

RESEARCH ON THE IMPACT OF THE HOSTILITIES IN UKRAINE ON TOURISM IN THE DANUBE DELTA

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Abstract

The purpose of the paper was to study the tourism in the Danube Delta and to evaluate the impact of the hostilities in Ukraine on tourist flows and other aspects. The study was carried out between February 15 and March 15 2024, by applying a questionnaire with 6 questions, on site and during the Romanian Tourism Fair (February 15-18). The questions in the questionnaire addressed how the tourism structures in the Danube Delta have been affected by the hostilities in the neighborhood and whether they were helped by the central and local public authorities. Representatives of 178 accommodation units, totaling 3,080 accommodation places, as well as representatives of some public institutions and NGOs answered the questionnaire. It was tried to find out exact data from all areas of the Danube Delta, so the authors went to the representative localities from a tourist point of view: C.A. Rosetti, Letea, Periprava, Chilia Veche, Crisan, Mila 23, Jurilovca, Maliuc, Murighiol, Sfântu Gheorghe and Sulina. The conclusions pointed out a deep decline in the number of tourists in the Danube Delta in the year 2023, by 42% compared to 2022.

Key words: tourist flow, accommodation, the Danube Delta, hostilities in the neighborhood, Romania

INTRODUCTION

At the end of a road that exceeds 2,840 km collecting the waters of an impressive hydrographic basin whose surface covers more than 8% of the surface of Europe, the Danube, the second largest river of the old continent, builds at its meeting with the Black Sea, from more than 16,000 years, one of the most beautiful deltas in Europe and even in the world, also known as one of the great wetlands of the planet [1]. The oldest branch of the Danube, the Sf. Gheorghe branch, flowed into the sea through a passage located at the southern end of the Letea-Caraorman ridge, developing the first Danube delta: the Sf. Gheorghe I Delta (Buianu, V., 2001) [3]. The second arm of the Danube, Sulina, developed with the blocking by alluvium of

the Sf. Gheorghe arm (Wikipedia) [12, 19].

The Sulina Arm took over an ever-increasing flow of sediments and began to form its own deltaic edifice: the Sulina Delta [2].

At the same time, a small secondary delta, the Cosnei Delta, was formed in the southern part of the area due to the Dunavat secondary arm. The Sulina Delta was gradually eroded, while the Chilia arm, to the north and Sf. Gheorghe, to the south built their own deltas: the Chilia Delta and the Sf. Gheorghe II Delta [4].

The Black Sea, which created the conditions for a strong alluvium resulting in meanderings and ramifications of the main branches [10].

Currently, the total area of the Danube Delta Biosphere Reserve is 5,820 km², of which:

– 3,520 km² Delta proper – the Romanian sector, [6].

– 1,245 km² Razim – Sinoie lake complex,

- 1,130 km² Marine waters up to the 20 m isobath, [15].
- 14 km² Danube bed between Cotul Pisicii and Isaccea (on Romanian territory) and
- 103 km² floodplain of the Danube between Isaccea and Tulcea.

According to specialized literature [7], the Danube Delta represents the territory between the first bifurcation of the Danube (Ceatalul Chilieii), bordered to the east by the Black Sea coast, to the north by the Chilia arm and to the south by the Razim Sinoie lake complex [11]. The Danube Delta itself is the largest component of the reserve and has a total area of about 4,178 km², of which the largest part is found on the territory of Romania, i.e. 3,510 km², representing about 82%, the rest being located on the left side of the Chilia arm, including its secondary delta, in Ukraine [18].

The climate of the Danube Delta belongs to the temperate-continental climate with Pontic influences [14].

The thermal regime (air temperature) has moderate values with a slight increase from west to east [5].

The large amount of heat is given by the average annual duration of sunshine which is of approx. 2,300-2,500 hours, and the annual global solar radiation amounts to 125-135 kcal/cm², being among the highest in the country [9].

Biodiversity in the RBDD is represented by a number of 7,280 species of which:

FLORA – 2,994 species of flora

FAUNA – 4,286 species of fauna.

