Chernobyl Phenomenon: Catastrophe, Experimental Area vs Curiosity Object

Volodymyr F. Kaluha¹, Serhii I. Uliganets², Olexander Y. Dmytruk², Liudmyla V. Melnyk², Tetiana G. Kupach²

¹National University of Life and Environmental Sciences of Ukraine
²Taras Shevchenko National University of Kyiv, Kyiv Ukraine, uliganez@ukr.net

Abstract. The article is devoted to a qualitative thematic study of the Chernobyl phenomenon as a holistic phenomenon that combines a number of manifestations: from objects of direct visual perception to legends and myths about events, processes and Chernobyl in general. The integrity of the image of the Chornobyl zone makes the Exclusion Zone an attractive tourist destination, especially for those who is interested in gaining such experience. At the same time, using the method of thematic research and based on statistics, the Chernobyl phenomenon is considered in its real context and as a kind of indirect means to determine the level of interest of citizens of different countries in Ukraine (as a carrier of unique culture, history and world events). The results of the article are a contextual analysis of the phenomenon of Chernobyl as a tourist destination. Resource opportunities of nuclear tourism in the Chornobyl zone are analyzed. Methodological qualitative case study of the Chernobyl phenomenon includes accounting and description of tourist resources of Nature and resources of cultural identity of the cities of Pripyat, Chernobyl (with adjoining territories), which are cultural artifacts and are elements of the nuclear heritage of Ukraine, and can be included and presented in tourist routes. The contextual analysis of this study concerned the consideration and processing of data on the Chornobyl zone as a holistic phenomenon, from cartographic, textual documents, comparative analysis data of visitor loyalty, partial mathematical and statistical analysis of tourist attendance data. This case study is an approach to a comprehensive study of the phenomenon in the context of its actual existence using a variety of data sources. It is this comprehensiveness in the study of the phenomenon that ensures that the object is viewed from different angles, which allows you to reveal and understand all aspects of the phenomenon. The article reveals the main components of the Chernobyl phenomenon, mentions key tourist attractions that have their own history and shrouded in prophecies, legends and myths, as well as analyzes the tourist attendance of this destination by different categories of tourists, indicating significant interest in this territory.

Keywords: Chernobyl phenomenon, tourist attraction, destination, Chernobyl “image”, exclusion zone

Chornobyls’kyi fenomen: katastrofa, zona eksperimental’nyh ob”yektiv vs ob’yekt pidenyinnoi tsikavosti dlia dohityliv

Kalуга В.Ф. ¹, Уліганець С.І. ², Дмитрук О.Ю. ², Мельник Л.В. ², Купач Т.Г. ²

¹Національний університет біоресурсів і природокористування України, м. Київ, Україна
²Київський національний університет імені Тараса Шевченка, м. Київ, Україна, uliganez@ukr.net

Анотація. Стаття присвячена дослідженню Чорнобильського феномену як цілісного явища: від об’єктів безпосереднього сенсорного сприйняття до легенд та міфів про події, процеси та Чорнобиль загалом. Цілісність образу Чорнобильської зони робить територію відчуження привабливою туристичною дестинацією, особливо для тих, хто зацікавлений у отриманні досвіду атомного туризму. Водночас, використовуючи метод тематичного дослідження та ґрунтуючись на статистиці, явище Чорнобиль розглядається в його реальному контексті та як світоглядний засіб для визначення рівня зацікавленості громадян різних країн в Україні (як носія унікальної культури, історії, свідка світових подій). Результати статті – це контекстний аналіз феномену Чорнобиль як туристичного напрямку. Проаналізовано ресурсні можливості ядерного туризму в Чорнобильській зоні. Методологічно контекстуальне вивчення явища Чорнобиль включає облік та опис туристичних природних ресурсів та ресурсів історико-культурної спадщини міст Прип’ять, Чорнобиль (з прилеглими територіями), які є історико-культурними артефактами та елементами щедрії спадщини України і можуть бути включені та представлені в туристичних маршрутках. Це тематичне дослідження є підходом до всебічного вивчення явища в контексті його фактичного існування з використанням різноманітних джерел даних. Підходстільний аналіз в дослідженні стосувався розгляду та обробки даних про Чорнобильську зону як цілісне явище з картографічних, текстових документів, даних порівняльного аналізу лояльності відвідувачів, часткового математичного та статистичного аналізу даних відвідуваності туристів. Саме це всебічність у дослідженні явища забезпечує
Introduction. Life experience shows that something big is noticed from a distance. The Chernobyl phenomenon, which was manifested by a striking and actually well-known Chernobyl disaster in April 1986, is a landmark event of the late 20th century on a global scale. At the same time, the scale of the catastrophe received quite a good losses estimation within the first few years after the disaster happened. But the Chernobyl phenomenon remains currently little studied and, moreover, judged by its influence on the mankind existence, including the noosphere, and the global ecosystem as a whole. Obviously, the scale of the phenomenon mentioned is so large that it can only be more or less properly grasped the decades later. In addition to the catastrophe itself, accompanied by the pure statistics only, the Chernobyl phenomenon combines the information content filled with various myths, legends, testimonies and considerations; system of established and at the same time little-researched causes of the catastrophe; a system of consequences that make themselves known over time.

