



The Disaster in Chernobyl Nuclear Power Plant and Tourism. Condition of and Prospects for the Development of Tourism in the Area of Radioactive Contamination

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1. Introduction

In the modern world tourism as a universal phenomenon (in which all age and social groups participate) is the most popular form of spending free time. Individual forms and types of tourism have specific impact on participants in tourist traffic serving a number of functions related to, among others: health, education, economy, leisure and culture (Kurek 2008, Boruszczak 2010, Noonan & Rizzo 2017, Talebi 2017). Importantly, the health function has been mentioned as the first one as when developing tourist offers or infrastructure global environmental issues are very often marginalized or totally ignored e.g. air pollution, greenhouse effect, degradation of natural ecosystem, the ozone hole or seismic and volcanic phenomena (Zarębski et al. 2015, Rzetala 2017). Apart from traditional facilities and places used for tourist purposes, it is more and more often that tourists look for more extreme places that are also more difficult to access. The response to the need of there being no barriers or limits in search of new tourist experiences is the area of radioactive contamination around the Chernobyl Nuclear Power Plant. Tourism practised in the area of the so-called Chernobyl Exclusion Zone is referred to in specialist literature as dark tourism – travelling to places of

death, human suffering and different sorts of tragedies (Foley & Lennon 1996, Seaton 1999, Miles 2002, Slade 2003, Stone & Sharpley 2008, Płomiński & Bakota 2017). Taking advantage of the area of radioactive contamination around the Chernobyl Nuclear Power Plant for tourist purposes is a new phenomenon. Its origin dates back to the beginning of the 21st century and shutting down (under the pressure of Western countries) the last working reactor on 15 December 2000 (Rzeczpospolita 2016).

2. Purpose, scope and methods

The aim of the paper is to analyse the condition of and prospects for the development of tourism in the area of radioactive contamination around the Chernobyl Nuclear Power Plant. The source basis for preparation of this work has been printed sources, field studies and reference books related to tourism, especially to dark tourism. As part of preparation of this study the following research methods have been used: analysis of printed sources, synthesis, induction, deduction and a comparative method.

The paper addresses research issues which have been put forward in the following questions:

1. To what extent is the tourist potential of the Alienation Zone around the Chernobyl Nuclear Power Plant used?
2. What factors influence progress of and decline in tourism in the Alienation Zone around the Chernobyl Nuclear Power Plant?
3. What is the nationality of tourists who most often visit the Alienation Zone around the Chernobyl Nuclear Power Plant?

3. Specific character of the study area in the context of use for tourist purposes

The Chernobyl Nuclear Power Plant (Ukr. Чорнобильська атомна електростанція) is located on the territory of Ukraine in the district of Kiev at the border with Belarus. It is 4 km away from the city of Pripjat and 18 km from Chernobyl, in the vicinity of the estuary of the Pripjat River into the Dnieper River (51° 23' 22.39" N, 30° 5' 56.93" E). The construction of the power plant began in the 1970s. Original plans provided for the construction of six nuclear reactors of the total power of 6,000 megawatts. By the time of the disaster four reactors were in opera-

tion (I – 1977, II – 1978, III – 1981, IV – 1983). The residential and social area for the employees of the power plant was the city of Pripyat established in 1970 (51°24'20"N 30°03'25"E). Built from scratch (in the place of the village called Semykhody) as the most modern city in the whole USSR (Nad'yarnyh et al 1989), it was full of conveniences for its residents. The cultural and social life flourished in its centre with the following facilities at the disposal of the inhabitants: the Palace of Culture „Energetik”; cinema „Prometheus”; café „Pripyat”, amusement park with e.g. the Ferris wheel, a merry-go-round and an electric car track (the opening celebration was scheduled for the holiday of 1 May 1986); music school with a concert hall; hospital; playgroups; nurseries; marinas with water equipment; sports halls, two sports stadiums and two swimming pools. In 1986 there were 49,360 residents of Pripyat and the average age was 26 (*Scenario for modelling changes in radiological conditions in contaminated urban environments, 2006*). The end of the existence of this „city of dreams” – which Pripyat undoubtedly was for the residents of the USSR, was the day of 26 April 1986. On that day at 01:24 am in the 4th reactor of the Chernobyl Nuclear Power Plant two explosions took place: of steam and released hydrogen. The explosion resulted in the destruction of the reactor and a part of the building structure. The plate covering the reactor was made to move making it partly exposed and resulting in the access of air to the fire place. Large amount of radioisotopes was released into the atmosphere. Approximately 8 out of 140 tonnes of fuel containing plutonium and other highly radioactive fission products were emitted from the reactor together with the remains of the moderator and were dispersed in the surrounding area (Trojanowski et al 2006). Several minutes after the explosion a fire brigade appeared on the spot and the rescue operation started whose main aim was to put out the fire threatening the remaining reactors of the power plant. Then, the focus was on the reduction of the emission of radioactive substances into the atmosphere. For this purpose it was decided to isolate the reactor from the external environment by enclosing it inside a huge sarcophagus of reinforced concrete. Simultaneously, the evacuation of the population from the endangered areas started and the thirty-kilometre exclusion zone was designated around the territories most adversely affected by the results of the disaster. On 27 April 1986 all residents of the city of Pripyat (49,360 people) and 254 residents of the neighbouring Yaniv were dis-

