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CASE STUDIES AS A LEARNING METHOD: THE EXAMPLE OF TOURISM CRISIS MANAGEMENT IN JORDAN

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Abstract: This paper aims at testing the significance of using case studies as a teaching method for the topic of "Tourism Crisis Management". The case of Arab Spring influence on Jordanian Tourism was selected for this purpose. A sample of 42 students in a Tourism Management BA Program filled a questionnaire, it focused on measuring knowledge of students about the influence of Arab Spring crisis on both the image of Jordan as a tourism destination, and Jordanian tourism economic indicators, also evaluating the performance of tourism stakeholders in the time of crisis. By conducting a paired t-test for responses before and after presenting the case study to students by the instructor, significant statistical differences were found for most of the measured variables, which supports the importance of case studies in making students more aware of political crises' effect on tourism levels, and how to reduce their influences and retrieve the positive image of destinations.

Key words: case studies, teaching methods, crisis management, Arab Spring, tourism sector performance, Jordan

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INTRODUCTION

Making students involved in the learning process ensures its effectiveness (Sivan, Wong Leung, Woon, & Kember, 2000); the use of case studies which are interactive in nature, makes a teacher-centered learning process become more student-centered (Grant, 1997). A case study is a "story with a hidden message or a narrative that describes an actual or realistic situation in which an individual or a group has to make a decision or solve a problem" (Killen, 2006, p. 275). Case studies increase students' motivation and their interest in subjects (Mustoe & Croft, 1999), stimulate dialogue (Badger, 2010), link between theory and practice (Olkun, Altun, & Deryakulu, 2009), encourage deep learning, promote interaction between teachers and students, make learning more enjoyable (Ngcobo, 2008), and promote the development of analytical skills by students (Herreid, Schiller, Herreid, & Wright, 2011). Case studies can be formal written cases, newspaper articles, movie clips, media news story, pictures, mathematical word problems, pieces of art, or any other (Golich, Boyer, Franco, & Lamy, 2000). Regardless of their form, case studies facilitate development of the higher levels of

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Bloom's taxonomy of cognitive learning, moving from remembering of knowledge to analysis, evaluation, and creation (Bloom, Engelhart, Furst, Hill, & Krathwohl, 1956; Anderson & Krathwohl, 2000). This comes from the fact that they take many forms, these are: critical incidents that are short and compact cases that focus on one event or issue with little contexts; descriptive illustrations that describe actions taken by an organization; problem-identification cases that help students to prioritize information and identify, define, or re-define a problem; decision-focused cases that ask the reader to make a decision or give advice on decisions to be made; application cases where students apply a concept, theory, typology, calculation, or a model to test the fitness of theory to data; contextual issue cases used to explore the context around an ethical and/or legal issue; live cases where information is provided orally in a field visit or a classroom; and multimedia cases that engage students at different cognitive levels (McGuire & Whaley, 2017).

The significance of using case studies approach in teaching was discussed in previous studies for different disciplines as: chemistry (Bennett & Cornely, 2001; Cheng, 1995); biology (Camill, 2000); physiology (Cliff, 2006); biochemistry (Cornely, 1998); medicine (Dayal, et al., 2008; Sandstorm, 2006); engineering (Yadav, Shaver, & Meckl, 2010; Woods, 1996); environment (Biegel, Lee, & Graveel, 1998), economics (Carlson & Schodt, 1995), accounting (Knechel, 1992); and psychology (Mayo, 2004). One of the topics that was investigated as well in literature but on a small scale is using case studies in teaching crisis management (e.g. campus crisis management (Shaw, 2018); business public relations (Budden & Budden, 2010); the role of social workers in responding to crisis (Gelman & Mirabito, 2005); and ethical response to organizational crises (Key, 1997)). In these few previously mentioned studies, case studies proved to be an effective teaching method. Though, there is a gap in research about the significance of using case studies in teaching such vital topic; especially what relates to tourism sector. The case study of Arab Spring influence on Jordanian tourism was selected to test the effectiveness of using case studies as a teaching method in a course entitled (Tourism Crises Management), which is a compulsory requirement in a BA Tourism Management Program which is offered by a Jordanian Public University. The aim of this course is to make students familiar with the definition and types of crises, the different stages of crisis management, and the role of different sectors in dealing with tourism crises. The following section explains political crisis influence on tourism destinations, followed then by a presentation about the case of Arab Spring and its influence on Jordanian tourism, and how it was manipulated for the above-mentioned course.

POLITICAL CRISIS & TOURISM DESTINATIONS

Several impacts are witnessed in tourism destinations that suffer from political instabilities whether within or in neighbouring countries; according to Ryu (Ryu, 2005) these include: sharp decline the international and domestic tourism volumes, loss of tourism income, lowering number of nights in tourism accommodations, cancellation of travel plans by individual and group tourists, flourishing of competing destinations due to negative tourists' flows, moreover, lack of interest to travel by tourists and foreign businesses due to perceiving the destination with an image of damage and risk, also fearing potential terrorist attacks. Such issues were investigated in previous literature (Magablih & Mustafa, 2018; Ghaderi, Mat Som, & Wang, 2014; Sausmarez, 2007; Neumayer, 2004; Apostolopoulos & Ioannides, 1999; Sönmez & Graefe, 1998).

The Arab Spring influence on Jordanian tourism sector is a multi-type of crisis; it's economic since tourist arrivals and revenues decreased; and reputational since it had dramatically caused a misperception of the country as an unsafe destination due to its location in the Middle East region. This signifies the need to effectively implement "Crisis Management", which according to Coombs (Coombs, 1999), seeks to prevent or lessen the negative outcomes of crisis and thereby protect the industry from damage.

CRISIS MANAGEMENT

Crisis management is all about "the preparation and application of strategies and tactics that can prevent or modify the impact of major events on the company or organization" (Stocker,

1997, p. 189). Several models of crisis management of different stages were proposed in literature, of these: Murphy and Bayley's model (Murphy & Bayley, 1989) (assessment, warning, impact, and recovery); Smith's crisis management model (Smith, 1990) (crisis of management, operational crisis and crisis of legitimation); Mitroff and Pearson model (Mitroff & Pearson, 1993) (signal detection, probing/ preparation, business recovery, containment/ damage limitation and no-fault learning); Faulkner (Faulkner, 2001) (the pre-event phase (contingency plans and assessment studies are developed), prodromal phase (plans are activated after the occurrence of the crises, emergency phase (actions conducted to protect people and property), intermediate phase (media communication and rebuilding affected areas and infrastructure), and resolution phase (evaluation of crisis management process); Ritchie's crisis management framework (Ritchie, 2004) (prevention and planning, implementation, evaluation and feedback); Lyon and Worton's crisis management framework (Lyon & Worton, 2007) (pre-event, warning signs, action, and review); and Murphy's strategic management framework (Murphy, 2008) (pre-crisis (crisis/ disaster prevention and planning), actual crisis (strategic implementation), and post crisis (resolution, evaluation and feedback). Based on the previously listed studies; it can be said that crisis management requires the implication of strategic planning (Evans & Elphick, 2005; Ritchie, 2004), adapting a comprehensive research agenda and market recovery (Carlsen & Liburd, 2008); effective communication (Marianna, 2011; Ritchie, 2004), preparing detailed contingency plans (Evans & Elphick, 2005), and integration of stakeholders (Marianna, 2011; Blackman & Ritchie, 2008; Ritchie, 2004). An effective model that was proposed for crisis management is the one of Four R's (Wilks & Moore, 2003), which stands for distinct phases of a crisis: Reduction (detecting early warning signals), Readiness (preparing plans and running exercises), Response (executing operational and communication plans in a crisis situation), and Recovery (returning the organization to normal after a crisis). In such approach, an organization needs to identify potential crisis and conduct SWOT analysis (a survey of organization's internal strengths and weaknesses, and external opportunities and threats), this would help in identifying impacts and thus developing continuity and contingency plans to reduce the possibility and influence of a crisis. This should be followed by evaluating crisis exposure to develop strategic and communication plans, auditing and response exercises, controlling damage, pre-empting and reassuring stakeholders and the public, all are procedure to take place and acquire special managerial skills. Finally, recovery, continuity and learning lessons are the final stages in this process which would help to avoid future problems (Wilks and Moore, 2003). Based on this, the case study and its evaluation instrument were developed. As for the crisis' impacts, as well as crisis management procedures of communication, planning and coordination were the focal points addressed (see next two sections).

THE CASE STUDY

Started in Tunisia and Egypt and shortly after spread in some other Middle Eastern countries in 2010, the "Arab Spring" uprisings took place where fall of presidents and drastic instability in Tunisia, Egypt, Libya and Yemen were witnessed after protests against bad life conditions and corruption, while monarchies of Morocco and Jordan continued to be politically stable and adopted gradual political reforms (Masetti & Körner, 2013). Deterioration of economic sectors in Middle East and North Africa region took place (OECD, 2011), as for tourism industry; there was a decline in the volume of inbound tourists, revenues, and hotels' occupancy rates.

Jordan was negatively influenced by the events of Arab Spring; there was a high level of trips cancellation by visitors from Europe and America, a drop in the number of tourist arrivals from 8,078,380 in 2010 to 6,812,438 in 2011 (15.7% decrease); a decrease of package tours from 707,735 to 419,571 (Ministry of Tourism and Antiquities, 2010). Since tourism is the largest export sector of the country, its second private sector employer, and a major producer of foreign exchange (Ministry of Tourism and Antiquities, 2003), and that it accounts for approximately 10.50 % of the country's gross domestic product (GDP) (Central Bank of Jordan [CBJ], 2016),

such declines in tourism are then critical to the Jordanian economy. A clear drop was witnessed in some particular markets, such as the ones from the Gulf Council countries (particularly from Saudi Arabia), and medical tourists, (mainly patients from Sudan, Libya, Yemen and Iraq). The tourism sector started to recover only in 2015. The Jordanian Ministry of Tourism and Antiquities and Jordan Tourism Board declared preparing an emergency plan (not formally published) to target markets as Gulf countries (Saudi Arabia and United Arab Emirates), Turkey and Far East (China, Japan and South Korea) (Jordan Times, 2015). There was also launching of online and offline campaigns to attract more of French, British, and German markets by linkages with European tour operators, advertisements on TV channels, taxis, and billboards, promoting the country as a film destination (The Martian movie was filmed in Wadi Rum, which was featured as Mars), promoting the usage of "Jordan Pass", which is a single ticket that allows tourists to access archaeological sites and museums while waiving entry visa fees for pass holders, waiving visa fees for packaged groups and individual travellers with a minimum stay of two consecutive nights, reduction of visa fees for all land borders, and waiving the departure tax for both Aqaba International Airport and Marka Civil Airport (Oddone, 2015). The formal website of Jordan Tourism Board gave access to live streaming cameras to experience views of distinguished locations; through videos, broadcasting tourists' commentaries about their experience in Jordan; also posting travel bloggers to recommend Jordan as a travel destination (Jordan Tourism Board, 2017). Agreements with charter flights firms by Jordan Tourism Board were signed to bring weekly flights from Europe to Jordan, A summer brochure "Jordan: the family destination" was launched and distributed in airports and at border crossings, enhancing attributes and tourism services in some historical sites, and supporting with marketing information technology training for small businesses, also reducing taxes on hotels (UNWTO, 2017). That is in addition to organizing and participation in different events and exhibitions (Eturbonews, 2017) (e.g. events news posted in Eturbonews website on different dates). The Jordanian formal authorities apparently concentrated on taking communication and containment actions to recover from drastic deterioration in tourism arrivals and revenues; unfortunately, no clear strategic planning approach nor a post-crisis research or SWOT analysis were declared or formally published when deciding these actions.