Therefore, it is the Chernobyl phenomenon, rather than the catastrophe itself, that is of much greater interest for not only the narrow-specialized professionals and civil servants. The tourists, at least the vast majority of them, are more likely attracted to the “Chernobyl image” formed on the basis of the above-mentioned components of the Chernobyl phenomenon than the catastrophe itself. One can only discover that the decorative image of Chernobyl, widespread in Ukraine and even in the world, is at least clearly simplified, and most likely sufficiently distorted. As a result, a number of grounds are being formed to distort the general idea of the Chernobyl phenomenon and thus the Chernobyl disaster and its actual, rather contradictory consequences. In the context of this article that may cause the local and foreign tourists’ disappointment, generated by “the expected” and “the experienced” mismatch after visiting the Chernobyl zone. Therefore, in order to prevent the undesirable effects generated by distortions of the Chernobyl phenomenon, there is a need to comprehend the mentioned phenomenon systematically relying on the analysis of various statistics, available information base, etc.

Nuclear artefacts around the world are becoming increasingly popular tourist attractions. Tourists make new sense of recreation traveling to such places. Such journeys are an immersion in existing realities through a review of a period of world history that has fundamentally changed the world. Such vacations are one way of understanding the history of the nuclear era. Visiting nuclear weapons test sites, holding innovative nuclear energy research, exhibitions in museums focused on the history of nuclear development and demonstrating the arms race legacy and the Cold War, nuclear accident sites are the interests of a particular nuclear tourism. Nuclear tourism has been separated from dark tourism due to the conceptual approach to the motives of visiting such places (Ropeik, 2012; Gauldie, 2019; Lennon, Foley, 2000; Brand, Platter, 2011). The dark tourism culture, above all, shows such destinations as nuclear wastelands as a demonstration of the atomic bombs mighty power. In the practice of dark tourism, the destructive force of the nuclear explosion is called the Eiffel Tower of the dark tourism. For example, in Japan, this tendency is of concern. Since for the most part tourists visiting the damaged artefacts of Nagasaki and Hiroshima are not looking for a humanitarian sense in the impact of nuclear weapons or energy at all, and are only looking for bright selfies in the ruins of the former cities of Hiroshima and Nagasaki (Italie, 2011; Schäfer, 2016; Gauldie, 2019). However, there is still an urgent need to shift the accents to the space of humanizing phenomena with a tragic atomic history. In accordance with the humanistic approaches used by atomic tourism, the attractions of nuclear travel are demonstrated with some enlightenment to the public about not only the positive impact of nuclear energy. But also highlights the negative effects of using nuclear energy (Lennon, Foley, 2000; Brand, Platter, 2011; Gerster, 2013; Stone, Hartmann, Seaton, Sharpley, White, 2017). Many sites of atomic tragedies are confronted with ethical issues of combining compassionate understanding with the destructive history of atom.

However, visiting of nuclear power plants have the potential to improve people’s energy literacy, improve understanding of how we consume energy, raise awareness of nuclear waste storage, or the potential impact of nuclear activity on the local economy. With regard to nuclear power plants, a certain content of knowledge and experience may be exposed here: history and construction of power plants; principles and technologies for the production of nuclear energy.
and related issues such as nuclear safety and security; topics related to the disposal of radioactive waste; environmental and landscape impacts (Goatcher and Brunsden, 2011; Pasqualetti, 2012; Yankovska and Hannam, 2014; Stone, Hartmann, Seaton, Sharpley, White, 2017; Beer, Rybar, Kalavsky, 2017; Frantal, Urbankova, 2017, Boyle, 2017).

Recently, quite a number of researchers are addressing the issues of nuclear tourism in the world. However, not only tourism scientists or naturalists, but also journalists and bloggers, should be mentioned among interested researchers. Independent journalist investigations and research of the problematic ethic issues of visiting sites with nuclear history are quite interesting experimental data. In a number of studies, considerable attention is given to the role of artefacts of military nuclear tourism in the public awareness of important historical events and periods, and at the same time, nuclear discourse has an important influence on the formation of national identity. An example of the coverage of events in the history of interstate relations and the formation of humanistic consciousness in nuclear policy are the work of authors who analyse the role of the Manhattan Project and see it as an American nation-building project that began after World War II, lasted during the Cold War and was developed in the aftermath of the Cold War (Berger, 2006; Coolidge, Simons; Rugoff, 2006; Gerster, 2013; Gauldie, 2019; Osofsky LuLing, MacFarlane, 2019).

The Department of Energy (DOE) is responsible for preserving the historical heritage of nuclear artefacts and, in particular, the Manhattan Project and promoting nuclear tourism in the United States. DOE support the Nuclear Age monuments and the popularisation of nuclear tourism, the activities of the Atomic Heritage Foundation (AHF). The activities of AHF and DOE in the US emphasize the relationship between the popularisation of nuclear power, the benefits of nuclear energy and the complexity and controversy of the atomic power studies legacy in America (websites: Atomic Heritage Foundation and US Department of Energy). However, nowadays, discussions are balanced between assessing the constructive power of nuclear energy and recognizing its destructive past and potential.