placed. In the period from 27 April to 7 May about 116 thousand people were evacuated. The total number of people displaced from the Exclusion Zone around the Chernobyl Nuclear Power Plant (within a 10-km radius from the power plant the "high risk zone" was established, and within a 30-km radius the zone of „the highest degree of contamination” – fig. 1) measuring approx. 2.5 thousand km² was nearly 350 thousand people.

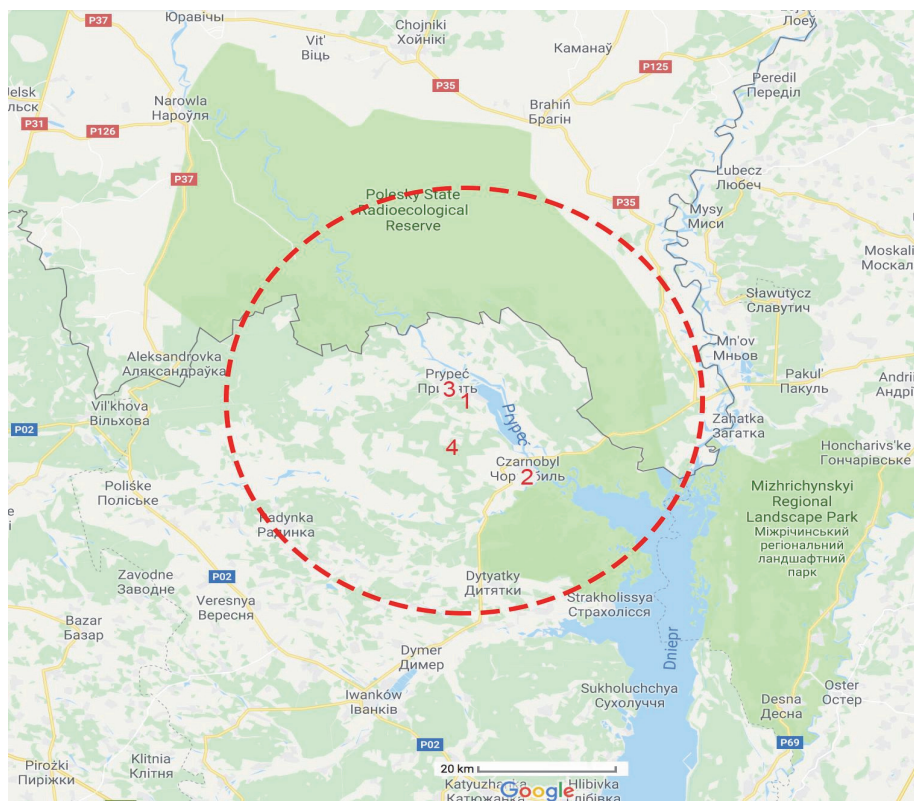


Fig. 1. The zone „of the highest contamination degree” designated within a 30-km radius, with the most important spots marked (1 – the Chernobyl Nuclear Power Plant, 2 – the city of Chernobyl, 3 – the city of Prip'yat, 4 – „Duga” radar station)

Rys. 1. Strefa „o najwyższym stopniu skażenia” wyznaczona w promieniu 30 km, z zaznaczonymi najważniejszymi punktami (1 – Czarnobylska Elektrownia Jądrowa, 2 – miasto Czarnobyl, 3 – miasto Prip'yat, 4 – stacja radarowa „Duga”)

To this day there is no clearly specified number of the disaster victims. According to the report of the „Chernobyl Forum” whose members are International Atomic Energy Agency (IAEA), World Health Organization (WHO), Agencies of UN (FAO, UNDP, UNEP, UN-OCHA, UNSCEAR) and the governments of Belarus, Russia and Ukraine, the death toll was 50 (two employees of the power plant, about 40 liquidators of the disaster results and persons who died of thyroid cancer which was proved to be associated with the disaster). Whereas the results of the studies presented by the Scientific Committee of the UN for the Effects of Nuclear Radiation talk about 28 victims of acute radiation sickness who were dead within 4 months from the accident, and the 3 victims who died from other causes (Trojanowski et al. 2006). All of these victims are commemorated with the monument at the road in Chernobyl with the inscription „To those who were saving the world”.