As mentioned above, this case study of Arab Spring and its influence on Jordanian tourism was presented for teaching purposes in a course entitled: "Tourism Crises Management". This case study was written and composed of the following parts: an introduction about the events of Arab Spring in Middle East and Jordan, indicators showing the decline in the volumes, revenues and accommodations' occupancies of Jordanian Tourism, then different actions taken by Jordanian authorities, this was followed by presenting different models of crisis management and similar cases of countries that could efficiently deal with political crises' impact on them as a tourism destinations. Such information was presented to students by a detailed text that was prepared from selected references by the instructor, also press releases and illustrative videos about different stakeholders expressing their opinions on this matter. Evaluating the effect of using case studies was tested through measuring levels of understanding and agreements on a quantified scale, which is explained in the next section.

METHODOLOGY & INSTRUMENT

Developing a teaching case study is usually conducted through the following steps: developing objectives of teaching and gathering sufficient information on the tackled issue, writing, and structuring the case study to include: an interesting reflective title, an introduction that sheds the light on the problem and parties involved, the main body that includes the story, and exhibits as the case require to make reader know extra information. In addition, setting teaching notes, which give insights on how to use and prepare for the case study, sources of additional information and criteria used to evaluate students, all should be considered (Balakrishnan, 2010). When presenting the case study to class, key concepts should be identified and clarified, students are then asked to work in

groups and participate in a discussion where they are inquired to give their suggested solutions to the case. The teacher facilitates the discussion by asking questions to make the reasoning behind the suggested solutions, and evaluate them (Giacalone, 2016). Finally, assessment of case studies takes place for formative and summative purposes (Biggs & Tang, 2011). Evaluating the effectiveness of case studies in teaching can be done by different methods: surveys measuring levels of understanding and agreements on quantified scales (Bonney, 2015; Iahad, Mirabolghasemi, Mustaffa, Abd. Latif, & Buntat, 2013), measuring attitudes of students toward an issue (Akengin & Aydemir, 2012), and comparing results gained by students in evaluation of courses they take (Pilato & Ulrich, 2014). Experiment vs. control groups or pre vs. post using case study are approaches to be used as well for comparisons among different groups involved.

For this paper, all the previously mentioned steps for develoing the case study, as well as measuring levels of agreement and making comparisons on quantified scales were used.

A sample of 42 students were targeted for this study, they were taking the course of 'Tourism Crises Management', the students anonymously completed a questionnaire before and after the case study was presented by the instructor, where a paired t-test was intended to test statistical differences for the influence of case study as a teaching method in the topic of tourism crisis management (note: no grades were given to students for participating in filling the questionnaire).

The questionnaire included the following sections: the first was for information about students as gender (28 were females and 13 were males as valid responses), study level (first year: 1, second year: 4, third year: 19, and fourth year: 18), and if they have worked in tourism sector (only 6 of the 42 had a positive response to this question). The second section was composed of two indices that measured agreement on a five-point Likert scale (1: Strongly disagree, 2: Disagree, 3: Neutral, 4: Agree; 5: Strongly Agree) for statements about the impact of Arab Spring on Jordanian tourism sector and the performance of different stakeholders in dealing with such crisis. Table 1 shows the descriptive statistics of these variables. The index of impact had a Cronbach alpha of 0.61, while the index of performance had a Cronbach alpha of 0.79. As for validity, face validity was applied by reviewing the questionnaire by professors of tourism in public Jordanian universities.

ANALYSIS & RESULTS

It is noticed that variables in the index of Arab Spring Impact were of mean scores within: (3: Neutral - 4: Agree) and (4: Agree - 5: Strongly agree); the variables with the highest means were for the significant decrease in the numbers of incoming tourists, significant decrease in tourism revenues and for significant decrease in the numbers of offered direct tourism job opportunities. As for the variables in the index of Jordanian Tourism Sector Performanc, the means were mostly within (2: Disagree -3 Neutral); the variables with the highest means were the ones of modifying the mareting plans and the effective coordination among tourism sector stakeholders to deal with such crisis (table 1).

A paired T-test was conducted to examine the differences between levels of agreements by students before and after presenting the case study of Arab Spring Crisis and its influence on Jordanian tourism. The results show that the following variables had significant statistical differences: having alternative destinations other than Jordan ($t = -2.376$, $p = .022$); having a significant change in tourism markets ($t = -2.804$, $p = .008$); having a significant decrease in tourists' length of stay ($t = -3.408$, $p = .002$); having a significant decrease in tourists' spending ($t = -3.045$, $p = .004$); having a significant increase in the numbers of domestic tourists ($t = -2.045$, $p = .047$); following a clear planning approach by Ministry of Tourism and Antiquities (MOTA) with the involvement of relevant stakeholders to deal with such crisis ($t = 2.493$, $p = .017$); showing Ministry of Tourism and Antiquities (MOTA) a great readiness in dealing with the current crisis through effective communication with relevant stakeholders ($t = 2.211$, $p = .033$); and that Jordan Tourism Board (JTB) had clearly modified its marketing plans to deal with the current crisis ($t = 2.263$, $p = .029$) (table 1).

Table 1. Descriptive statistics and T-test comparisons between responses of students before and after presenting the case study of Arab Spring (*P-values are significant at the level of .05 or below)

Variables	N of valid responses	Before Mean (SD)	After Mean (SD)	T Value	P Value
Impact Index					
The misperception of Jordan as a tourism destination after Arab Spring events caused a significant decrease in the numbers of incoming tourists.	41	4.5366 (0.67445)	4.7317 (0.44857)	-1.748	.088
The misperception of Jordan as a tourism destination after Arab Spring events caused a significant decrease in tourism revenues	41	4.4878 (0.77852)	4.5854 (0.66991)	-.726	.472
The misperception of Jordan as a tourism destination after Arab Spring events caused a significant decrease in the numbers of offered direct tourism job opportunities.	40	4.35 (0.8638)	3.975 (0.80024)	.190	.850
The misperception of Jordan as a tourism destination after Arab Spring events caused a partial tourism un-employability	40	3.825 (0.87376)	3.8537 (1.33343)	-.813	.421
The misperception of Jordan as a tourism destination after Arab Spring events led to having alternative tourism destinations other than Jordan	41	3.439 (1.24597)	3.878 (1.00487)	-2.376	.022*
The misperception of Jordan as a tourism destination after Arab Spring events caused a significant change in tourism markets	41	3.4878 (0.8403)	3.5366 (1.20618)	-2.804	.008*
The misperception of Jordan as a tourism destination after Arab Spring events caused closing of several tourism services	41	3.3902 (0.94546)	4.1951 (0.98029)	-.829	.412
The misperception of Jordan as a tourism destination after Arab Spring events caused a significant decrease in the tourists' length of stay	41	3.5366 (1.16399)	3.9268 (1.2528)	-3.408	.002*
The misperception of Jordan as a tourism destination after Arab Spring events caused a significant decrease in tourists spending (mainly incoming tourists)	41	3.2195 (1.19399)	3.4634 (1.22673)	-3.045	.004*
The misperception of Jordan as a tourism destination after Arab Spring events caused a significant decrease in the numbers of outgoing/ outbound tourists.	41	3 (1.18322)	3.6341 (1.17805)	-.565	.575
The misperception of Jordan as a tourism destination after Arab Spring events led to an increase in the numbers of domestic tourists	41	3.5122 (1.24744)	4.7317 (0.44857)	-2.045	.047*
Performance Index					
The Jordanian Ministry of Tourism and Antiquities (MOTA) has shown a great readiness in dealing with the current crisis through effective communication with relevant stakeholders	39	2.9487 (1.0748)	2.4359 (1.31379)	2.211	.033*
The Jordanian Ministry of Tourism and Antiquities (MOTA) has followed a clear planning approach with the involvement of relevant stakeholders on how to deal with current crisis	40	2.875 (0.88252)	2.325 (1.22762)	2.493	.017*
Jordan Tourism Board (JTB) clearly modified its marketing plans to deal with the current crisis.	40	3.1 (0.92819)	2.575 (1.3939)	2.263	.029*
Tourism stakeholders were ready to deal with current crisis since they had contingency plans.	40	2.875 (0.85297)	2.6 (1.194)	1.380	.176
There was an effective coordination among tourism sector stakeholders to deal with such crisis	41	3.1707 (0.97217)	2.7561 (1.)35611	1.811	.078

As for the variables with non-significant p values (>.05), these were the ones in impact index concerning the decreases in: numbers of incoming tourists, revenues, offered jobs, employability, number of operating services and numbers of outgoing or outbound tourists; also for the 2 performance variables related to having contingency plans by tourism stakeholders and effective coordination among them. Such non-significance is justified since such aspects were widely covered and disseminated through mass media. Moreover, the t values have shown to be mostly negative for variables in the index of impact, indicating then higher levels of awareness and agreement on the negative consequences of the crisis on Jordanian tourism. This was not the same though for the index of performance, the positive t values mean that evaluations by students were of higher levels toward agreement.

CONCLUSIONS

Overall, the descriptive statistics have shown that case study approach helped in making students more aware about the influence of Arab Spring on Jordanian tourism, moreover, it helped students in re-evaluating the procedures taken by tourism authorities in dealing with such crisis. Explaining the drastic changes in Jordanian tourism levels caused by Arab Spring events, presenting literature on crisis management models and similar cases of other countries helped in achieving such results. The small size of the sample is a limitation to this study, though, the number of students in a class is not to be a controlled factor by the researcher.

To make students (future employees and managers in tourism sites/establishments) acquainted with such skills, this requires using effective learning methods that help in recognizing the nature and consequences of different crises, also different means to deal with them; therefore, case studies become then one of the best approaches for such purpose. Case studies are examples that give insight into problems with illustrating main ideas (Fry, Ketteridge, & Marshall, 1999). According to Richardson (Richardson, 1993), case studies introduce problems and provoke the search for solutions, provide a 'halfway house' between abstract concepts and real life experience, help in learning from past mistakes, thus making better decisions on ways to act, help in explaining the past, understanding the present, and predicting the future, which will then lessen disturbance caused by unexpected events and ambiguity of crises, also the confusion resulting from the involvement of numerous stakeholders. This requires then empathetic managerial styles, sophisticated communication, and group decision-making skills.