There are a lot of publications dedicated to the question development of the educational impact of nuclear tourism as part of environmental science and STEM-education, the creation of such forms of tourism that would combine environmental education, the presentation of new technologies and interactive research experiments and various outdoor activities focused on families or thrill seekers, for instance, works of Gerster, 2013; Frantal and Urbankova, 2017; Beer, Rybar, and Kalavsky, 2017; Mazeikiene and Gerulaitiene, 2018. For instance, publications on the websites of AHF, DOE and UNESCO, etc.

The questions are not of the ethics of nuclear tourism only, but also the topics of developing opportunities for territorial communities based on the maintenance of museums of nuclear artefacts, tourist atomic attractions and the support of educational routes were raised and revealed in the works of Frantal and Urbankova, 2017; Beer, Rybar, and Kalavsky, 2017; Mazeikiene and Gerulaitiene, 2018. Thus, the highlighted work on the EDUATOM project by the authors, Mazeikiene and Gerulaitiene, 2018, is a scientifically grounded educational route for nuclear tourism near the Ignalina NPP area. The publication shows the parameters and elements of the atomic heritage of the territory, which act as cultural artefacts and may be included and presented in tourist routes as an extension of the economic opportunities of the local community.

The ethics of organizing nuclear tours and visiting nuclear sites, museum expositions about nuclear tragedies, exploring individual destinations and attractions of nuclear tourism are discussed not only by scientists: notably by Coolidge, Simons, and Rugoff, 2006; Osofsky and MacFarlane, 2019; Yankovska and Hannam, 2014; Goatcher and Brunsden, 2011; Beer, Rybar, and Kalavsky, 2017; Schäfer, 2016, etc. But also by independent journalists such as: Morris, 2014; Gauldie, 2014; Ropeik, 2012; Bliss, 2014, Boyle, 2017; Italie, 2018, etc.

From the point of view of the study of tourist behaviour and the formation of established images of nuclear accident sites, the works of Morris, 2014; Gauldie 2014; Bliss, 2014; Boyle, 2017; Italie, 2018 are very interesting. For example, Morris H. (2014) presents the results of studying of systematic teenager’s expeditions to the Chernobyl zone to obtain purely extreme sensations, and this is, in fact, a deep anthropological study of the behaviour of extremal tourists and, in general, the attitude of a certain part of the population to Nuclear Age artefacts. The research of the heritage of nuclear tours that took place in the 1950s in the United States (New Mexico, Las Vegas) and the so-called “atomic boom” caused by atomic weapons tests also allow us to understand and classify the motives behind tourists and average citizen recreation or entertainment shows presented by Bliss, 2014; Boyle, 2017. Experience of visiting nuclear sites in Japan, including not only Hiroshima and Nagasaki but also Fukushima. Description of Japan’s experience in overcoming a humanitarian crisis from a power plant.
bombed and environmental disaster described by Frantal and Urbanikova, 2017; Schäfer, 2016; Gauldie, 2014; Italie, 2018; Beer, Rybar and Kalavsky, 2017. Also presented at the websites of organizations: such as UNESCO, the US Atomic Heritage Foundation, and the US Department of Energy.

Meanwhile, everything related to the Chernobyl disaster has certainly been investigated in detail in several tangential planes. Firstly, it is about national security. Every powerful country, which has at least nuclear power, has, through the forces of the respective institutions and institutions, conducted systematic research on a range of issues related to the protection of their societies, both from similar disasters and from the probable identified and acceptable consequences of such disasters. As for the probable causes of the Chernobyl accident, as well as the actions and orders of the state bodies related to the accident liquidation and its consequences, it is worth mentioning the most recent edition in the world. This is the edition “KGB Chornobyl file. Public sentiment. Chernobyl in the post-catastrophe period”. It was worked out by a large group of experts to make available the large part of the documents and testimonies contents of 1986-1991 to the public. The documents reveal the features of post-Chernobyl life. Among other things, the book also reflects the world community representatives’ reaction to the Chernobyl tragedy.

Secondly, it is about public opinion. The civil society of the least developed states, first and foremost by the forces of the so-called fourth power (that is the mass media) has explored the impact of the catastrophe and its consequences on the very public opinion and the informational and emotional atmosphere in the society. Undoubtedly, the classical science has been involved in the study of the objective factors related to the catastrophe. The results of the Chernobyl disaster comprehensive studies have been delivered in numerous scientific articles and monographs. At the same time, as the academician mentioned in his report, “In recent years, the scientific support for works in the Exclusion Zone has been carried out mainly by employees of the institutions subordinated to the Exclusion Zone Management State Agency of Ukraine (EZSA) and organizations involved in the administration of the Chornobyl NPP. As for the academic institutions, only the Institute of Nuclear Power Plant Safety Problems of NAS of Ukraine constantly worked in the area” (Lisichenko, 2016: 8).