4. Tourism in the area of the Exclusion Zone around the Chernobyl Nuclear Power Plant

Pripyat, as well as the very power plant in Chernobyl are falling into ruin from day to day. Over the next decade or so – for natural reasons – the city is simply going to collapse. Thus it will fall into oblivion. The only remnant will be the so-called arch – a special structure, which the reactor no. 4 and the old steel and concrete sarcophagus were covered with at the end of 2016. It is a shelter which is 108 m high, 162 m long and 257 m wide. The whole structure weighs 36 thousand tonnes. Its cost amounts to 1.5 billion euros, which was collected from over 45 donor countries. The financing of the venture was managed by the European Bank for Reconstruction and Development which supported it with a greater funding than any of the remaining donors (0.6 billion euros). Considerable resources were also contributed to the Chernobyl Fund by, among others, the European Commission – 350 million euros, USA – 183 million, Germany – 80 million, United Kingdom – 65 million, France – 63 million, Japan – 45.7 million, Ukraine – 45 million, Italy – 42 million, Canada – 35 million and Russia – 25 million. In turn, Poland donated 2.5 million euros for this purpose (Rzeczpospolita 2017).

In the second half of the 20th century there were several accidents in nuclear power plants; e.g. in Windscale (United Kingdom, 1957), Three Mile Island (USA, 1979), Tsuruga (Japan, 1981), Tomsk (Russia, 1992) and Tokaimura (Japan, 1999); nevertheless it is Chernobyl that has become a destination for tourists from all over the world. What is the underlying phenomenon of this place then? The thing is that the cases mentioned did not receive so much coverage as the accident in Chernobyl. Also, the then tense political situation between the USSR and the USA added „taste” to all that. In addition, the number of victims and actual results of the disaster were open to doubt. All in all, the atmosphere created around Chernobyl had its aura of mystery. In this way, a place that was potentially regarded as dangerous and unfriendly has become attractive for tourists (Tomala 2010).

Travel agencies (especially Ukrainian ones) take advantage of this fact and organize day trips to Chernobyl (Tomala 2010). Whereas the first travel agency in Poland since 2007 organizing excursions to Chernobyl was the agency „Bis-Pol” with its seat in Jasło (the company also has its branch in Cracow).

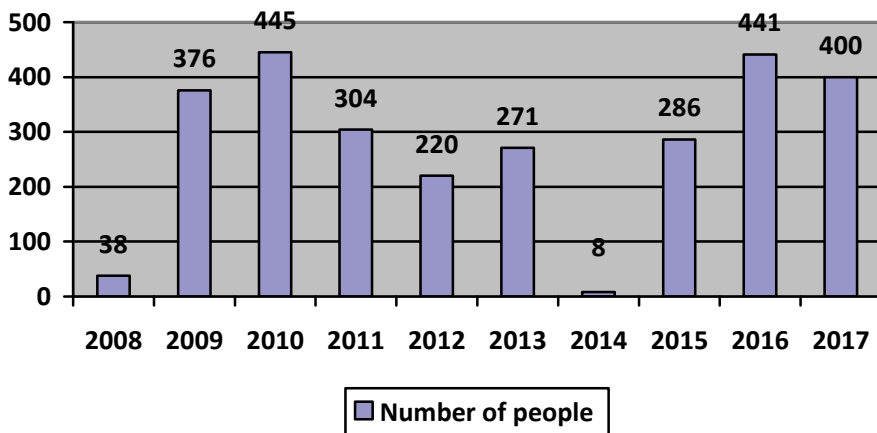


Fig. 2. Tourists visiting the Chernobyl Exclusion Zone with the Polish travel agency „Bis-Pol” in the years 2008-2017 (authors' own compilation based on information shared by an employee of the travel agency „Bis-Pol”)

Rys. 2. Turyści odwiedzający Czarnobylską Strefę Zamkniętą z polskim biurem podróży „Bis-Pol” w latach 2008-2017 (opracowanie własne na podstawie danych udostępnionych przez pracownika biura podróży „Bis-Pol”)

Based on the data obtained from the travel agency „Bis-Pol” it can be noted that since 2010 the number of tourist has been declining. According to the agency staff the reason was the emergence of other agencies on the tourist market which have undertaken to arrange trips to Chernobyl (e.g. Aliena Tours or StrefaZero.org). The year 2014, due to Euromaidan and annexation of Crimea by Russia was a total tourist failure. It was only in 2015 that the number of people wanting to visit Chernobyl started to grow.

Assistance in the organization of a trip to Chernobyl Exclusion Zone can be obtained from the Department for Visits, Trips and Events, to which, among others, travel agencies report their trips. The permits to enter the Zone are issued exclusively by the State Agency of Ukraine on the Exclusion Zone Management. People wishing to visit the Chernobyl Exclusion Zone must remember that visiting the zone takes place along designated routes which have been recognized as presenting no health hazard as long as appropriate safety measures are taken. Also, each visitor or group of visitors must be accompanied by a licensed guide and representative of the zone. It should also be remembered that visits are paid and require obtaining a written permit from the State Agency of Ukraine on the Exclusion Zone Management (Kruczek 2017).