RBDD remains, however, the most famous for its ornithological fauna, with a total of 365 species recorded.

The 365 bird species include:

- most of the European population of common pelican (*Pelecanus onocrotalus*) and curly pelican (*Pelecanus crispus*);
- 60% of the world population of little cormorant (*Phalacrocorax pygmaeus*)
- 50% of the world population of the red-necked goose (*Branta ruficollis*) (during the winter).

97% of bird species existing in the RBDD are protected by the Bern Convention.

Mammals are represented by 51 species.

Ecosystems in RBDD: 30 types of ecosystems are found in the RBDD (23 natural and 7 anthropogenic) (Table 1).

Table 1. Ecosystems from the Danube Delta

1	The Danube and its arms
2	Channels with active water circulation
3	Channels in natural areas with free water circulation
4	Channels within polders with controlled/absent water exchange
5	Lakes with extensive water bodies or active water exchange
6	Lakes with low water exchange, partially covered with vegetation
7	Lakes inside the facilities, with controlled water exchange
8	Isolated lakes
9	Lagoons connected to the sea
10	Partially enclosed bays
11	Coastal marine lakes with low water exchange and salt concentrations
12	Wet areas covered with reeds
13	Plaur formations inside depression areas and around lakes
14	Willows flutter in the mix on beams and islands
15	Meadows on fluvial banks, frequently flooded
16	Mixed oak forests on high maritime ridges
17	Grassy vegetation mixed with shrubs on calcareous rocks
18	Meadows on pretzel fields
19	Steppe meadows, degraded, on predeltaic erosion witnesses
20	Meadows on low sea beds
21	Mobile and partially mobile sand dunes covered with vegetation
22	Little consolidated littoral cordons
23	Beaches
24	Agricultural facilities
25	Forestry arrangements
26	Poplar plantations along flowing waters
27	Fish facilities
28	Complex layouts
29	Polder in ecological reconstruction
30	Human settlement

Source: Own contribution.

The fish fauna of the RBDD has a remarkable variety, comprising 135 species (which represents about 75-80% of Romania's ichthyofauna). Most of them are freshwater species, but there are also marine species as well as species that live in the Black Sea and enter the Delta and the Danube during the breeding season [8]. Approximately one third of the species have been and are exploited economically.

In the period of the Covid-19 pandemic, tourism in the Danube Delta like in other destinations declined [13].

The farmers who practice agriculture, which is mainly organic in the Danube Delta, have also been affected by climate change, the decline in the number of tourists, the pandemic and the hostilities in the neighborhood [16].

In the last years, rural tourism, agrotourism and ecotourism suffered during the pandemic and also due to the hostilities in the proximity [17].

In this context, this study tried to quantify in what measure tourism in the Danube Delta was affected by the hostilities in the neighborhood in the period 15 February and 15 March 2024 by interviewing based on questionnaires the representatives dealing with tourism in the main localities situated in the geographical area.

MATERIALS AND METHODS

The study was carried out between February 15 and March 15 2024, by applying a questionnaire with 6 questions, on site and during the Romanian Tourism Fair (February 15-18). The questions in the questionnaire addressed how the tourism structures in the Danube Delta were affected by the hostilities in the proximity and whether they were helped by the central and local public authorities.

The 4 questions refer to the forecasts for the tourist year 2024.

The 5 questions refer to: what measures do you intend to take considering attracting tourists in the current context? The last, questions refer to: what methods of promotion do you consider for business recovery?

The questions are presented in Table 2.

Table 2. The questions in the questionnaire

1	How your business in the year 2023 was affected by the hostilities in the neighboring country Ukraine?
2	Have you received financial compensation from the government for losses suffered in the context of events in Ukraine?
3	Have you received financial compensation from local authorities for losses suffered in the context of events in Ukraine?
4	To what percentage do you think that the tourism situation in the Danube Delta will recover in 2024?
5	What measures do you intend to take considering attracting tourists in the current context?
6	What methods of promotion do you consider for business recovery?