As for the tourist attractiveness of the Chernobyl zone and everything related to it, scientific and scientific-journalistic investigations are also represented quite widely by both local and foreign researchers. Among the journalists conducting systematic investigations of the Chernobyl phenomenon from the tourist attractiveness point of view, Oles Dashchynsky, Sergey Mirny, Yevhen Solonin, Stanislav Yurchenko have a prominent place in particular. The systematic tourist routes reviews, the advantages of various sites of tourist interest in the territory of the Chernobyl Exclusion Zone have been reflected in their numerous publications. In turn, the scientific analysis of the Chernobyl tourist destination features is reflected in the articles of a number of experts in the field of geography and tourism, i.e. Pestushka V. Yu., Chubuka Yu. P., Solonina E.A., Yurchenko S.I. and others. As for the foreign scientists, Beresford N.A., Scott E.M., Copplestone D. have devoted considerable attention to the research of the Chernobyl problem. They focused the attention on the analysis of the radiation effects on the plant and animal world in the exclusion zone. Shkaruba A., Skryhan N. consider the state policy of Belarus against the Chornobyl zone, including its tourist attraction. 

Materials and methods of research. Meanwhile, having a considerable amount of information about Chernobyl in the context of a wide range of problems, the Chernobyl phenomenon remains poorly understood at the moment. At least, the integrated vision of Chernobyl as sources of the complex knowledge acquired through experience is almost not formed. The Chernobyl accident and everything related to it, staying at the Chernobyl zone, the feedback, the impressions and the reflections on Chernobyl of those who have visited or otherwise explored the Chernobyl phenomenon are not taken into account properly. Therefore, there is a need for further investigation of the Chernobyl phenomenon as a unique phenomenon in the life of modern mankind, as an example of probable directions of further evolution in the context of the total technologization of the human existence.

The results of the article are a contextual analysis of the phenomenon of Chernobyl as a tourist destination. Resource opportunities of nuclear tourism in the Chornobyl zone are analyzed.

Contextual analysis is an important research approach to qualitative case study methodology to finding out the uniqueness of the Chernobyl phenomenon as a tourist destination (Baxter, Jack, 2008). Methodological qualitative case study of the Chernobyl phenomenon includes accounting and description of tourist resources of Nature and resources of cultural identity of the cities of Pripyat, Chernobyl (with adjoining territories), which are cultural artifacts and are elements of the nuclear heritage of Ukraine, and can be included and presented in tourist routes.
The contextual analysis of this study concerned the consideration and processing of data on the Chernobyl zone as a holistic phenomenon, from cartographic, textual documents, comparative analysis data of visitor loyalty, partial mathematical and statistical analysis of tourist attendance data. This case study is an approach to a comprehensive study of the phenomenon in the context of its actual existence using a variety of data sources. It is this comprehensiveness in the study of the phenomenon that ensures that the object is viewed from different angles, which allows you to reveal and understand all aspects of the phenomenon.

Results and analysis. Prior to the events of April 1986, Chernobyl, as a place of the NPP location, was no different in any of the sections of human activity, including tourist destination. After the catastrophe, which has led to numerous uncovered and unidentified consequences, at least so far, Chernobyl takes rather different image both in the minds of individuals and at the level of public opinion. It is becoming a subject of scrutiny, as well as a kind of business card of Ukraine in the world community. Since the catastrophe, the Chernobyl phenomenon appears in the life of mankind – a unique phenomenon, which, by the way, is rich in mythology, prehistory, unfolding events and a spectrum of accompanying and explanatory information. Thus, among other things, Chernobyl acquires first in potency and then in reality, the status of a unique tourist destination. At least, the image of Chernobyl is clearly identified by anyone interested in catastrophes, their consequences or anything related. At the same time, the Chernobyl phenomenon proves to be a unique, moreover, if not the only one source of specific experiences generated by a combination of heard, seen, perceived and understood.

So, if we approach the Chernobyl phenomenon structurally, mainly as a tourist destination, its components include:

- 30 km exclusion zone with some exceptions;
- summarizing all kinds of official and/or background information about the territory, settlements, Chernobyl and other objects, environment, flora and fauna and, accordingly, their initial (before the accident) and current status;
- the results of scientific research on the effects of radioactive radiation on flora and fauna representatives, as well as on humans;
- declassified materials, in particular those that recently came to light in the Chernobyl disaster collection “KGB Chernobyl File. Public sentiment. Chernobyl in the post-catastrophe period”;
- a set of alternative information in the form of retellings, legends, including prophecies, including those related to the Apocalypse of John, myths, private considerations and assumptions about facts and events, one way or another related to the Chernobyl phenomenon;
- statistics in terms of attendance of the Chernobyl tourist destination.

- Obviously, the objects of high interest among tourists, which are in the 30 km zone and have their own history, including myths and legends that give the object a peculiar halo of secrecy, should include:
  - deactivated- the so-called Red Forest – a former pine forest, which was exposed to the most powerful radioactive exposure due to the explosion at the 4th unit;
  - Chernobyl NPP, including sarcophagus - protective shelter over 4 power units, model room in the APC-1 of the ChNPP, block reactor control panel (BSU), “Golden Corridor”, machine room (turbine), reactor shop, room with DHW (main circulation pumps) , ChNPP cooler pond, unfinished ChNPP third stage cooling tower; the construction site of the new confinement “Ark”, which is the next step in the international SIP project implementation aimed at transforming the object “Shelter” into an environmentally sound system, a memorial near the administrative building;
  - abandoned experimental animal radiobiology base;
  - the city of Pripyat, including the kindergarten, the school, the city executive committee (where the first headquarters of the accident consequences elimination was organized), the Polissya Hotel (on the basis of which the observation point for helicopter operations over the ruin of the 4th reactor was organized), the hospital (where the first victims of the accident and its elimination were taken into), the police reference point and the detention center, as well as the city pool of the Pripyat River with the marina and the flooded pier, the attraction “Ferris Wheel”;
  - the city of Chernobyl, including the city’s interior, an exhibition of robots and equipment involved in the Chernobyl disaster elimination, as well as the Chernobyl castle of the 17th – 18th centuries, the ancient cemetery, a Dominican monastery of the 17th century and the archaeological excavations;
  - other settlements in the 30 km exclusion zone, including the villages of Zamoshnya and Bychki, on the territory of which there are remains of Old Believers churches and cemeteries; Rudnya-Veresnya – the place of ancient production of iron from marsh ore; Paryshiv, where self-settlers live – people who have returned illegally in the 30 km zone
for further permanent residence, and others. Often the well-preserved comfortable buildings of the mid-nineteenth and early twentieth centuries add further interest to the villages;