In the context of tourism (as in the case of this study), there are advantages and disadvantages that characterise the use of case studies, as for advantages: the relevance of information to actors involved in tourism development and management, the depth of information related to impacts influencing economy and businesses, the interactive nature of this method, and the ability to track the issue over a long period of time (past and present), all of these emphasize the need to be neutral and to consider all stakeholders' points of view when developing a case of study. Unfortunately, the lack of studies or published material on strategies adopted to deal with crises by different stakeholders would make building such neutral and comprehensive case study difficult to achieve. Despite this, the case study presented in this context not only helped student in gaining better understanding of consequences resulted from Arab Spring crisis on Jordanian tourism, but also of procedures to be taken by different stakeholders during the time of crises. Students also recognized that a more proactive and comprehensive approach should be followed by Jordanian tourism authorities in planning for crises; the concept of crisis management should be integrated in national strategies of tourism sector; this becomes important since there is a clear absence of such aspect (i.e. MOTA National Strategies of the years: 2004-2010; 2011-2015 and 2015-2025) (Ministry of Tourism and Antiquities, 2015; Ministry of Tourism and Antiquities, 2010; Ministry of Tourism and Antiquities, 2003). In such strategies, the priority is given in the first place to diversification of tourism product, targeting new markets, increasing competitiveness through promotion and enhancement of human resources, and enhancing the image of the country as a tourism destination.

Different future implications can be suggested based on the results of this study; training programs can be developed where both public sector and educational institution participate in to acquaint students with necessary knowledge on crisis management. Another implication is establishing a guide by tourism authorities in Jordan where a system for dealing with different types of crises is made as reference for both decision makers and educational establishments, this become important since the country was and is still exposed to different types of crises due to its location in the turbulent Middle East region. Mostly important, crisis management plans should be developed, declared, and made available for discussion in events where the participation of academics and students would add value to both the quality of these plans and educational experience of the public.

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INTEGRATION OF A GIS AND HEC-HMS MODELING TO IMPROVE URBAN RESILIENCE TO FLOOD RISK IN ALGIERS. ALGERIA

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Abstract: The study of the phenomenon of flooding in an urban environment requires the integration of the city in its physical context, in this case the entire impluvium. Thus, the consideration of all the hydrological, morphometric and physical characteristics (topography, lithology, land cover...). In order to put in place appropriate measures to improve urban resilience and protect the population and their property in the capital of Algeria (City of Algiers), a hydrological modeling must be carried out upstream to evaluate the hydrological response of the watershed. This modeling was done using the auxiliary tool HEC-GEO HMS, an extension that works in a GIS environment (ArcGIS).

Key words: Algiers, Flooding, urban resilience, GIS, modelling, HEC-HMS.

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INTRODUCTION

Flood risk is one of the most devastating natural hazards that cause loss of lives, damage to properties, resources and environmental degradation in urban areas (Sami, Adbelwahhab, Yahyaoui, & Abdelhhani, 2021). Algeria is one of the countries facing the adverse effects of natural disasters, especially those related to river dynamics, such as floods. The wilaya of Algiers has experienced several floods and the return of experience from the Bab El Oued disaster on November 10, 2001 with more than 500 deaths, which constitutes a major concern for the authorities, a permanent fear for the inhabitants and a threat to public health and the environment.

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Improving urban resilience in terms of managing different urban flood disaster scenarios requires the study of the watershed's response to rainfall. This response is a function of perennial characteristics over time, or assumed such at the scale of the phenomena studied (pedology, geology, surface area, slope, anthropogenic developments) and of characteristics that vary over time (rainfall history, soil moisture content, state of the plant cover, cultural practices, etc.) (Fouchier, 2010). That said, hydrological modeling is a complex phase that requires the interaction of a set of factors based on a wide variety of models. One of the most successful of these models is the spatial conceptual models that will be adopted.

It is in this perspective that our approach, which allows us to model the watershed in order to set up a flood forecasting tool, fits in. However, knowledge of the hydro-meteorological hazard is a crucial step in the management of a possible crisis.

PRESENTATION OF THE STUDY AREA

Algiers is the economic and political capital of Algeria. It is home to the largest port in Algeria, and although it is the smallest province in terms of surface area, it is the most densely populated. It is a multifaceted city with the most important financial, political and administrative functions in the country. Urban facilities of national and international influence are concentrated in Algiers: airports, university hospitals, universities and graduate schools. Algiers has been inhabited since antiquity and has a rich history.

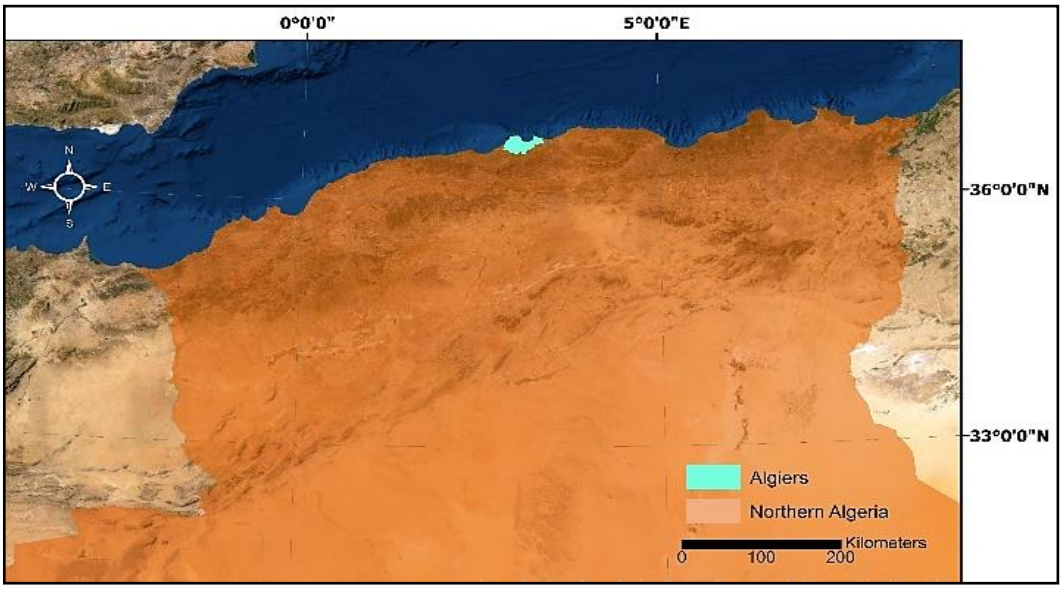

Figure 1. Algiers site
(Source: Khouas Makhlouf Adel)

MATERIAL AND METHODS

Hydrological modeling

Hydrological modeling aims to reproduce the hydrological behavior of a watershed (Beckers & Degré, 2011). It provides information that can be used for the dimensioning of hydraulic works, flood protection or for the hydrological management of a watershed (Gnouma, 2006). Hydrological modeling consists in describing the different stages of the rain-flow transformation which is part of the process linked to the genesis of floods, it provides useful information for the preparation of a possible crisis. Hydrologic models describing the transformation of rainfall over a watershed to runoff at its outlet depend on the physical description of the watershed (Castro & Maidment, 2020).

In addition, the modeling of the rain-flow transformation requires the use of two models: a production model for net rainfall and a transfer model characterizing, in particular, water losses by infiltration (Chane Poi Sane, Noel, Sampic, & Xie, 2011) (transfer function and base discharge).

There are many models that can be divided into three main categories: empirical models, conceptual models and physics-based models (Refsgaard & Storm, 1995). «Conceptual models are the most widely used since they have the advantage of representing the physical processes internal to watersheds at the event or continuously in a more realistic way than empirical models» (Regazzon, Payraudeau, & Grégoire, 2010). In addition, the use of the model can be used to estimate flows from rainfall data and to assess the consequences of human interventions in the watershed such as land use changes and increasing urbanization.

The HEC-HMS model (Hydrologic Engineering Center – Hydrologic Modeling System) is a conceptual hydrological model (Skoulikaris, 2008), Therefore, our choice is based on the HEC HMS spatialized conceptual model for the following reasons:

- Coupling the model with geographic information systems allows a better understanding of the geographic complexity of the watershed;
- The reliability of the results obtained.

The following figure illustrates the steps involved in hydrological modeling of a watershed.

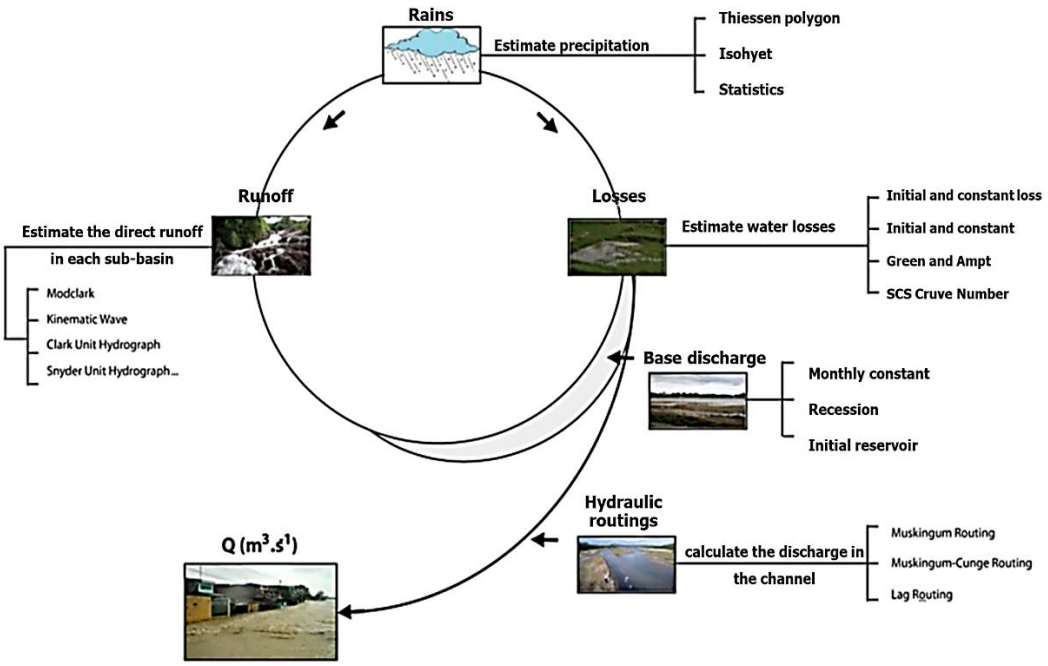

Figure 2. Conceptual diagram of the hydrological functioning according to the HEC-HMS model©

Methodological approach to modeling

Identification of flood hazard goes beyond identifying treats and the extent of damage caused by floods but also identifying the factors responsible for the increasing flood incidence, the vulnerability of the community and the strategies to mitigate the adverse effects of the flood (Ajodo & Olawepo, 2021). It is essential to apply effective preventive measures to achieve an acceptable level of protection and reduction of damage to people and their property. The methodology consists of two steps. The first phase, the hydrological modeling of the watershed which aims to understand its functioning through the use of HEC-GeoHMS and the spatial analyst extension. The HEC-GEOHMS operates in a DEM via GIS to carry out the delimitation in sub-watersheds and the

hydrographic network. Then it allows to estimate the hydrological input parameters in the model (HMS Inputs) such as the concentration time, the longest hydraulic path, etc. (US Army Corps of Engineers (USACE), 2000).