Presently, in the Exclusion Zone the tourist routes are as follows:

- checkpoint „Dytiatky” – Czerewacz village – Zalesie village – city of Chernobyl,
- city of Chernobyl (place near the St. Elijah Church),
- city of Chernobyl (the monument „To those who were saving the world”, St. Elijah Church, remembrance complex „The Wormwood Star”),
- city of Chernobyl – Paryszew village (Opacici village, Kupuwate village),
- city of Chernobyl – the Chernobyl Nuclear Power Plant – Complex „Vector” (uncontaminated zone) – „Buriakówka” radioactive waste disposal site (uncontaminated zone),
- city of Chernobyl – the Chernobyl Nuclear Power Plant – the cooler,
- city of Chernobyl – city of Pripyat,
- city of Chernobyl – Chernobyl-2,
- city of Chernobyl – Krasne,

- city of Chernobyl – Poliśke,
- city of Chernobyl – „Skazocznyj” (Fairytale) pioneer camp (information from the website of the State Agency of Ukraine on the Exclusion Zone Management).

The most mysterious facility, recently opened to tourists and the media – an artefact of the cold war between the USSR and the West – is the „Duga” radar station (also dubbed „The Eye of Moscow”). It was a system of aerials in the shape of giant scaffolding whose aim was to detect incoming ballistic missiles on the territory of the then USSR. Owing to its characteristic rhythmic tapping in the air, which „Duga” generated, experts from the West also nicknamed it „the Russian Woodpecker”. It was not accidentally that Soviet engineers located the „Duga” radar station near the Chernobyl Nuclear Power Plant. Its energy consumption was very high. According to the intelligence of NATO member states it was about 10 megawatts of power.

The analysis of official statistical data referring to the number of tourist visitors to Chernobyl provided by the State Agency of Ukraine on the Exclusion Zone Management points to the fact that the number is growing each year. In 2016 35.1 thousand tourists visited Chernobyl, and in 2017 – over 50 thousand. (Fig. 3) It must also be noted that the vast majority of them are foreigners (more than 80%). According to the tour operators foreign tourists who visited Chernobyl in the years 2015-2017 leave about 10 million dollars a year in Ukraine. Currently, the most numerous groups of foreign tourists are: the Japanese, Americans and Germans (Fig. 4). Most tourists visiting Chernobyl are foreigners aged 20-50, wealthy or middle-class people.

On the basis of the data received it can be noted that in 2017, the greatest tourist activity – through the choice of Chernobyl as travel destination – was demonstrated by the Japanese. This interest is justified by the fact that their country is well aware of terrible consequences of excess radiation, so it is mainly associated with safety issues, in particular the technological condition of their own power plants.

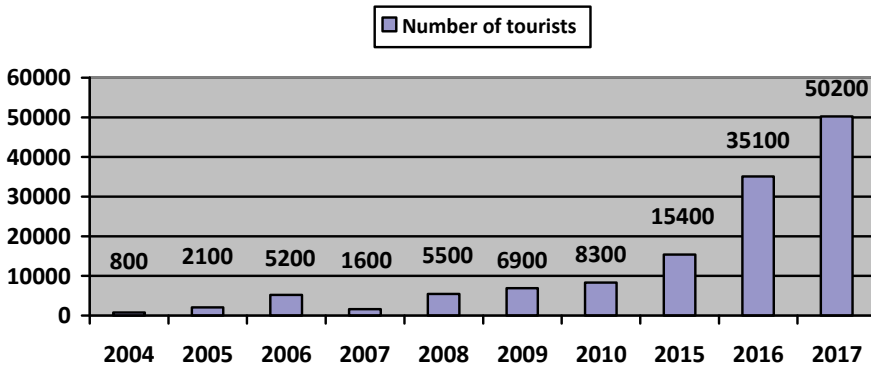


Fig. 3. Tourists visiting the Chernobyl Exclusion Zone in the years 2004-2017 (authors' own compilation based on information from the State Agency of Ukraine on the Exclusion Zone Management)

Rys. 3. Turyści odwiedzający Czarnobylską Strefę Zamkniętą w latach 2004-2017 (opracowanie własne na podstawie danych Państwowej Agencji Ukrainy ds. Zarządzania Strefą Wykluczenia)