- Yaniv Station, a park of abandoned trains and locomotives, a ritual cross-figure at a crossroads, a historic pine tree in the form of a trident, transferred from the so-called Red Forest;

- the functioning Chornoby St. Nicholas Convent;

- “Chornobyl 2” military object is an arc radar station “Doug 3” (index: 5H32). Built and launched in 1976, a Soviet radar station for the early detection of launches of intercontinental ballistic missiles. It was named “Woodpecker “for its specific sound effect. In NATO reporting documents it was referred to under the name “Still Yard;

- natural landscapes, including the location of the confluence of the Braginka River in Pripyat; the former ferry crossing the Pripyat River, the Dnieper River and historic Chernobyl views its with traditional buildings and houses, the Paryshivska and Yanivsky bridges;

Table 1. The number of visitors to the Exclusion Zone from 2011 to 2018

| Year | Number of Delegations | Number of Visitors | Countries |
|------|-----------------------|--------------------|-----------|
|      |                        | Total                  | Foreigners |           |
| 2011 | 740                   | 9127                 | 6423      | 76        |
| 2012 | 1467                  | 14132                | 10115     | 88        |
| 2013 | 1516                  | 17757                | 13740     | 76        |
| 2014 | 1063                  | 8404                 | 5055      | 69        |
| 2015 | 1642                  | 16386                | 10485     | 84        |
| 2016 | 2857                  | 36781                | 24492     | 93        |
| 2017 | 3520                  | 49758                | 34838     | 114       |
| 2018 | 71862                 | 49811                | 119       |

- Chornobyl Radiation-Ecological Biosphere Reserve. “According to the scientists, there may be more than 400 species of animals, birds and fishes, including those ones in the Red Books. So far, 300 species have already been identified, 19 of which are listed in the Red Book of Ukraine. Also, 1,228 species of higher plants have been identified, 61 species of which are rare and are subject to conservation” (Official Site of the Reserve).

At the same time, there are a number of one- and two-day motor transport or walking tours. More recently, air (helicopter) and water (motor boat) tours are being offered. Leisure activities in the exclusion zone are organized by licensed tour operators, including “The Chornobyl Tour” (Official website of «The Chornobyl Tour»). Information support is available in several languages, depending on the wishes of tourists.

Accordingly, those interested in travelling to the Chornobyl Exclusion Zone can choose a variety of routes and find the information about them on the official website State Agency of Ukraine on Exclusion Zone Management (Official website of State Agency of Ukraine on Exclusion Zone Management) exclusion as that is attached below.

Therefore, the Chornobyl Zone is interesting not only for the Ukrainian citizens, but also for the tourists from other countries. In addition, it should be noted that on 01.01.2019, the citizens from 119 countries (out of 195 world states) have visited the Chernobyl zone within the last 9 years. That has been proved by a number of statistics. In particular, referring to the data in Table 1, it can be noticed that during these years there was a constant increase in both the number of tourists and the geography of visitors.

Naturally, the largest group of tourists in the Chernobyl Exclusion Zone are Ukrainians. In particular, 21,949 citizens of Ukraine showed an interest in direct acquaintance with the tourist destination mentioned above, which is 0.49 × 10-3% as a percentage of the total population in 2018. Among other things, the latter may indicate the relatively low cognitive, and even more obviously, recreational appeal of the exclusion zone to the local population. Accordingly, there is a need to study the level and quality of the Ukrainian population awareness about the Chernobyl destination along with the motivational sphere of those who have expressed a desire to visit Chernobyl.

Last year, the largest number of the foreign tourists' flows to the Chernobyl zone were the British – 6164 and the Poles – 5314 people respectively. However, considering the number of tourists to the population of the country, Lithuanians – 433 × 10-6%, Czechs – 289,7 × 10-6% and Finns – 232 × 10-6% respectively showed the most interest in Chernobyl. While the lowest interest among the countries where the tourism industry is relatively well developed showed the Chinese – 0.45 × 10-6% and the Russians – 0.66 × 10-6%. The corresponding results are shown in Table 2.
Referring to the indicators in Table 2, and bearing in mind that the Chornobyl phenomenon is actually both a world unique phenomenon and a unique tourist destination, it is possible to draw some conclusions about the level of Ukraine position in the world, i.e. the loyalty or curiosity of citizens of foreign countries to Ukraine. In particular, Lithuanians, Czechs and Poles show the greatest loyalty to Ukrainians in the mentioned context, which, by the way, more or less corresponds to the results of direct measurements of the political liking of both the population and the political leaders of the countries mentioned above. At the same time, both the Chinese citizens and the political leaders are the least interested in Chernobyl and indirectly in Ukraine. Naturally, a noticeable distance compared to, for example, the Lithuanians, Poles or Czechs, who are actually our neighbors, could justify the Chinese indifference to Ukraine. But comparing to interest of the Ecuadorian and the Japanese who have more or less the same the Fukushima phenomenon at hand, the inertia of the Chinese towards Ukraine becomes evident.