The second phase consists of determining the calculation methods for the production function, the transfer function and the type of base flow adopted. Starting from the DEM of 12.5 m resolution from Advanced Land Observation Satellite, the following operations allow the schematization of the watershed to be obtained.

Schematization of the watershed model

Filling of cuvettes

The purpose of this function is to fill the depressions in order to eliminate the deformations of the DEM. A depression is a cell whose drainage direction is undefined.

Flow direction

A flow direction grid consists of values that indicate the neighboring cell from which the water will flow. The cell values are the flow directions, which can only have eight possible directions for the water flow (eight-direction flow point).

This function determines the flow direction for the river system in the study area. The values in the cells of the flow direction grid show the direction in the direction of the fastest slope of each cell. Create a flow direction raster from each cell to its largest downslope neighbor (ESRI). There are eight valid exit directions relative to the eight adjacent cells in which the flow can flow. This method is generally referred to as the eight-direction flow model (D8).

Flow Accumulation

The flow accumulation is calculated from the direction of flow. From a physical point of view, the flow accumulation grid is the drainage area measured in units of grid cells. Therefore, it indicates how many cells are upstream or upstream of the current cell.

The use of the Flow Accumulation tool allowed us to create an accumulated flow raster for each cell, according to the accumulation of the weights of all these cells flowing into the downsloping cells.

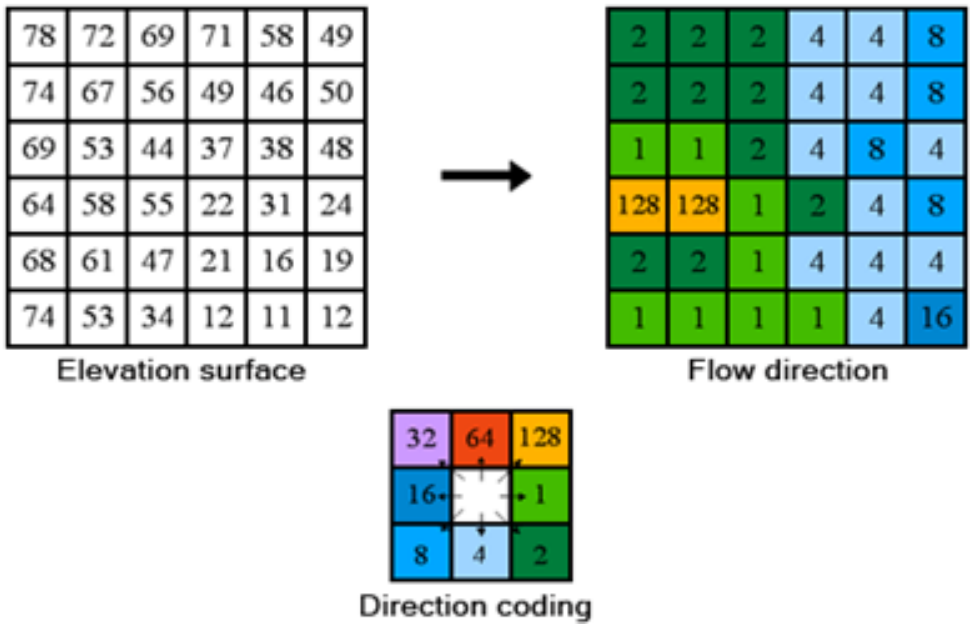

Figure 3. The principle of flow direction coding.
(Source: ESRI)

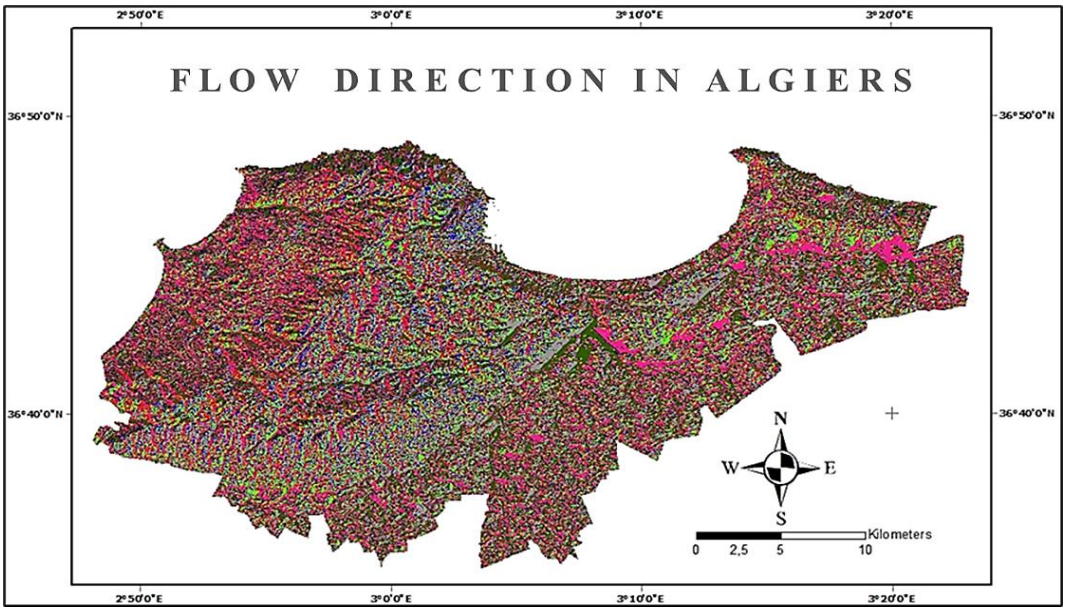

Figure 4. Map of flow direction
(Source: Khouas Makhlouf Adel)

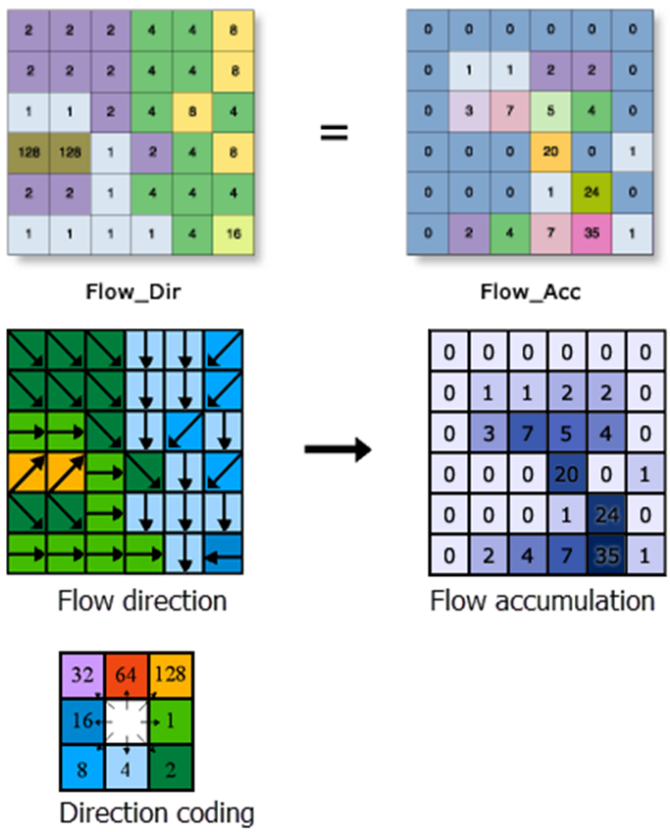

Figure 5. The principle of coding of Flow Accumulation
(Source: ESRI)

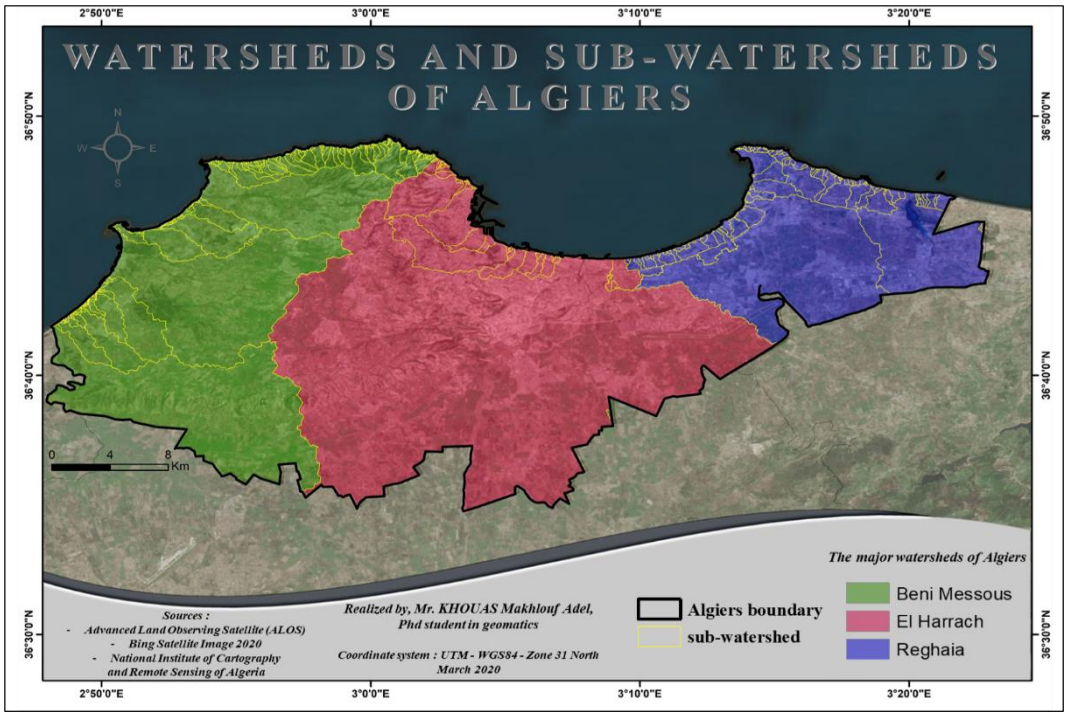

Figure 6. Map of delimitation of the impluvium of Algiers
(Source: Khouas Makhlouf Adel)