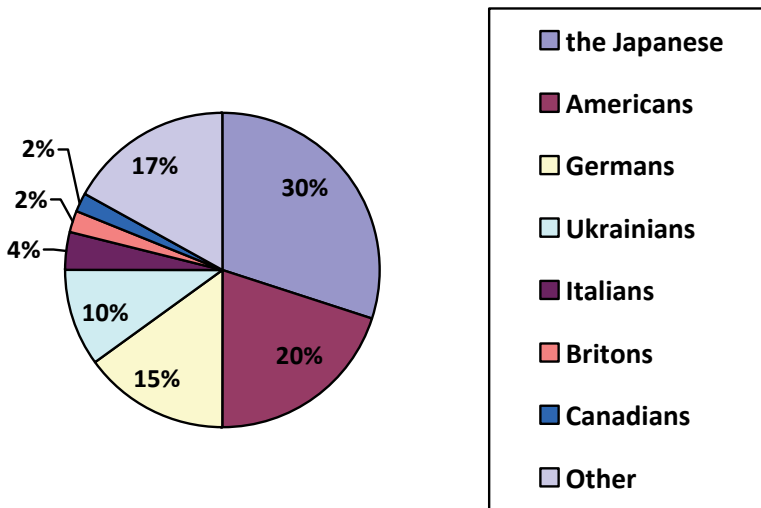


Fig. 4. Division of tourist by nationality, who in 2017 visited the Chernobyl Exclusion Zone (authors' own compilation on the basis of the data from the State Agency of Ukraine on the Exclusion Zone Management)

Rys. 4. Podział turystów, pod kątem narodowości, którzy w 2017 r. zwiedzili Czarnobylską Strefę Zamkniętą (opracowanie własne na podstawie danych Państwowej Agencji Ukrainy ds. Zarządzania Strefą Wykluczenia)

5. Prospects for the development of tourism in the area of the Exclusion Zone around the Chernobyl Nuclear Power Plant

In order to analyse the prospects for the development of tourism in the area of the Exclusion Zone around the Chernobyl Nuclear Power Plant, its strengths, weaknesses, opportunities and threats have been identified with the use of SWOT analysis.

Table 1. SWOT analysis of the prospects for the development of tourism in the Chernobyl Exclusion Zone

Tabela 1. Analiza SWOT perspektyw rozwoju turystyki w Czarnobylskiej Strefie Zamkniętej

Strengths	Weaknesses
<ul style="list-style-type: none"> • presence of the internationally recognized facility; • presence of unique species of plants and animals, which may become the basis for the development of scientific tourism; • yearly increase in the number of tourists, especially among foreigners; • additional tourist attractions unconnected with the disaster (e.g. „Duga” radar station). 	<ul style="list-style-type: none"> • no tourist infrastructure, accommodation and catering services; • not all facilities are made available to tourists; • frequent cases of pillage, especially among „illegal” tourists; • to visit the zone special permits from the authorities of the State Agency of Ukraine on the Exclusion Zone Management are required.
Opportunities	Threats
<ul style="list-style-type: none"> • convenient location and easy access for Ukrainian and foreign tourists (the facility is located 130 km from Kiev); • presence of „The Wormwood Star” Museum in Chernobyl; • promotion at international tourism fairs. 	<ul style="list-style-type: none"> • uncontrolled reproduction of wild animals and dogs which may spread diseases and attack people; • risk of exposure to radiation and of the related diseases; • tourists' fear of conflict in the east of Ukraine.

When calculating the results of SWOT analysis the ranking method of data formatting was used. The analysis conducted indicates a balance between the positive and negative sides. Eliminating weak sides of the discussed area's tourist attractiveness to a large extent depends on central authorities of Ukraine. It is necessary to work out conditions favourable to the development of tourism on the state level. Above all the following steps should be taken: awarding the Exclusion Zone around the Chernobyl Nuclear Power Plant the status of a museum reserve; granting financial support and introducing legal facilitation to create appropriate tourist infrastructure (accommodation, catering, renovation of roads); awarding in particular the city of Pripyat and other facilities located 10-15 km away from the Chernobyl Nuclear Power Plant the status of museum, which will allow to preserve Pripyat in its shape from 1986, and enhancing security that will prevent people engaged in theft and devastation of valuable historical monuments from accessing the area (Kapica & Grymanowski 2015). The undeniable asset of the Chernobyl Exclusion Zone is its ecosystem. The absence of human interference and the accompanying disappearance of risk factor have become an impulse for the Exclusion Zone to be colonized by wild animals. Over three decades in the area discussed species of animals which disappeared from this region as early as at the beginning of the previous century have re-emerged, e.g.: red deer, wolf, lynx, moose or brown bear (Znak 2016). The presence of unique plant and animal species could become the basis for the development of scientific tourism. Other elements increasing the attractiveness of the Exclusion Zone around the Chernobyl Nuclear Power Plant are unique facilities located on its territory, which, although not directly related to the disaster, can be used for tourist purposes. The structure of the Soviet strategic over-the-horizon „Duga” radar could serve as an example. Taking into account additional attractions and creating adequate infrastructure will allow the Chernobyl Exclusion Zone to become a unique tourist product.