Source: Own contribution.

Representatives of 178 accommodation units, totalling 3,080 accommodation places, as well as representatives of some public institutions and NGOs answered the questionnaire.

We tried to find out exact data from all areas of the Danube Delta, so we went to the representative localities from a tourist point of view: C.A. Rosetti, Letea, Periprava, Chilia veche, Crisan, Mila 23, Jurilovca, Maliuc,

Murighiol, Sfântu Gheorghe and Sulina (Table 3).

Table 3. The Location

Location	Accommodation structures studied	Number of related accommodation places
C.A. Rrosetti	3	52
Chilia veche	14	154
Crîșan	28	586
Letea	2	16
Jurilovca	15	250
Maliuc	12	210
Mila 23	20	376
Murighiol	18	280
Periprava	3	20
Sfântu gheorghe	30	526
Sulina	34	610
TOTAL	178	3,080

Source: Own contribution.

RESULTS AND DISCUSSIONS

The percentages obtained from the questionnaire are worrying.

Compared to 2022, in 2023, tourism in the Danube Delta was severely affected due to the conflict situation in the proximity (Table 4). The percentage for the whole area is 42%.

Table 4. The percentage for the whole area

Location	How affected was your business in 2023 due to the conflict in the neighbour country Ukraine?
C.A. Rosetti	65%
Chilia veche	67%
Crîșan	40%
Letea	35%
Jurilovca	15%
Maliuc	25%
Mila 23	30%
Murighiol	18%
Periprava	82%
Sfântu Gheorghe	28%
Sulina	54%
Total	42%

Source: Own contribution.

Tourism in the area was substantially affected, because tourists are afraid to travel in destinations which could be touched by accident by the army conflicts, like Chilia Veche, C.A. Rosetti and Periprava, and also Sulina, which is a port at the Black Sea. After a period of total panic, the situation was improved and towards the end of summer the tourists returned for the beach.

The other localities studied were less affected because they are further away from the critical areas.

Regarding the financial compensation from the Government or local authorities, tourism

entrepreneurs said that the government did not offer any help. Only a few local councils have supported landlords by deferring or reducing local taxes (Table 5).

Table 5. Financial compensation

Location	Have you received financial compensation from the government for losses suffered in the context of events in Ukraine?	Have you received financial compensation from local authorities for losses suffered in the context of events in Ukraine?
C.A. Rosetti	0%	10%
Chilia veche	0%	10%
Crişan	0%	10%
Letea	0%	10%
Jurilovca	0%	0%
Maliuc	0%	0%
Mila 23	0%	10%
Murighiol	0%	0%
Periprava	0%	10%
Sfântu Gheorghe	0%	0%
Sulina	0%	10%
Total	0%	6%

Source: Own contribution.

For the year 2024, tourism entrepreneurs are more optimistic, with 72% stating that the situation in local tourism will recover, either by the fact that tourists have become accustomed to this situation, or by the end of the conflict (Table 6).

Table 6. Forecasts for the tourist year 2024

LOCATION	Do you think that the tourism situation in the Danube Delta will recover in 2024?
C.A. Rosetti	63%
Chilia veche	67%
Crişan	82%
Letea	72%
Jurilovca	95%
Maliuc	82%
Mila 23	80%
Murighiol	78%
Periprava	53%
Sfântu Gheorghe	63%
Sulina	74%
TOTAL	72%

Source: Own contribution

To the question: what measures do you intend to take in order to attract tourists in the current context, the owners of tourism structures answered:

- Online promotion
- Better collaboration with the destination management organization
- Price reduction
- Offering bonuses
- Improving the quality of services

-Providing circuits in safe areas
 When asked what promotion methods you have in mind for business recovery, the owners of tourism structures answered:

- Online promotion
- Participation in national and international tourism fairs
- Promotion through influencers
- Promotion of the Danube Delta in the university environment.

