraine is 6.7% of the total area. During 2019, the number of objects and territories of national and local significance included in the nature reserve fund increased by 116 units with a total area of 94,224.2 hectares. In 2019, in particular, the area of the nature

reserve fund increased the most in Rivne (by 22018.21 ha), Kherson (by 15911.84 ha), Zaporizhia (by 13115 ha), Lviv (by 12800.6471 ha), and Zakarpattia (by 11716.2 hectares) regions (Pryrodno-zapovidnyi fond Ukrainy, 2020). The volume of protected areas should increase to the European average (about 21% of the country's total area (Zakon Ukrainy, 2019).



Fig. 3. International Network of Sustainable Tourism Observatories as of 30.11.2020 (UNWTO INSTO, 2020)

Thus, the task is to develop a monitoring system embedded in the national base of environmental and fiscal monitoring, considering EU experience and based on tourist observatories. The monitoring system helps to ensure the accuracy of the economic assessment of income from ecotourism services. Besides, it provides the possibility of constant control over the level of anthropogenic pressure on nature reserves. According to the Law of Ukraine on "Basic principles (strategy) of an environmental policy of Ukraine for the period up to 2030," monitoring and environmental certification were assigned to the tools for implementing the environmental policy of the country (Zakon Ukrainy, 2019).

5. The impact of ecotourism on the socio-economic component of sustainable development

The problem of measurement accuracy in ecotourism is critical and relevant from environmental and economic points of view. The issue with measuring ecotourism's impact on an economy was first discussed at the World Ecotourism Summit in Quebec City, Canada, in 2002 (World Ecotourism Summit Quebec, 2002). In the same year, in connection with the UN declaration of 2002, the World Tourism Organization conducted the first in-depth study dedicated to developing the ecotourism market. Germany, USA, Great Britain, Canada, Spain, France, and Italy have created the most advanced ecotourism markets. Therefore, these countries were selected as the objects of the research. They have conducted separate studies in each of these countries with a further publication of the results. The authors of "The British Ecotourism Market" name the following factors which complicate the economic assessment of the ecotourism impact: 1) different interpretations of the concept "ecotourism" in various countries; 2) inclusion of ecotourism products tourism (World Tourism Organization The British Ecotourism Market, 2002).

However, even approximate scientifically based estimates show a high economic potential for further development of ecotourism. A study by Balmford et al. (2015) estimates that nature reserves are visited by about 8 billion people a year globally. These visits generate approximately US \$600 billion in direct in-country expenditure and US \$250 billion /y in consumer surplus (Balmford et al., 2015). BigData technology, relying on the data provided by mobile operators, is the most promising to count the number of tourists. It also can help to create a social portrait of an ecotourist. Interfax-Tourism reports they have planned a pilot experiment using this approach to be conducted in Khibiny National Park (Russia, Murmansk Region) (Interfax-Tourism, 2020). In the year 2020, the visit permits was issued electronically to get accurate data on tourist flows in the Baikal National Park (Russia, Irkutsk region) (Interfax-Tourism, 2020).

The positive effect of ecotourism on the GDP in individual countries has been confirmed by Shvedun et al. (2019), Gunter et al. (2017), and other scientists. Researches conducted at the local level (the level of destination) also prove the local economy's positive effect, including job market and business opportunities (Anup et al., 2015; Hunt et al., 2015; Amalu et al., 2018; Li et al., 2018). Jackson and Wood (2016) have published a paper on the social partnership between ecotourism and local communities. According to these authors, the \$89 million Wilderness Safaris, which operates in 28 destinations in southern Africa, is reinvesting 5% of its profits to develop local areas on which the ecotourism business depends. It serves as an example of the successful cooperation of ecotourism with local communities. It proves that ecotourism can aid in developing natural areas. Besides, ecotourism revenues may be a better option to replenish a budget in emerging countries in contrast to revenues from polluting manufacturing enterprises. The director of Virunga National Park (Congo) stated that "ecotourism has already generated over one million US dollars of income. More safety for the park could increase this figure to USD 235 million, benefiting local communities and creating over 7,000 jobs" (IUCN, 2016).

Although ecotourism is a lucrative industry, it requires investments to sustain the ecosystem, creation, and financing of tourism observatories, certification. Since ecotourism is a fast-growing service sector, it remains attractive for investors. During the easing of quarantine measures, it has drawn more attention from tourists. Many foreign and local media report a growing interest in domestic tourism, especially in the wilderness (Headout, 2020). Russians have become interested in travel and recreation within the country. Demand for safe, educational travel within the home country has increased sharply (Interfax-

Tourism, 2020). A survey conducted in Brazil among tour operators, travel agencies, and independent consultants in the tourism business shows ecotourism ranks second among much tourism to fund attractiveness at this stage (TEIS, Facebook, 2020). Of the five most popular types of tourism, three belong to nature-based tourism. Brazil's experience shows a return of \$15 for every dollar invested in nature reserves, considering tax and multiplier effects. The figure for EU countries is 7-10 euros (TIES, 2020).

Such reports indicate an increase in the investment attractiveness of ecotourism. Therefore, the task is to develop effective mechanisms to attract investors to the development of this tourism sector in Ukraine. It is necessary to design and implement an effective mechanism for tax incentives for small businesses at the state level, given the shortcomings of fiscal legislation (Yaroshevych et al., 2019), as ecotourism activities are carried out mainly by small businesses. Fiscal decentralization should be strengthened so that the environmental tax remains at the disposal of local communities or goes to protecting local ecosystems. The income tax for business entities engaged in production is subject to distribution between the state and local budgets, where the local budget receives only 10% of income tax revenues. The environmental tax is also subject to distribution between the state and local budgets. Local budgets receive only about 40% of this tax revenue; local communities and recreation area owners receive only 25% (village, city budgets, budgets of united territorial communities). Tourist tax in Ukraine goes to the local budgets by the decision of local authorities.