As far as popularization of tourism is concerned the presentation of the offer at international tourism fairs plays an important role. Within this scope the most prominent commercial event of the tourism industry worldwide is Internationale Tourismus-Börse – organized annually in Berlin since 1966. During the 2018 Berlin fair the tourist offer of the Chernobyl Exclusion Zone was one of the most interesting ones (in view

of the authors of the paper). The stand was very popular with the visitors to the fair as well as other exhibitors. Well-chosen gloomy colours captured the atmosphere of the promoted product. Positive impressions were completed with promotional materials handed out to visitors to the stand, containing information, presented in a legible and clear manner, about tourist attractions and encouraging to visit the Chernobyl Exclusion Zone. In addition, some aspects influencing the increasing interest in tourism in the area discussed are documentaries (such as „The Battle of Chernobyl”, France 2006; „Chernobyl. Life in the Death Zone”, the Netherlands 2007; „Chernobyl. The Triumph of Nature”, France 2010) and research papers dedicated to various aspects of visiting the area discussed (Крапивенко 2006, Пестушко & Чубук 2010, Goatcher & Brunson 2011, Stone 2013, Yankovska & Hannam 2014, Kapica & Grymanowski 2015).

6. Summary and conclusions

The analysis of the condition of and prospects for the development of tourism in the area of radioactive contamination around the Chernobyl Nuclear Power Plant indicates that the tourist potential of the area discussed has been underused. In spite of the annual increase in the number of tourists visiting the Chernobyl Zone, the record result of 2017 (50,200 people), for the worldwide uniqueness of the place is quite modest. Apart from investments in the tourist infrastructure, awarding the museum status, enhancing security against devastation and robbery, introducing proper tourism-friendly legal regulations, great emphasis must be put on educational activity. The popularization of the Chernobyl Exclusion Zone as a safe place will allow potential tourists to overcome their fear of radiation and the related consequences of different diseases in the future. The awareness of danger dictated by the remembrance of the tragedy is especially visible among citizens of Ukraine and the countries of the former Eastern Block (which is reflected by the number of tourists from these countries). Not only will the educational activity conducted allow to show the tourist attractiveness of the area of radioactive contamination around the Chernobyl Nuclear Power Plant, but it will also serve a learning, ecological, social and cultural function, and above all could be a warning against possible consequences of irresponsible human activity both for people themselves and the natural environment.

References

- Boruszczak, M. (2010). *Turystyka zdrowotna*. Gdańsk: Wyższa Szkoła Turystyki i Hotelarstwa.
- Foley, M., Lennon, J. J. (1996). JFK and dark tourism: A fascination with assassination. *International Journal of Heritage Studies*, 2(4), 198-211.
- Goatcher, J., Brunsten, V. (2011). Chernobyl and the Sublime Tourist. *Tourist Studies*, 11(2), 115-137.
- Kapica, R., Grymanowski, J. (2015). Nielegalne wejścia do Czarnobylskiej Strefy Wykluczenia. Wybrane zachowania etyczne stalkerów. In: Godlewski, G., Zalech, M. (Eds.), *Turystyka kontrowersyjna na współczesnym rynku podróży – formy, uwarunkowania, skutki*. Biała Podlaska: Akademia Wychowania Fizycznego Józefa Piłsudskiego w Warszawie, Filia w Białej Podlaskiej, 315-323.
- Крапивенко, Д. (2006). Туризм у зоні: Знайомство з чорнобильськими примарами коштує туристу-одинаку 350 доларів. *Контракти*, 19(8 травня), 58-59.
- Kruczek, Z. (2017). Czarnobyl – od katastrofy do kreowania atrakcji w strefie zamkniętej. *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu*, 473, 317-324.
- Kurek, W. (2008). *Turystyka*. Warszawa: Wydawnictwo Naukowe PWN.
- Miles, W. F. S. (2002). Auschwitz: Museum Interpretation and Darker Tourism. *Annals of Tourism Research*, 29(4), 1175-1178.
- Nad'yarnyh, G. V., Shilin, S. A., Komarov, V. I., Andreev, Y. B., Samoilenko, Y. N. (1989). Arrangement and efficiency of works on land decontamination in the ChNPP zone. Reports of the First All-Union Scientific and Technical Meeting on Results of Chornobyl NPP Accident Consequences Elimination Activities 'Chornobyl-88' (ed. by E. I. Ignatenko). *Chornobyl*, 7(1), 189-204.
- Noonan, D. S., Rizzo, I. (2017). Economics of cultural tourism: issues and perspectives. *Journal of Cultural Economics*, 41(2), 95-107.
- Пестушко, В., Чубук, Ю. (2010). Чорнобильська АЕС як туристична дестинація. *Географія та туризм*. Вип. 9, 82-86.
- Płomiński, A., Bakota, D. (2017). Dark tourism as one of the forms of commemorating victims of the Second World War in Poland. 4th International Multidisciplinary Scientific Conference on Social Sciences and Arts SGEM 2017, Conference Proceedings, Book 1, Modern Science Conference Proceedings, *Economics and Tourism*, 4, 191-196.
- Rzeczpospolita (2016) Sarkofag na sto lat, 97(10430), A14.
- Rzeczpospolita (2017) Arka nie rozwiąże problemów, 1(10639), B8.