On the other hand, despite the high involvement of the Russians in the socio-political life of Ukraine which is purposefully stimulated by the central authorities through various instruments including the media, the Russians shows a very low interest in the real sources of information about Ukraine and to the Chornobyl tourist destination. The latter allows to make a number of conclusions. In particular, in a period of the information war, tourism is a very effective means of counteracting the results of the war, since it allows “the victims” of information battles to open their eyes to the true state of affairs in many ways. So, we can make a rather pretentious assumption based on this conclusion: the more a person is inclined to make meaningful journeys aimed not only at rest, but at the outlook extension the less he is subjected to manipulative influences on his outlook and his attitude to certain problems and issues. Therefore, every totalitarian system naturally must gravitate towards total control of the tourist sphere and the tourist demands of its citizens. A striking example is the former Soviet Union, a modern North Korea, as well as the many countries of Africa and Asia where citizens are under the strong control of a state and/or tradition, such as Islamic ones. Conversely, countries that are actively developing a democratic system and atmosphere of social comfort for their citizens are characterized by high levels of tourist demand of, so to say, a developing nature.

**Conclusions.** Each country has its own so-called business cards. It happened that Ukraine is known in the world not least due to the Chornobyl tragedy. Therefore, among other things, the Chernobyl Exclusion Zone has become a tourist destination, and on the other hand, the image of Ukraine contains the Chornobyl phenomenon. This is, in fact, a unique phenomenon on a global scale which clearly demonstrates an alternative variant of existence being exposed to radiation due to an accident at an atomic object. In addition, the Chornobyl phenomenon is

| Countries       | Number of Tourists: people | Number of population: mln. people. | Number of tourists to number of population ratio |
|-----------------|----------------------------|-----------------------------------|-----------------------------------------------|
| Australia       | 1194                       | 24,6                              | $48.5 \times 10^6 \%$                          |
| Great Britain   | 6164                       | 66,04                             | $90 \times 10^6 \%$                           |
| Ecuador         | 124                        | 16,62                             | $7.5 \times 10^6 \%$                          |
| Canada          | 1057                       | 37,06                             | $28 \times 10^6 \%$                           |
| China           | 641                        | 1386                              | $0.45 \times 10^6 \%$                         |
| Lithuania       | 1233                       | 2,848                             | $433 \times 10^6 \%$                          |
| Netherlands     | 2413                       | 17,08                             | $141 \times 10^6 \%$                          |
| Germany         | 4558                       | 82,79                             | $55 \times 10^6 \%$                           |
| Poland          | 5314                       | 38,43                             | $138 \times 10^6 \%$                          |
| Russia          | 96                         | 144,5                             | $0.66 \times 10^6 \%$                         |
| Slovakia        | 1429                       | 5,435                             | $26.3 \times 10^6 \%$                         |
| USA             | 3804                       | 327,2                             | $11.6 \times 10^6 \%$                         |
| Finland         | 1277                       | 5,503                             | $232 \times 10^6 \%$                          |
| France          | 1504                       | 66,99                             | $22.6 \times 10^6 \%$                         |
| Czech Republik  | 3065                       | 10,58                             | $289.7 \times 10^6 \%$                        |
| Sweden          | 1913                       | 9,995                             | $191.4 \times 10^6 \%$                        |
| Japan           | 555                        | 126,8                             | $4.4 \times 10^6 \%$                          |
| Ukraine         | 21949                      | 44,83                             | $489.6 \times 10^6 \%$                        |
the source of the full range of information from the visual to the audio and the experiences generated by the symbiosis of what has been seen, heard, and made sense. Thus, with a wise approach of state institutions and people responsible for the Chernobyl phenomenon, the latter can be used to increase the level of Ukraine recognition and its tourist attractiveness in the world. At the same time, in case of the state and business circles efficient interaction, the Chernobyl phenomenon can also become one of the most interesting objects in the context of event tourism, since on the one hand it has all the necessary resources and on the other «… in the world there is a certain process of refocusing the overwhelming majority of wealthy countries’ citizens from business-related values to the values associated with pleasure from various educational and moderately extreme entertainments. Thus, event tourism and entertainments, special events respectively gain tangible importance and significance on the one hand as a desirable and as an integral element of the life of a civilized world secured representative. On the other hand, it is a business activity” (Kaluha, 2018: 89).