It can carry the collection of tourist tax only from temporary accommodation places such as a) hotels and other hotel-type establishments; b) a dwelling house, an extension to a dwelling house, an apartment, a cottage, a room, any other objects used for temporary residence (overnight stay). Thus, persons who come to the nature reserve remain outside the tourism taxation. Rates of the tourist tax in Ukraine are set as a percentage of the minimum wage for domestic tourism - up to 0.5% (currently 30 UAH per day), for foreign tourism - up to 5% (currently UAH 300 per day). The tourist tax in Ukraine is comparable to the tourist tax in the EU countries. For Ukraine, the task is to adjust the tourist tax to cover all tourists, which will increase tax revenues.

6. The impact of ecotourism on raising the level of ecological culture of society

The environmental function of ecotourism is to prevent or minimize the negative impacts and consequences of tourism. This goal is achieved by the following means: strict regulation of influences, determination of acceptable norms for recreational load, zoning of territories, tourist routes planning, and infrastructure objects arrangement. The cultivation of environmental ethics among tourists is also one means to manage the negative impact. It contributes to changing tourist patterns of behavior (e.g., consumerism) by raising their environmental awareness level.

Ecotourism's impact on ecological culture formation through its qualitative aspects requires thorough analysis (World Ecotourism Summit Quebec City, 2002). Studying such questions, scientists mainly use methods of questionnaires and interviews. The subject of the study is often to determine the correlation between 1) the environmental knowledge and the environmental attitude, 2) the environmental attitude and the environmental behavior, 3) the environmental knowledge and environmental behavior (Zheng et al., 2018). They devote part of the research to determining the correlation degree of such relations for specific categories of the population. Zsóka et al. (2013) have studied the correlation between environmental education and environmental knowledge, the environmental attitude, and actual students' behavior. This study shows a high correlation between the intensity of environmental education and the environmental knowledge of students. This is partly because of the environmental education itself and partly to the higher intrinsic student motivation who voluntarily take part in environmental education at the university level. Environmental education is crucial for shaping attitudes towards 'sustainable consumption' as noted by Zsóka et al. (2013). Environmental education solves the problem of consumerism. According to these authors, it helps raise awareness of the need for a lifestyle focused on sustainable consumption.

They devote the other part of the research on the subject to the study of consumer readiness: 1) to compensate for losses caused by eco-harmful modes of transport, 2) to pay a higher price for services and eco-products. Jou and Chen (2015) have investigated economy-class passengers' willingness to pay compensation for CO₂ emissions during tourist flights. The results got in this study confirm this readiness and may even be useful to form new airline pricing strategies. Lu and Shon (2012) also report that regardless of the type of trip, passengers who are aware of the harm from CO₂ emissions turn out to be ready to pay compensation for it.

Some scientists study the relationships between age, education, income levels, and attitudes towards eco-shopping. Wang et al. (2019) have studied how these relationships influence tourists' ecological choice, e.g., in favor of eco-hotels (one of the current trends in ecotourism). The results indicate a significant correlation between attitudes towards eco-shopping and eco-behavior. Wang et al. (2019) state that both age and income significantly affect eco-shopping attitudes, while education and income significantly affect eco-behavior motivations.

In the modern world, ecotourism is a considerable effort to promote ecological culture as an efficient long-term means for ecology improvement. A simple example is an online training program for developing eco-products created within the project Mediterranean Experience of Ecotourism. They design the program to track the ecological footprint when choosing different options for forming the tourism package (IUCN, 2020).

A study by Mondino and Beery (2019) considers ecotourism a learning tool for locals and tourists of all ages. According to these scientists, environmental education should be the direct responsibility of administrative bodies, which requires changes at higher levels of government.

UN General Assembly Resolution emphasizes the importance of using ecotourism to raise environmental awareness (UN General Assembly Resolution 73/245, 2018). It calls for better informational work on the dissemination of reasonable practice in sustainable tourism, including ecotourism, to promote a more informed consumer attitude to their needs, guided by achieving goals in sustainable development and encouraging the transition to rational models of consumption and production.

Conclusion

Analysis of the world experience of ecotourism practice shows its positive impact on sustainable development's social, economic, and environmental components. Ecotourism in Ukraine is at an early stage but has strategic prospects for further successful operation and sustainable development of society with the state's support. Considering the availability and necessity to increase the nature reserve fund of Ukraine (obligations to the EU), the reorientation of the population to domestic tourism (because of the coronavirus outbreak and borders closure), the significant contribution of tourism (ecotourism in particular) in the formation of world GDP, guided by the Law of Ukraine "On Basic Principles (Strategy) of the State Environmental Policy of Ukraine for the period up to 2030" and the goals of sustainable development we believe that (1) the practice of eco-certification in Ukraine should continue and spread faster; (2) to improve the monitoring and management of ecotourism in Ukraine, it is necessary to establish ecotourism observatories (using the experience of EU countries); (3) the monitoring system for nature reserves (based on ecotourism observatories) should be integrated into the national base of environmental and fiscal monitoring; (4) dissemination of information about environmental problems should be carried out among the population with the active use of ecotourism opportunities and implementing environmental programs in secondary and higher education; (5) a large-scale survey should be conducted to determine the population readiness for sustainable use of natural resources in tourism. To attract funding to the development of nature reserves in Ukraine, indispensable to (1) develop and implement an effective mechanism for tax incentives for small businesses in ecotourism; (2) strengthen fiscal decentralization so that the environmental tax remains at the disposal of local communities and local ecosystems; (3) adjust the tourist tax base.

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