- Rzetała, M. (2017). Global environmental problems and the development of tourism. 4th International Multidisciplinary Scientific Conference on Social Sciences and Arts SGEM 2017, Conference Proceedings, Book 1, Modern Science Conference Proceedings, *Economics and Tourism*, 4, 383-390.
- Scenario for modeling changes in radiological conditions in contaminated urban environments. Pripyat, Districts 1 and 4. Phase A: Undisturbed urban environment with no human activity. Phase B: Urban environment with human activity. Phase C: Urban environment with effects of remediation activities. EMRAS Urban Remediation Working Group. Kiev-Vienna, May 2006.
- Seaton, A. V. (1999). War and Thanatourism: Waterloo 1815-1914. *Annals of Tourism Research*, 26(1), 130-158.
- Slade, P. (2003). Gallipoli Thanatourism: The Meaning of ANZAC. *Annals of Tourism Research*, 30, 779-794.
- Stone, P. (2013). Dark tourism, heterotopias and post-apocalyptic places: The case of Chernobyl. In: White, L., Frew, E. (Eds.), *Dark Tourism and Place Identity: Managing and Interpreting Dark Places* (79-93), London: Routledge.
- Stone, P., Sharpley, R. (2008). Consuming Dark Tourism: A Thanatological Perspective. *Annals of Tourism Research*, 35(2), 574-595.
- Talebi, H. (2017). Health and wellness tourism: Emergence of a new market segment. *Annals of Tourism Research*, 64, 209-210.
- Tomala, R. (2010). Czarnobyl – „promieniotwórczy” przykład turystyki ekstremalnej? In: Machowski, R., Rzętała, M. A. (Eds.), *Z badań nad wpływem antropopresji na środowisko* (109-118). Sosnowiec: Wydział Nauk o Ziemi UŚ i Studenckie Koło Naukowe Geografów UŚ.
- Trojanowski, W., Dobrzyński, L., Droste, E., Strupczewski, A. (2006). W 20. rocznicę awarii Czarnobylskiej Elektrowni Jądrowej. Warszawa: Instytut Problemów Jądrowych oraz Instytut Energii Atomowej.
- Yankovska, G., Hannam, K. (2014). Dark and toxic tourism in the Chernobyl exclusion zone. *Current Issues in Tourism*, 17(10), 929-939.
- Zarębski, P., Borzyszkowski, J., Marczak, M. (2015). Sustainable Development and Tourism. Example of Investments Connected with the Installation of Solar Collectors in Seaside Lodging Facilities. *Rocznik Ochrona Środowiska*, 17, 143-164.
- Znak (2016), Strefa radioaktywnego zapomnienia, 731, 18-23.

Katastrofa w Czarnobylskiej Elektrowni Jądrowej a turystyka. Stan i perspektywy rozwoju turystyki na obszarze skażenia promieniotwórczego

Streszczenie

Czarnobylska Elektrownia Jądrowa zlokalizowana jest na terytorium Ukrainy w obwodzie kijowskim, przy granicy z Białorusią (4 km od miasta Prypeć i 18 km od miasta Czarnobyl). Awaria IV reaktora czarnobylskiej elektrowni w dniu 26 kwietnia 1986 r. spowodowała niekontrolowaną emisję substancji promieniotwórczych do atmosfery. Równocześnie z akcją ratunkową rozpoczęto ewakuację ludności z zagrożonych terenów, wyznaczając trzydziestokilometrową zamkniętą strefę wokół terenów najbardziej dotkniętych skutkami katastrofy. Łącznie z zamkniętej Strefy Wykluczenia wokół Czarnobylskiej Elektrowni Jądrowej (w promieniu 10 km od elektrowni utworzono strefę „szczególnego zagrożenia”, a w promieniu 30 km strefę „o najwyższym stopniu skażenia”) mierzącej ok 2,5 tys. km² wysiedlono prawie 350 tys. osób. Wykorzystywanie do celów turystycznych obszaru skażenia promieniotwórczego wokół Czarnobylskiej Elektrowni Jądrowej rozpoczęło się z początkiem XXI w. kiedy to pod naciskiem państw zachodnich władze Ukrainy w 2000 r. zamknęły ostatni czynny reaktor. Pozwolenia na wjazd do Czarnobylskiej Strefy Zamkniętej wydawane są tylko przez Państwową Agencję Ukrainy ds. Zarządzania Strefą Wykluczenia. Osoby zwiedzające obszar skażenia promieniotwórczego wokół Czarnobylskiej Elektrowni Jądrowej muszą pamiętać o tym, że zwiedzanie strefy odbywa się wzdłuż określonych tras, które uznano za niezagrażające zdrowiu przy zachowaniu odpowiednich reguł bezpieczeństwa. Każdemu zwiedzającemu czy też grupie zwiedzających musi towarzyszyć licencjonowany przewodnik oraz przedstawiciel strefy. Obecnie w Strefie Wykluczenia istnieje 11 tras turystycznych: punkt kontrolny „Dytiatki” – wioska Czerewacz – wioska Zalesie – m. Czarnobyl; m. Czarnobyl (miejsce w pobliżu Cerkwi św. Eliasza); m. Czarnobyl (pomnik „Tym, którzy uratowali świat”, Cerkiew św. Eliasza, kompleks pamięci „Gwiazda Piołun”); m. Czarnobyl – wioska Paryszew (wieś Opacici, wieś Kupuwate); m. Czarnobyl – Czarnobylska Elektrownia Jądrowa – Kompleks „Wektor” (strefa czysta) – punkt składowania odpadów radioaktywnych „Buriakówka” (strefa czysta); m. Czarnobyl – Czarnobylska Elektrownia Jądrowa – chłodnica; m. Czarnobyl – m. Prypeć; m. Czarnobyl – Czarnobyl-2; m. Czarnobyl – Krasne; m. Czarnobyl – Poliśkie oraz m. Czarnobyl – obóz pionierski „Skazocznyj” (Bajkowy). W 2017 r. obszar skażenia promieniotwórczego wokół Czarnobylskiej Elektrowni Jądrowej odwiedziło ponad 50 tys. osób z czego zdecydowaną większość stanowili obcokrajowcy (ponad 80%). Wśród