Intelligent technologies are slowly making their way into many industries that want to be competitive in a changing world. The tourism industry is also experiencing all the adoption and adaptation of Artificial Intelligence in its various forms, from natural language processing (NLP), spoken to written and written to spoken, machine learning and more. The automation of business processes through the use of applications designed to help business, from Enterprise Resource Planning (ERP) systems - in this case SAP (Systems, Applications and Products in Data Processing) to applications using AI in its various forms are welcome in this industry – tourism.

The application presented in this paper aims to retrieve information from a customer, in the form of voice, transform it into text, interpret this text using AI - NLP branch, upload the request into an ERP - SAP system (creation of initial request, creation of master data: customer, supplier, holiday ticket, stay, relations with other service providers, etc.). Once the request has been validated, the relationship between the organisational structure (travel company), the master data and the actual creation of the document flow required for a service provided by the company where this IT system is installed is started. With the help of the app - installed on smart devices (smart phone, tablet or desktop), each person has the right to register as a customer and be able to see (on the company's website) what offers are available, then if they decide, they can order what they want for their desired stay. Finally, the application creates all the legal documents (including accounting, marketing, logistics, etc.) required for the stay ordered by the client and will send all the necessary and useful data.

Booking process using AI-based intelligent technologies - using NLP - as a way of communication

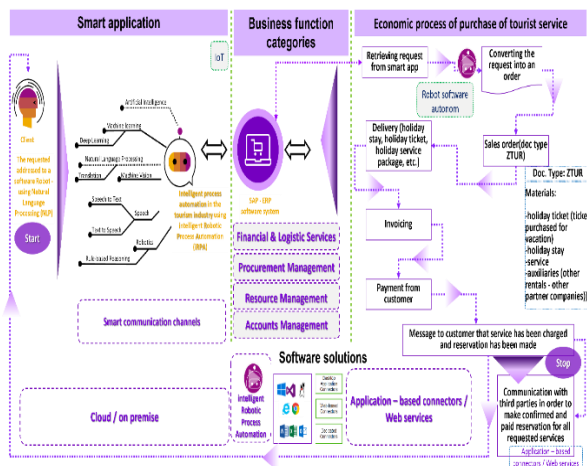


Fig. 1. Booking process using AI-based Intelligent Technologies, using NLP as a way of communication
 Source: Own contribution.

Figure 1 shows that through this application the management of the travel company's business is much easier, all the situations are in real time, the possibility of making a mistake is very small - a series of software robots are used that take at any time holiday requests (non-stop), services related to the purchased stay, online booking, practically there is no impediment that a request is not processed in a very short time, from the moment it is taken.

CONCLUSIONS

The critical situation in Ukraine reduced the pace of economic growth and significantly boosted inflation in Europe.

The National Bank of Switzerland warns that negative effects will follow. Since February 2022, Europe has faced an explosion in energy prices, turbulence in financial markets and a sharp contraction of the economies of the two countries in the conflict.

After examining the impact of this situation on the economies of Germany, Britain, France, Italy and Switzerland, the authors of this study concluded that economic activity would have been 0.1% to 0.7% higher in the fourth quarter of 2022 if the situation in the proximity was not like this.

This study proved that during the last years, more exactly, starting since February 2022, the economies were affected not only the pandemic, but also by the conflict existing

between various countries, among which the hostilities in Ukraine are the most relevant in the Eastern Europe.

Discussing about the tourism in the Danube Delta, it resulted that in the last years it was seen a decline due to tourists fear to travel to spend their vacations as they prefer a safe destination where to spend their vacations.

The interviewed entrepreneurs had financial difficulties which could not be covered by aids from the Government, except a few situations when the local authorities reduced or exempted the payment of taxes.

However, they look to be optimistic and for attracting tourists they developed a strategy which include various stimulating measures like: a better online promotion, a closer collaboration with the destination management organization, a price discount, bonuses, tours in safe places, participation with offers at tourism fairs, promotion through influencers etc.

The use of the tools of the new AI in social media will strengthen tourism in the Danube Delta for sure.

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