References

Atomic Culture. Atomic Heritage Foundation. – Retrieved from http://www.atomicheritage.org/history/atomic-culture

Baxter, P., Jack, S. 2008. Qualitative Case Study Methodology: Study Design and Implementation for Novice Researchers. The Qualitative Report, 13(4), 544-559. – Retrieved from https://nsuworks.nova.edu/tqr/vo13/iss4/2

Beer, M., Rybár, R., Kalavský, M. 2017. Renewable energy sources as an attractive element of industrial tourism. Current Issues in Tourism. pp. 17-47. – Retrieved from https://www.tandfonline.com/doi/full/10.1080/13683500.2017.1316971

Beresford, N.A. 2019. Field effects studies in the Chernobyl Exclusion Zone: Lessons to be learnt / N.A. Beresford, E.M. Scott, D. Copplestone. Journal of Environmental Radioactivity – Retrieved from https://www.sciencedirect.com/science/article/pii/S0265931X17309347

Berger, J. 2006. Nuclear Tourism and the Manhattan Project / Jenna Berger. Columbia Journal of American Studies. University of Houston. 7, pp. 196-214, 2006, Retrieved from https://www.columbia.edu/cu/cjas/print/nuclear_tourism.pdf?q=manhattan-project-test-site

Bliss, L. 2014. Atomic Tests Were a Tourist Draw in 1950s Las Vegas – Retrieved from https://www.citylab.com/equity/2014/08/atomic-tests-were-a-tourist-draw-in-1950s-las-vegas/375802/

Boyle, R. 2017. Greetings from Isotopia. / Rebecca Boyle

Brand, S., Platter, N. 2011 Dark Tourism: The Commoditisation of Suffering and Death // The Long Tail of Tourism: Holiday Niches and their Impact on Mainstream Tourism / Alexis Papanathanass. pp. 7–15. New York: Springer. – Retrieved from https://link.springer.com/book/10.1007/978-3-8349-6231-7

Bürkner, D. 2014. The Chernobyl Landscape and the Aesthetics of Invisibility / Daniel Bürkner // Photography and Culture. – T. 7. – №. 1. – P. 21 – Retrieved from https://www.tandfonline.com/doi/abs/10.2752/175145214X1393610122282

Dashchinsky, O. 2019. Chornu biloruska chornobylska zona pryimiaie znachno menshe turystiv, nizh ukrainska [Why Belarusian Chernobyl Zone Consumes Fewer Tourists Than Ukrainian] Oles Dashchinsky – Retrieved from https://www.radiosvoboda.org/a/chornobyl-turyzm-bilorus/29999919.html (in Ukrainian).

Department of Energy: DOE – Retrieved from https://www.energy.gov/

Frantal, B., Urbankova, R. 2017 Energy tourism: an emerging field of study. Current Issues in Tourism, Vol. 20, No. 13, pp. 1395–1412, 2017. https://doi.org/10.1080/13683500.2014.987734 – Retrieved from https://www.tandfonline.com/doi/full/10.1080/13683500.2014.987734

Gauldie, R. 2019 The rise of dark tourism. Retrieved from https://www.itij.com/latest/long-read/rise-dark-tourism

Gerster, R., 2013. The Bomb in the Museum: Nuclear Technology and the Human Element. Museum & Society, 11(3), 207-218. Retrieved from https://pdfs.semanticscholar.org/a71c/bde56234fe9df1ca523f54b1d616767f7ee.pdf

Goatcher, J., Brunsden, V. 2011 Chernobyl and the Sublime Tourist. Tourist Studies, 11(2), pp. 115–137, 2011. Retrieved from https://www.researchgate.net/publication/271568100_Dark_and_toxic_tourism_in_the_Chernobyl_exclusion_zone

Hiroshima Peace Memorial (Genbaku Dome)/ UNESCO – Retrieved from https://whc.unesco.org/en/list/775

Italie, L. 2011. Japan disaster boosts interest in atomic tourism. AZ Central/Associated Press. Retrieved 15 June2018. – Retrieved from http://archive.azcentral.com/travel/articles/2011/03/30/20110330/japan-disaster-atomic-tourism.html

Kaluha, V.F. 2018. Features and prospects of event tourism in Ukraine on the example of Transcarpathian region / V.F.Kaluha, S.I. Uliganets, L.V. Melnyk. Science and Education a New Dimension. Humanities and Social Sciences, VI (29), I: 178, 2018 Sept. – р. 89-92. Retrieved from http://seanewdim.com/uploads/3/4/5/1/34511564/hum_vi_178_29.pdf
Lennon, J., Foley, M. 2000 Dark Tourism in the American West. Dark Tourism: The Attraction of Death and Disaster. London: Continuum. – Retrieved from https://gcu.elsevier.com/ws/portalfiles/portal/25070176/Lennon_Oxford_Diction_Dark_Tourism_17_10_2016_1.pdf

Lisichenko, G.V. 2016. Pro stan ta perspektyvy naukovykh doslidzhen i rozrobok u zoni vidchuzhennia Chornobylskoi AES [About the state and prospects of scientific researches and developments in the area of exclusion of the Chernobyl Nuclear Power Plant] G.V. Lisichenko, V.V. Petruk. Visnyk of NAS of Ukraine, 2016, N.11. Retrieved from http://dspace.nbuv.gov.ua/bitstream/handle/123456789/109874/07-Lyschenko.pdf (in Ukrainian).