nich najliczniejszą grupą byli: Japończycy, Amerykanie oraz Niemcy. Według organizatorów wycieczek zagraniczni turyści, którzy odwiedzili Strefę Wykluczenia wokół Czarnobylskiej Elektrowni Jądrowej w latach 2015-2017, zostawili na Ukrainie ok. 10 mln dolarów w skali rocznej.

Abstract

The Chernobyl Nuclear Power Plant is located on the territory of Ukraine in the district of Kiev at the border with Belarus (4 km away from the city of Pripjat and 18 km from the city of Chernobyl). The failure of the reactor IV of the Chernobyl power plant on April 26, 1986, caused uncontrolled emission of radioactive substances into the atmosphere. Together with the rescue operation the evacuation of the population from the endangered areas started and the thirty-kilometre exclusion zone was designated around the territories most adversely affected by the results of the disaster. The total number of people displaced from the Exclusion Zone around the Chernobyl Nuclear Power Plant (within a 10-km radius from the power plant the "high risk zone" was established, and within a 30-km radius the zone of „the highest degree of contamination”) measuring approx. 2.5 thousand km² was nearly 350 thousand people. Taking advantage of the area of radioactive contamination around the Chernobyl Nuclear Power Plant for tourist purposes began at the beginning of the 21st century when, under the pressure of Western countries, in 2000 the authorities of Ukraine shut down the last operating reactor. The permits to enter the Chernobyl Exclusion Zone are issued exclusively by the State Agency of Ukraine on the Exclusion Zone Management. People visiting the area of radioactive contamination around the Chernobyl Nuclear Power Plant must remember that visiting the zone takes place along designated routes which have been recognized as presenting no health hazard as long as appropriate safety measures are taken. Each visitor or group of visitors must also be accompanied by a licensed guide and representative of the zone. Presently, in the Exclusion Zone there are 11 tourist routes: checkpoint „Dyiatky” – Czerewacz village – Zalesie village – city of Chernobyl, city of Chernobyl (place near the St. Elijah Church); city of Chernobyl (the monument „To those who were saving the world”, St. Elijah Church, remembrance complex „The Wormwood Star”); city of Chernobyl – Paryszew village (Opacici village, Kupuwate village); city of Chernobyl – the Chernobyl Nuclear Power Plant – Complex „Vector” (uncontaminated zone) – „Buriakówka” radioactive waste disposal site (uncontaminated zone); city of Chernobyl – the Chernobyl Nuclear Power Plant – the cooler; city of Chernobyl – city of Pripjat; city of Chernobyl – Chernobyl-2; city of Chernobyl – Krasne, city of Chernobyl – Poliśke, city of Chernobyl – „Skazocznyj” (Fairytale) pioneer camp. In 2017 the area of radioactive con-

tamination around the Chernobyl Nuclear Power Plant was visited by more than 50 thousand people, of whom the vast majority were foreigners (over 80%). Among them the most numerous group was: the Japanese, Americans and Germans. According to tour operators foreign tourists who visited the Exclusion Zone around the Chernobyl Nuclear Power Plant Chernobyl in the years 2015-2017 left about 10 million dollars a year in Ukraine.

Słowa kluczowe:

Czarnobyl, dark tourism, Czarnobylska Strefa Zamknięta, elektrownia jądrowa, katastrofa, skażenie promieniotwórcze

Keywords:

Chernobyl, dark tourism, Chernobyl Exclusion Zone, nuclear power plant, disaster, radioactive contamination