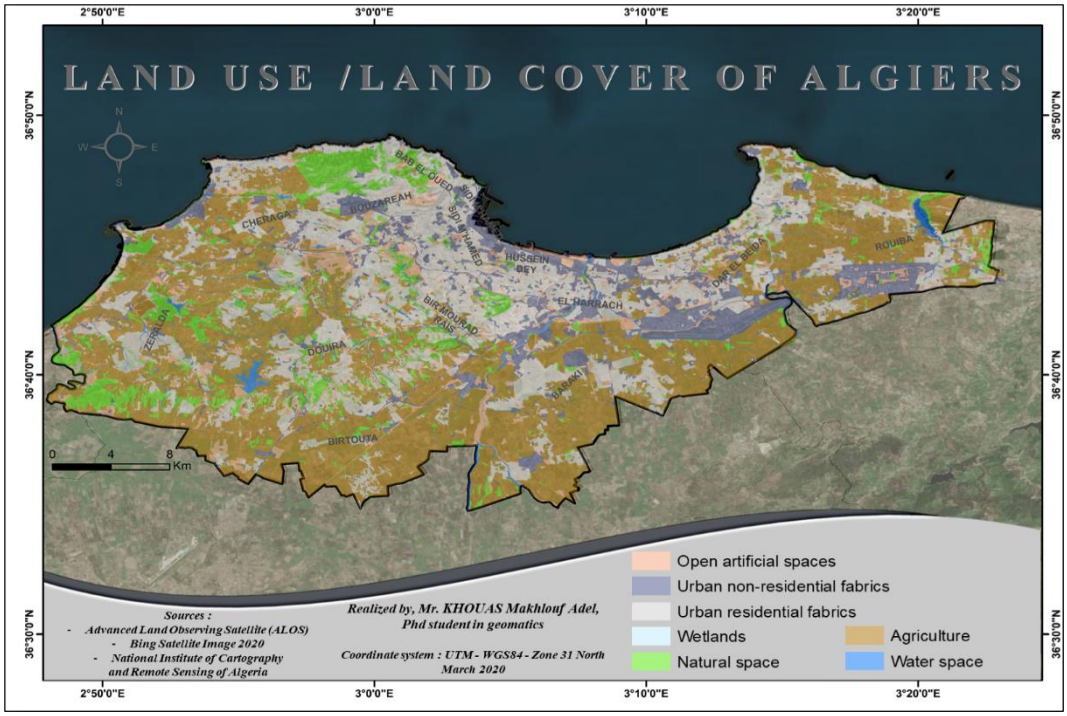

Figure 7. Map of Land use/Land Cover of Algiers
(Source: Khouas Makhlouf Adel)

- Flow direction

This function calculates a flow grid based on a flow accumulation grid. Cells in the input flow accumulation grid that have a value greater than a threshold (optional), assign a value of 1 in the flow grid. The purpose of this step is to extract the hydrographic network from the accumulation of flows, which represents a network of flows (Guellouh, 2017).

- Segmentation of the flow network

Segmentation of the flow network is the operation of assigning a unique code for each segment. Moreover, identical cells carry the same network code.

The nodes considered are the sources, junctions and outlets. Contiguous pixels between two nodes will have the same segment ID and each segment will be numbered differently (Atilio, 2015).

- Delimitation in sub-basins

This function consists of delineating the sub-basins for each stream segment. It allows to create a grid of cells that have a code for each sub-basin.

To do so, it is essential to first determine the outlet of the watershed, which requires a detailed knowledge of the study area, it is therefore necessary to create a class of entity point and locate the outlet. Then the watershed function is performed.

- Conversion of sub-basins to vector format

This step converts the raster representation of sub-basins to vector mode. The conversion is done by the *Raster to Vector* conversion tool of Arc Toolbox.

- Conversion of the hydrographic network to vector mode

This step converts the grid representation of the hydrographic network to the vector representation by the *Raster to Vector* conversion tool of Arc Toolbox.

- Land Use/ Land Cover

The determination of the land cover classes was carried out on a sentinel satellite image using GIS software, and the land use classes were determined following a field survey.

The themes we have chosen are: *Agriculture, Water space, Wetland, Natural space, Open artificial spaces, Urban non-residential fabrics, Urban Residential Fabrics*.

Stream and Watershed Characteristics

The morphological characteristics of a watershed are factors that play a major role in the genesis of floods. The province of Algiers is divided into three main drainage basins: the Beni Messous basin (West), the El Harrach basin (Center) and the Reghaïa basin (East). These watersheds are characterized, to the west, by a complex network associated with the mountainous coastal system of the Sahel which integrates a large number of streams, steeped along the valleys, and to the east, on the plain of Mitidja, by a network sitting on vast valleys and almost flat that emerge between the Bay of Algiers and the eastern coastal platform (Algiers urban planning department, 2016).

Production function

The production function is the equation that measures the difference between gross and net rain by subtracting infiltration.

To estimate water losses by infiltration, the HEC-HMS© model has different methods: Green and Ampt, SCS (Soil Conservation Service), Curve Number, initial and constant deficit, initial and constant losses, Smith Parlange (US Army Corps of Engineers (USACE), 2000). Among these methods, we have opted for the SCS (Soil Conservation Service) Curve Number method.

The key parameter of the SCS-CN model is the curve number which depends on land cover, hydrological soil group (HSG) and antecedent moisture conditions (AMC).

The production function that was used is the USDA Soil Conservation Service (SCS) function that links the cumulative effective rainfall Pe to the cumulative gross rainfall Pb (Steenhuis, Winchell, Rossing, & Zollweg, 1995), by the equation:

$$P_e = \frac{(P - I_a)^2}{(P - I_a + S)}$$

Where,
Pe: Excess precipitation;
P: The total precipitation accumulated at time t;
Ia: Initial losses;
S: The maximum retention potential.
CN can be estimated from two parameters; land cover and soil type.

Runoff estimation

Transfer function

The transfer function is the process of transforming rainfall into discharge at the outlet. The HEC-HMS© model proposes six different methods for estimating flows resulting from direct runoff in each sub-basin: Clark unit hydrographs, of SCS and Snyder, user-defined hydrographs, transformation and as well as Modclark kinematic waveforms (Tramblay, 2012). For this study, the SCS and Snyder method was used.

Hydrological parameters

The SCS Curve Number (CN) method is simple to implement (Soulis & Valiantzas, 2012).

Table 1. SCS soil groups and infiltration rates
(Source: (Skaggs & Khaleel, 1982))

Group	Description	Loss rate (in / hour)
A	Deep sand, deep loess and silts	0:30-0:45
B	Shallow loess and silts	0:15-0:30
C	Silty clay, shallow sandy Silts, soils poor in organic matter	0:05-0:15
D	Clay, alkaline soil, heavy plastic clays	0:00-0:05

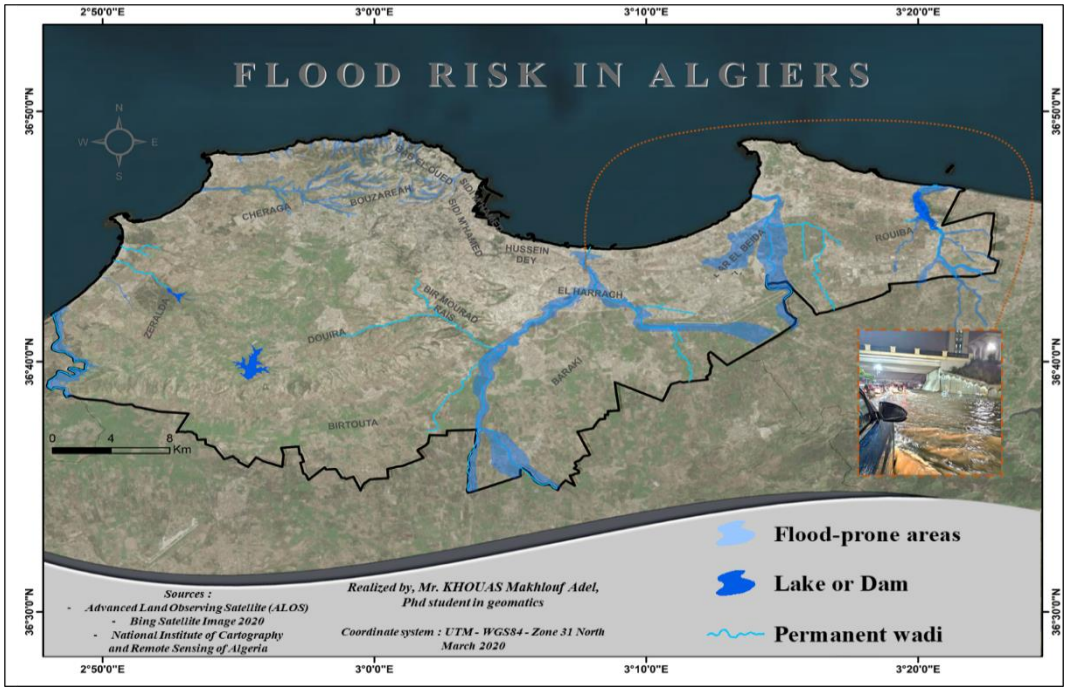

Figure 8. Flood Risk map
(Source: Khouas Makhlouf Adel)

The different characteristics of the sub-basins (length, slope, etc.) must be recorded in a file (basin) that will be used during the simulation made by the HEC HMS application.

Results and discussion

In the light of the various intervening parameters, we tried to reuse the HEC-HMS model adjusted to the impluvium of the city of Algiers to predict its response to a scenario taking the current reality of land use and a hundred-year return precipitation flow.

The result allows us the spatialization of the flood hazard and especially the result that interests us concerning the level of hazard in urban areas.

The extraction of the final result of the spatialization of the flood phenomenon allows us the integration of the result in the forecast on the possible scenarios of management and prevention in real time, the result is attached to the accuracy of the data and the resolution of the satellite images used.

CONCLUSION

The HEC HMS model is a tool for modeling the flood genesis process. It is part of a preventive approach to disaster management related to floods in urban areas. This HEC-HMS hydrological modeling system is a very flexible software used to model the rain-flow process in the watershed of the Algiers region. This hydrological modeling constitutes a schematization of the watershed in the simulation of a rainy phenomenon under the HEC-HMS software which must respect three main steps: watershed modeling, meteorology modeling and special specifications.

Based on the above, we are able to recognize the impact of a few situations that are likely to arise in the field in the coming decades, and that the persons in charge are supposed to take into consideration in their planning of the watershed of the city of Algiers. In addition, we were able to reconfirm that the cause-and-effect relationship between land cover change on the one hand and flows and volumes on the other, is less and less close as the showers are extreme.

Nevertheless, we believe that the use of official data from future projections will make it possible to simulate situations that are more realistic and more accurate than those proposed. Even better will be the benefits derived from this behavior prediction study, if we use the semi-distributed (sub-watershed) or squarely distributed (meshed) form of the HEC-HMS model.