Mazeikienė, N., Gerulaitienė, E. 2018 Commodification of cultural identities and/or empowerment of local communities: developing a route of nuclear tourism society, integration, education // Proceedings of the International Scientific Conference. Volume V, May 25th-26th, 2018.145-158 // – Retrieved from https://www.researchgate.net/publication/325368566_COMMODIFICATION_OF_CULTURAL_IDENTITIES_ANDOR_EMPOWERMENT_OF_LOCAL_COMMUNITIES.DEVELOPING_A_ROUTE_OF_NUCLEAR_TOURISM

Mazeikienė, N., Gerulaitienė, E. 2018. Educational aspects of nuclear tourism: sites, objects and museums. Proceedings of EDULEARN18 Conference 2nd-4th July, 2018, Palma, Mallorca, Spain. Retrieved from https://www.researchgate.net/publication/326714184_EDUCATIONAL_ASPECTS_OF_NUCLEAR_TOURISM_SITES_OBJECTS_AND_MUSEUMS

Morris, H. 2014 The Stalkers: Inside the bizarre subculture that lives to explore Chernobyl’s Dead Zone. Retrieved from https://slate.com/news-and-politics/2014/09/the-stalkers-inside-the-youth-subculture-that-explores-chernobyls-dead-zone.html

Official website of «The Chornobyl Tour». Retrieved from https://www.chernobylwel.com/our-tours?gclid=CjwKCAjwvTF6BRAWEiwAkt6UQm9kOzOKAb8T3N5tE5QAARXAFSrx305Myj4XPVABs6EDXBm_mEMIBoCjmQQAD_BwE

Official website of State Agency of Ukraine on Exclusion Zone Management. Retrieved from http://dazv.gov.ua/en/

Osofsky, LuLing, MacFarlane, K. 2019. Nuclear in Miniature: Atomic Tourism in New Mexico. Retrieved from https://www.researchgate.net/publication/332539323_Nuclear_in_Miniature_Atomic_Tourism_in_NewMexico

Pasqualetti, M. 2012. Reading the changing energy landscape. Sustainable energy landscapes: Designing, planning, and development (Eds. S. Stremke & A. Van Den Dobbelsteen), pp. 11– 44, Boca Raton, FL: CRC Press, 2012.

Pestushko, V.Yu. 2012. Chornobylska AES yak turystychna destyna[siya [ Chornobyl NPP as a tourist destination] V.Yu. Pestushko, Yu.P. Chubuk. Geography and Tourism. – V. 9. – P. 82-86. Retrieved from: http://nbtn.gov.ua/UJRN/gt_2010_9_16 (in Ukrainian).

Ropeik, D. 2012 The Rise of Nuclear Fear-How We Learned to Fear the Radiation / David Ropeik. SCIENTIFICAMERICAN. Retrieved from https://blogs.scientificamerican.com/guest-blog/the-rise-of-nuclear-fear-how-we-learned-to-fear-the-bomb/

Schäfer S. 2016. From Geisha Girls to the Atomic Bomb Dome: Dark Tourism and the Formation of Hiroshima Memory. Tourist Studies, Vol. 16(4), pp, 351–366. Retrieved from https://www.researchgate.net/publication/28637403_From_Geisha_girls_to_the_Atomic_Bomb_Dome_Dark_tourism_and_the_formation_of_Hiroshima_memory

Shkaruba, A. 2019. Chernobyl science and politics in Belarus: The challenges of post-normal science and political transition as a context for science–policy interfacing // Anton Shkaruba, Hanna Skryhan. Environmental Science & Policy. – Volume 92, 152-160. Retrieved from https://www.sciencedirect.com/science/article/pii/S1462901118301047

Solonina Y. 2017. Chernobyl: pryorda, zakhyshchena radiatsiieiu [Chernobyl: nature protected by radiation]. Retrieved from https://www.radiosvoboda.org/a/28421326.html (in Ukrainian).

Stone P. R., Hartmann R., Seaton T., Sharpley R., White L. 2017. The Palgrave Handbook of Dark Tourism Studies, Palgrave Macmillan. 781.

Technologies for Peace Tourism. Atomic Heritage Foundation. Retrieved from https://www.atomicheritage.org/history/technologies-peace-tourism

Smolij, V. Chornobylske dosie KGB. (2019). Suspilni dokumenty pro katastrofu na Chornobylskii AES [The Chernobyl record of the KGB, 2019. Public Sentiment. Chernobyl Nuclear Power Plant in the post-war period: a collection of documents on the Chernobyl nuclear disaster] Ed. Kol.: A. Kogut, I. Lyabakh, M. Panova, A. Rublev, V. Khrupko; Order: O. Bazhan, V. Birchak. / Sectoral State Archive of the Security Service of Ukraine; Academy of Sciences of Ukraine; Ukrainian Institute of History of Ukraine of the National Archive of the Security Service of Ukraine; In the National Academy of Sciences of Ukraine; Ukrainian Institute of National Remembrance. K., 1200.

Yankovska G., Hannam K. 2014. Dark and toxic tourism in the Chernobyl exclusion zone. Current Issues in Tourism. pp. 929-939. Retrieved from https://www.tandfonline.com/doi/abs/10.1080/13683500.2013.820260