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TOWARDS A SUSTAINABLE APPROACH OF CULTURAL TOURIST RESOURCES IN THE ORADEA METROPOLITAN AREA (OMA), ROMANIA

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Abstract: Metropolitan regions/areas are NUTS 3 regions or a combination of NUTS 3 regions which represent all agglomerations of at least 250,000 inhabitants (Eurostat, 2021). Oradea Metropolitan Area (NUTS3ID RO111) was established in 9th of May 2005 and has a total number of 251.570 inhabitants. The purpose of the association is to stimulate and support the growth and prosperity of the area, focused on the continuous increase of the quality of life. Besides the economic boost, OMA emerged from the need for space and leisure expressed by the core urbanites

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and although the periurban area is teeming with valuable cultural resources, the latter being the focus of the current study, they are little known by many of the Oradea residents. In this purpose the cultural attractions of the rural OMA were inventoried, analysed and stored in an online open-access database so that tourists can enjoy them and entrepreneurs in tourism can use them as focal points for further tourist infrastructure development. The analysis highlighted the OMA periurban area with the highest cultural attractions' potential based on the National Methodology regarding the evaluation of the tourist potential in the basic administrative-territorial units.

Key words: cultural heritage, rural area, historical monument, art and popular tradition

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INTRODUCTION

Currently, there are few territories that do not try to capitalize on their heritage resources to attract tourists and their contribution to development (Lemaître, 2015) and in Europe there is a special focus on the rural areas. In the choice of the research territory, respectively a metropolitan area, the existence of a certain functional homogeneity regarding the general environment of the tourist activities was taken into account (Lemaître, 2015), but also the fact that the sustainable development of a peri-urban space such as that of the OMA is also based on the elements of tourist attractiveness.

The Oradea Metropolitan Area is a territorial system (founded in 2005 and extended in 2007 and 2010) consisting of 12 administrative entities (figure 1), respectively the Municipality of Oradea and the communes of Biharia, Borş, Cetariu, Girişu de Criş, Ineu, Oşorhei, Nojorid, Paleu, Sîntandrei, Sînmartin, Toboliu, which includes 42 villages.

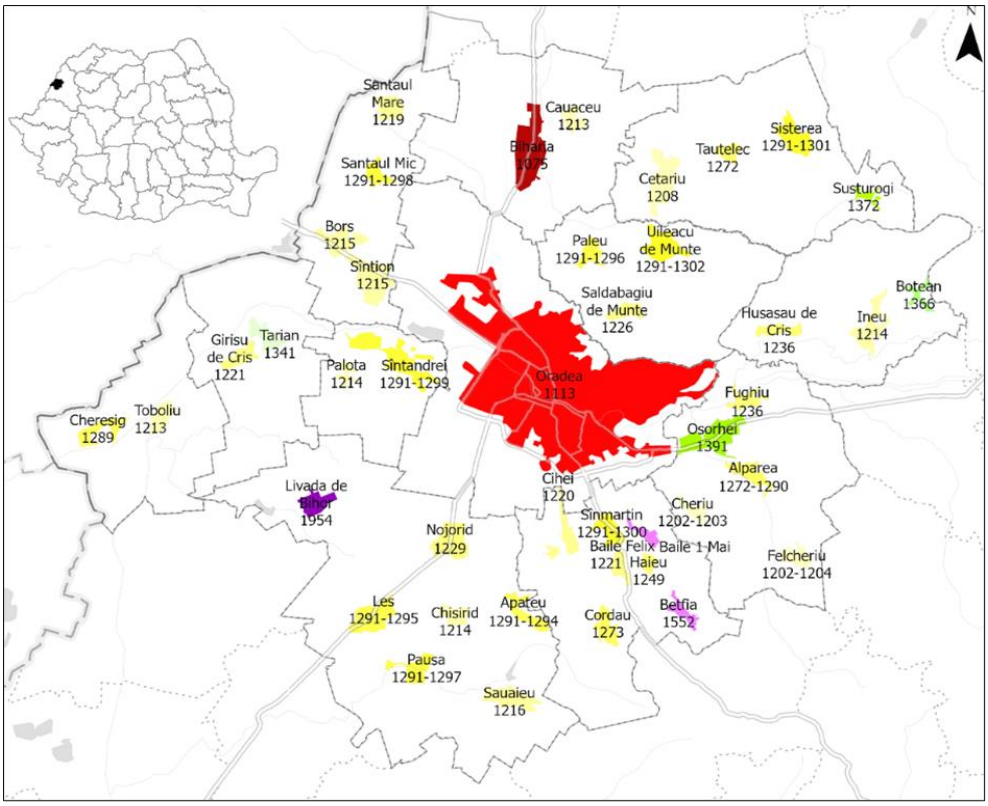

Figure 1. Oradea Metropolitan Area (OMA). Communes and component villages and the year of documentary attestation (in medallion O.M.A,'s position within Romania)

OMA occupies an area of 753.29 sq.km. and has a significant natural and economic potential (implicitly tourist). For the Romanian space, the village is the oldest form of collective organization of the habitat and throughout history has undergone many transformations and adaptations, but also "certain features have a great resilience over time, helping to define originality and cultural identity" (Popa, 2010).

Within Oradea Metropolitan Area, the 11 component communes are networked into economically integrated rural regions, the integration being based on a numerical population growth (Figure 2), on the existence of jobs and a developed infrastructure, on local development strategies with accentuated preoccupations for the protection of the environment and of the cultural heritage.

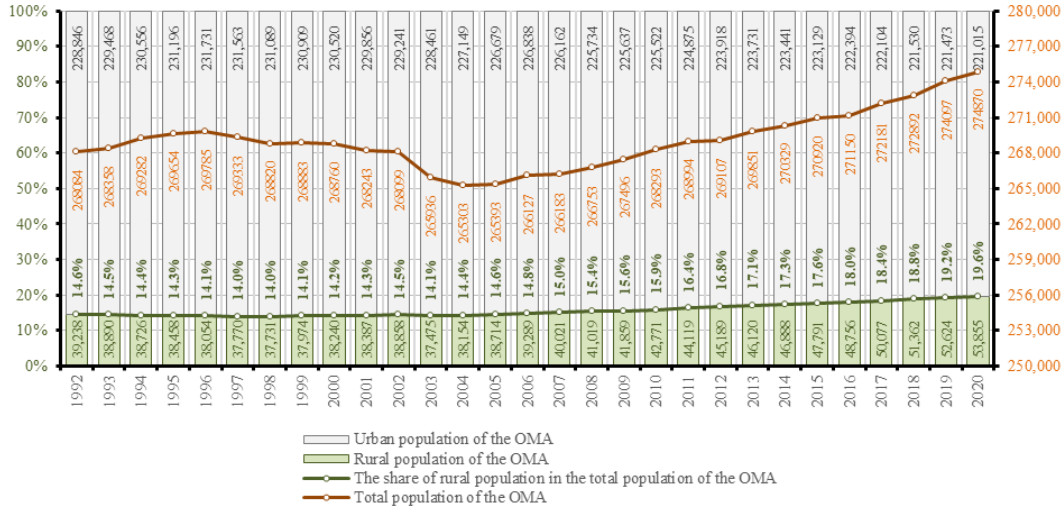

Figure 2. The evolution of total, urban and rural population from OMA between 1992-2020
Source of data: http://statistici.insse.ro:8077/tempo-online/ (INS, 2021)

Some of the metropolitan communes have significant residential functions (the case of Sîntandrei, Sînmartin, Nojorid, Paleu communes where large residential neighbourhoods have been developed), others have a mixed economic profile, among them Sînmartin Commune where tourism services are highly developed (in Băile Felix and Băile 1 Mai spas).

OBJECTIVES OF THE STUDY

The main objective of the study focuses on the analysis of the degree of tourist attractiveness of the communes that form the OMA, a premise for a functional reconsideration of the administrative-territorial units, the formation of a metropolitan belt of relaxation and tourist relocation in order to sustainably develop the human community in rural areas. Even the traffic during the pandemic period with Sars-Cov 2 demonstrates the importance of short-distance tourist sites in OMA, yet they are poorly capitalized in order to meet the need for safe relaxation of citizens or other visitors.

In carrying out the study we started from the idea that the cultural tourist heritage can be the central element of a tourism development strategy provided that there are valuable resources, and that these resources should be the object of an efficient capitalization (Lemaître, 2015).

From the point of view of the tourist functionality, the OMA is only partially a tourist destination. In recent years, the city of Oradea (metropolitan polarization centre), a good representative of the Art-Nouveau current, attracts an increased number of tourists from the country, but also from abroad, and in rural areas, Băile Felix and 1 Mai spas concentrate the largest number of accommodation in the country (Herman & Tătar, 2015), spas are well known in countries such as Hungary, Germany, Israel and France. However, the rest of the metropolitan area, although in

possession of many cultural tourist resources, is little known from this point of view, even for domestic tourists provided by the city of Oradea in the first place and by Bihor County (Hatos, 2020).

Functional reconsideration towards the sphere of tourism is based on a series of factors such as transport costs, travel cost, transport facilities, quality of infrastructure, spatial distribution of forms of tourism and, often, tourists are guided in choosing the destination by geographical proximity of the region to which they belong to and by the opportunity costs (Pascariu & Țigănașu, 2014). For the OMA at least one such functional-territorial reconsideration should be taken into account, in which culture is intertwined with tourism, so as to lead to a tourist relocation to less targeted sectors, but which have tourist potential (for example Cetariu, Paleu, Nojorid communes), where the natural setting harmoniously complements the archaeological and historical vestiges with customs and traditions. Thus, on the one hand, the anthropogenic pressure felt in the spas of Băile Felix and 1 Mai (from Sînmartin commune) could be reduced, on the other hand, tourists interested in wellness and spa could add other recreational cultural activities to their free program provided by the rural OMA. All this would actively support the format of activities oriented towards nature and especially rural culture, which would support the condition of sustainability in local tourism.

LITERATURE REVIEW

Metropolitan areas turned out as recreational areas for the residents from the core of their spatial planning to the urban fringe due to accessibility from the time and money perspective, tourism expenditure being positively related to distance (van Loon & Rouwendal, 2017; Wu, Zhang, & Fujiwara, 2013). When dealing with metropolitan regions the sector of tourism stands out as one of the several development paths. In fact, tourism never occurs in a vacuum but its place is most obvious within broader regional development strategies (Brouder & Ioannides, 2014). Given their complexity, metropolitan areas require the coordination of both public and private investments and operations (Huybrechts, 2018).

In terms of their spatial organization, most studies focus on the idea of monocentrism based on concentric rings whose population density and activity decrease with moving away from the central city, while some other studies identify emerging trends of a scattered monocentric or polycentric spatial organization of the metropolitan areas (Salvati, Venanzoni, Serra, & Carlucci, 2016). The current study aligns to the idea of a monocentric planning of the metropolitan area referring to it as a recreational metropolitan belt (Tătar, et al., 2018; Wu & Cai, 2006). The natural and built heritage plays key roles in the development of metropolitan belts and their opening towards tourism. The built heritage and in particular its cultural assets are inherited from the past and irreproducible and stand as icons of local specificity and identity (Ilieș, Tătar, Dehoorne, & Ilieș, 2005) of the historical and cultural context (Caserta & Russo, 2002), so they require a sustainable capitalization for tourism given their vulnerability and fragile state. Such is the case of the many wooden churches, medieval towers and fortresses from the current study which can trigger visiting patterns from its core urbanites and eventually turn the metropolitan urban fringe into a tourist destination. A fundamental decision whether to visit or not a destination depends on the quality and quantity of its cultural and historical attractions (Caserta & Russo, 2002), which the Metropolitan Area of Oradea abounds in, with over 250 cultural attractions inventoried and analysed.

According to former studies (Herman & Tătar, 2015; Ilieș, Ilieș, Herman, Baias, & Morar, 2011; Ilieș & Josan, 2009), the spatial distribution of tourists in the metropolitan area is uneven, with a higher economic and environmental impact of tourism in a single commune, therefore this study aims to show and analyse the built heritage potentialities of all its constituent communes so as to prompt stakeholders along the area's future development to reduce pressure on a small territory and a single resource represented in the case of the OMA through the commune of Sînmartin (with Băile Felix and 1 Mai spas) due to its geothermal potential and divert flows evenly throughout its territory. The man-made heritage with touristic valences was mapped so as to have a holistic image of the cultural attractions that the hinterland has to offer so as to enhance the quality of life at the

periphery of the agglomeration and to foster a socio-economic development based on heritage preservation and enhancement (Huybrechts, 2018).

Given some of the inventoried cultural assets' perishability within the metropolitan area, sustainable tourism is meant to make optimal use and conserve man-made resources creating economic responsibility, social inclusion and environmental stewardship (Ilieș, Herman, Dehoorne, & Măduța, 2013), thus ensuring viable, long-term economic operations, with socio-economic benefits to all the involved stakeholders (Alpar Atun, Nafa, & Olgac Turker, 2019) either tourists, investors and the local community.

With the accentuation of urbanization, the regions that have a significant natural and cultural capital have become more and more well-known tourist destinations. However, the resources needed for tourism (i.e. quality of services, infrastructure, transport facilities, waste management, energy use, etc.) must be properly managed to have a positive impact on local communities and the environment. Currently, the development of transport infrastructure allows rapid access to recreational and short-stay areas, requested by the urban population, by creating new recreation facilities *near important metropolitan areas*, rural areas enjoying great attractiveness (Pascariu & Țigănașu, 2014).

As for the OMA, in the last 15 years it is on an upward economic trend, and among the developing economic branches, tourism is starting to occupy an important place. Summarizing the tourist resources of the natural setting with the anthropic ones, in the OMA a *relaxation belt* is outlined for the urban population of Oradea and for other visitors, many of them Romanian and foreign tourists.

Studies on OMA deal with various aspects, some of them directly or indirectly addressing the issue of sustainable development by capitalizing on tourism potential or highlighting specialized and sustainable tourism activities. For each administrative-territorial unit, but also for the metropolitan entity, there is a Local Development Strategy for 2014-2020 period. In 2007, a group of geographers from the University of Oradea published the Atlas of the Oradea Metropolitan Area (Ilieș, Tarța, & Moțoc, 2007), and in 2010 a group of historians from the same university published an album entitled Cultural Heritage of the Oradea Metropolitan Area (Ștefănescu, et al., 2010). The Federation of Metropolitan Areas and Urban Agglomerations of Romania presents the Oradea metropolitan area in the study entitled Polycentric Development Study (Federaţia Zonelor Metropolitane şi Aglomerărilor Urbane din România, 2020).

Other works aimed for OMA the research of the Hungarian folk costume from Șișterea Village (Toth, 1977), the realities and perspectives of the tourist functionality (Ilieș, Tătar, Dehoorne, & Ilieș, 2005), the holiday tourism on the Oradea-Paleu-Cetariu-Șișterea axis (Dincă, 2008), a monography focused on sustainable development through ecotourism of Cetariu commune (Dincă, Herman, & Sztankovics, 2012), migration and demographic aspects (Filimon, Chiriac, & Filimon, 2017), but also an assessment of the natural environment in OMA and Natura 2000 sites in terms of tourist attractiveness (Linc, et al., 2019; Tătar, et al., 2018). The approach of OMA from a geographically complex perspective, in a representation through GIS instruments, also includes a paper derived from a doctoral thesis (Bucur, 2012). Then we must mention the works of a purely historical nature, of monography type, such as those of the communes of Sîntandrei (Iuhas, Filip, & Țărău, 2012), Girișu de Criș (Șipoș, Chiriac, & Moisa, 2016), Sînmartin (Țărău, Fazecaș, Marta, Huza, & Crăciun, 2008) and even of a village, as is the case of Ineu Village (Cordovan, et al., 2014).

The Archaeological sites enjoy the greatest scientific attention, there being numerous studies carried out by researchers of the Museum of the Land of Criș and University teachers from Oradea. Among these, the studies dedicated to the land fortress from Biharia (Dumitrașcu, Sfrengeu, Ardelean, Goman, & Crișan, 2014; Sfrengeu, 2010; Dumitraşcu, 1994) stand out, and about the medieval Cheresig Tower we find concentrated and concise information together with restoration proposals in another article (Marta, 2009). Crișan describes the Archaeological sites from Sînmartin Commune (Crișan, 2013), and in 2015 a study is published regarding the cemetery of the 15th century from Toboliu (Lie, Radu, & Fazecaș, 2015).

Other works touch tangentially on parts of the OMA, such as the works of: T Béczy, L. Borcea, N. Chidioşan, G. Crişan, S. Dumitraşcu, and V. Faur; M.S. Staşac; M.I. Stupariu; Ş. Baias; J.P. Carriere, L.A. Filimon, S. Guitel, C. Savourey, and E. Irincu; C. Morar, G. Nagy, M. Dulca, L. Boros, and K. Sehida, (Béczy, et al., 1974; Staşac, 2005; Stupariu, 2014; Baias, 2016; Carriere, Filimon, Guitel, Savourey, & Irincu, 2018; Morar, Nagy, Dulca, Boros, & Sehida, 2019).

METHODOLOGY

In the National Spatial Planning Plan (PATN) there is a section that refers to the tourist areas of Romania, the analysis being performed at county level, based on a score between 0-100 points. In this section, respectively PATN, section VI "tourist areas" (PATN, 2008) each evaluated tourist category received the score that can be found in table 1.

Table 1. The score granted for each evaluated category according to the Methodology of tourist heritage evaluation of basic territorial-administrative units (Annex A)

Category	Maximum score
A. Natural resources	25
B. Man-made resources/Cultural	**25**
C. Specific tourist infrastructure	20
D. Technical infrastructure	30
TOTAL	**100**

The current paper is part of a larger study that aims to analyse all the above variables. But the purpose of this study is exclusively to highlight the cultural tourist heritage of the rural OMA, so only section B of the PATN was analysed and thus were inventoried the following cultural attractions in rural areas of OMA: historical monuments of category A and B, archaeological buildings, public monuments; festivals, fairs, traditions and holidays; institutions of shows and concerts; repeatable cultural events. Each analysed item received a score according to the procedure in the methodology that we assigned to each cultural attraction inventoried, thus all totalizing no more than 25 points according to the table 2 below:

Table 2. The score granted for each evaluated category according to the Methodology of touristic heritage evaluation of basic territorial-administrative units (Annex A)

Man-made/Cultural resources	Score
Archaeological monuments	2
Architectural monuments	2
Public forum	2
Memorial houses	2
Museums	3
Public collections	2
Festivals, fairs, traditions, holidays etc	4
Traditional craft	4
Instrumental, coral or vocal-instrumental bands	2
Repeated cultural manifestations	2
Total	**25**

This assessment highlighted which rural commune of OMA benefits from the greatest cultural tourist heritage within the 11 analysed communes in order to sustainably disperse the tourist flow from the commune with the highest tourist consumption, respectively Sînmartin to OMA communes that have a high potential of authentic cultural tourist resources.

In a previous study, the degree of tourist attractiveness of the natural rural setting in the OMA (Tătar et al., 2018), determined on the basis of the "*Methodology regarding the evaluation of the*

tourist potential in the basic administrative-territorial units. Annex A" (PATN, 2016) and another study focused on the tourist attractiveness of protected areas in the OMA (Linc, et al., 2019).

For category B, *Man-made resources*, in the same Methodology we find allocated a maximum of 25 points out of 100 (the evaluation was performed by the Centre for Studies and Research in the Field of Culture). For Bihor county, in section BI (Evaluation of historical monuments of national and universal value), in the rural area were evaluated 21 communes out of 100 administrative-territorial units of Bihor county (less than 25%). Of these, 4 are in the OMA (Biharia, Girișu de Criș, Ineu, Nojorid). In section BII (*Man-made/Cultural Heritage Assessment*), for OMA only one commune was considered, namely Sînmartin.

Following the guideline of this methodology, in the present study we propose an accurate, up-to-date assessment of the cultural tourist heritage from each administrative-territorial unit of the OMA.

Each identified touristic resource is found in an ArcGIS Online document that is an open-access cloud-based mapping and analysis platform (Linc, et al., 2019) (Figure 3). This application allows to share content with other people, regardless of their location: https://dgtatamd.maps.arcgis.com/apps/webappviewer/index.html?id=e05528e7d74a47ad999b4698fc8e64ed (Figure 3).

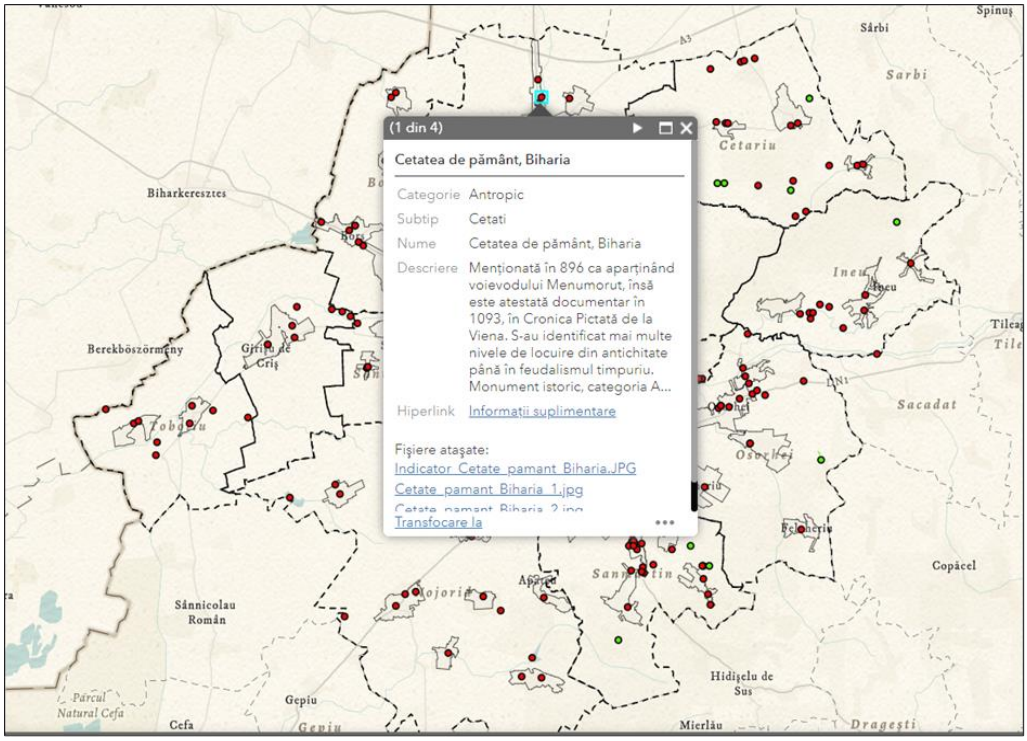

Figure 3. Cultural Tourist Heritage Database from the rural Oradea Metropolitan Area

RESULTS AND DISCUSSIONS

OMA - the characteristics of the tourist patrimony

In a multi-ethnic and multicultural metropolitan area such as the OMA, the cultural tourist heritage is defined, by far, by the cultural-religious component.

The metropolitan area of Oradea is marked by the existence of numerous churches that are documented since the 15th century to the 21st century. For example, one can find the oldest church in Sînmartin commune (second half of the 13th century located in Băile 1 Mai in the village of Haieu), and the newest ones were built after 2000. However, the churches in the metropolitan area

(regardless of their antiquity and worship), are not coherently integrated in a tourist circuit, although some are places of pilgrimage.

Remaining in the sphere of history, on the territory of the OMA there are numerous historical vestiges that "*include a wide range of constructions and material evidence belonging to millennia and past centuries*" (Cocean, 2010) and that form archaeological complexes/sites. Out of the total of 60 Archaeological sites in OMA, most of them are located on the territory of Girișu de Criș (14) and Nojorid (12) communes. In addition, 34 of them (representing 56.7% of the total) are on the List of Historical Monuments (Table 3). Regarding the tourist capitalization of Archaeological sites (Figure 4), although they are mentioned in tourist resources in all development strategies, there is an impediment related to marking and signalling on site, their location being known only in the small circle of archaeologists who initiated the excavations respectively and by some villagers who participated in the excavations. Thus, their attractiveness is based more on a symbolic function, although the historical value is indisputable.

Table 3. Historical monuments of national and local interest in the territory of the OMA included in the List of Historical Monuments (LHM) (Ministerul Culturii, 2015)

Administrative-territorial unit		**Historical monument**			**Period or year of foundation**
Commune	**Village**	**Type**	**Category LHM**	**Name**	
Biharia	Biharia	Archaeological site BH-I-s-A- 00951	A	Biharia Earth Fortress	893 (1093)
Borș	Sîntion	Archaeological site BH-I-s-B-01010	B	Mănăstirii Hill	
Cetariu	Cetariu	Architectural monument BH-II-m-B-01129	B	Reformed Church	XIII century
		Architectural monument BH-II-m-B-01130	B	Roman Catholic parish house	1743
		Architectural monument BH –II- m-B-01131	B	Roman catholic church „Sf. Mary"	1804-1809
	Șișterea	Architectural monument BH-II-m-B-20238	B	Reformed church	Sec. XIII
	Șușturogiu	Archaeological site BH-I-s-B-01017	B	Fortified settlement Dealul. Cristor/Cetățuia	Hallstatt, Latène
	Tăutelec	Archaeological site BH-I-s-B-01022	B	"Cânepiște"	XI-XVI century
Girișu de Criș	Girișu de Criș	Archaeological site BH-I-s-B-00971	B	"La Râturi"	
		Archaeological site BH-I-m-B-00971.01	B	"La Râturi", settlement	XI-XII century
		Archaeological site BH-I-m-B-00971.02	B	"La Râturi", settlement	Hallstatt, Coțofeni Culture
		Archaeological site BH-I-m-B-00971.03	B	"La Râturi", settlement	Transition to Bronze Age
		Archaeological site BH-I-s-B -00972	B	"Alceu", fortified settlement	
		Archaeological site BH-I-s-B-00973	B	"Între poduri"	
		Archaeological site BH-I-m-B-00973.01	B	"Între poduri", settlement	III-VI century
		Archaeological site BH-I-m-B-00973.02	B	"Între poduri", settlement	Ist Century B.C. - Ist century A.C.
		Archaeological site BH-I-m-B-00973.03	B	"Între poduri", settlement	Hallstatt

		Archaeological site BH-I-s-B-00974	B	"Pietroasa"	
		Archaeological site BH-I-m-B-00974.01	B	"Pietroasa", settlement	XI-XIII century
		Archaeological site BH-I-m-B-00974.02	B	"Pietroasa", settlement	Ist Century B.C. - Ist century A.C., Latène
		Archaeological site BH-I-s-B-00975	B	"Romon", settlement	VI-VIII century
		Archaeological site BH-I-s-B-00976	B	"Gherand", settlement	IX-X century
Ineu	Botean	Architectonic Monument BH-II-m-A-01120	A	Wooden Orthodox Church "Holy Archangels Michael and Gabriel"	1721
Nojorid	Livada de Bihor	Archaeological site BH-I-s-B-00980	B	"Între rechestișuri / răchitișuri"	
		Archaeological site BH-I-m- -00980.01	B	"Între rechestișuri / răchitișuri", settlement	IV century B.C.
		Archaeological site BH-I-m-B-00980.02	B	"Între rechestișuri / răchitișuri", settlement	II-III century
		Archaeological site BH-I-m-B-00980.03	B	"Între rechestișuri / răchitișuri", settlement	Neolittic
		Archaeological site BH-I-s-B-00981	B	"Cuptorişte"	
		Archaeological site BH-I-m-B-00981.01	B	"Cuptorişte", settlement	X-XVI century
		Archaeological site BH-I-m-B-00981.02	B	"Cuptorişte", necropolis	Latène
	Nojorid	Archaeological site BH-I-s-B-00984	B	"Turceana" (Old cemetery)	XIII-XIV century
		Archaeological site BH-I-m-B-00984.01	B	"Turceana" (Old cemetery), location next to the church	XIII-XIV century
		Archaeological site BH-I-m-B-00984.02	B	"Turceana" (Old cemetery), Middle Age necropolis	XIII-XIV century
		Public Monument BH-III-m-A-01264	A	Octavian Goga's bust	1984
	Păușa	Architectural Monument BH-II-m-B-01184	B	Wooden Orthodox Church "Holy Archangels Michael and Gabriel" and Great Martyr Dimitrie	1770-1780
Oșorhei	Fughiu	Architectural Monument BH-II-m-B-01147	B	Reformed Church	XVIII century
	Oșorhei	Architectural Monument BH-II-m-B-01179	B	The Orthodox Church Assumption of the Virgin Mary	1710
Paleu	-	-	-	-	-
Sînmartin	Băile Felix	Architectural Monument BH-II-m-B-01105	B	Apollo Thermal Pool	1900
		Architectural Monument BH-III-m-B-01240	B	George Enescu's Bust	1984
		Architectural Monument BH-II-m-B-01104	B	Wooden Orthodox Church "Holy Archangels Michael and Gabriel" brought from Brusturi village	1785
	Haieu	Architectural Monument BH-II-m-B-01103	B	Cazino, 1 Mai	XX century

		Architectural Monument BH-II-m-B-01157	B	The Orthodox Church Assumption of the Virgin Mary	XIV century, modified in 1857
	Sînmartin	Archaeological site BH-II-m-B-01203	B	Castle-former Premonstratens monastery	XIII century, modified in 1784
Sîntandrei	Palota	Architectural Monument BH-II-m-B-01182	B	Romano-catholic church St. Anton from Padova	1825
	Sîntandrei	Architectural Monument BH-II-m-B-01204	B	"Holy Archangels Michael and Gabriel" Greek catholic church	1782, repaired in 1906, 1952
		Archaeological site BH-I-s-B-01008	B	settlement, „Podul Morii" site. Transition to Bronze Age	1825
		Archaeological site BH-I-s-B-01009	B	Archaeological site „Grădina de legume" point	
		Archaeological site BH-I-m-B-01009.01	B	"Grădina de legume" site	Hallstatt
		Archaeological site BH-I-m-B-01009.02	B	"Grădina de legume" site	Bronze Age
Toboliu	Cheresig	Architectural Monument BH-II-m-A-01133	A	Donjon from Cheresig, fortification	1289
	Toboliu	Archaeological Site BH-I-s-B-00972	B	Dâmbu Zănăcanului	

Also, in Nojorid commune should be mentioned the existence of military fortifications of casemate type, part of the fortified western front, also called the fortified line Carol II, but these are not capitalized in any form in tourism, although there are some intentions. Two other *fortifications* are better known, namely the Earth Fortress from Biharia and the Cheresig Donjon, both having the status of historical monument category A (national importance), but, from a tourist point of view, these sites are also poorly exploited.

Unique *architectural buildings* can be found in Sînmartin commune (Apollo Thermal Swimming Pool in Băile Felix, Waves Swimming Pool in Băile 1 Mai, Băile 1 Mai Casino, Sînmartin Castle). An interesting anthropic resource is represented by the independent cellars of households from the Oradea Hills. Such cellars are found on the territory of the communes Paleu (28 cellars) and Cetariu (12 cellars) (Figure 10), but also in a neighbourhood of Oradea (Episcopia Bihor) (Dincă, et al., 2017; Linc, și alții, 2017; Tătar, și alții, 2017) and it represents a patrimonial element which is given only limited importance and is not capitalized at all through tourism.

The dams, closely related to the lake accumulations, represent sites with economic function, but in the background, there is also the tourist function. In OMA, a concrete dam and a hydroelectric power plant are located on the main river (Crișul Repede) in Fughiu (Oșorhei commune), but hydrotechnical constructions such as earth dams (with various heights) that have lake accumulations still exist in Nojorid communes (3 dams), Cetariu (3 dams) and Paleu (1 dam) (Figure 11). To these are added the dams of temporary accumulations (2 in Sînmartin Commune and 1 in Cetariu commune). Another constructive element that is comprised within the cultural heritage is given by the existence of the canals, very well-known being the Canalul Colector (Crișurilor canal) and the offtake of the dam from Fughiu.

To these are added 11 public monuments, two of which are classified as historical monuments (one of category A - the bust of Octavian Goga from Nojorid and one of category B - the bust of George Enescu from Băile Felix), the rest being dedicated to fallen heroes in the two world wars.

From the category of *human activities with tourist functions*, in the O.M.A. we find patron saints, sports competitions, numerous festivals that concentrate several thousand participants / tourists during the event. The folk elements identified in the O.M.A. are represented by customs, folk traditions, traditional dresses, games and songs.

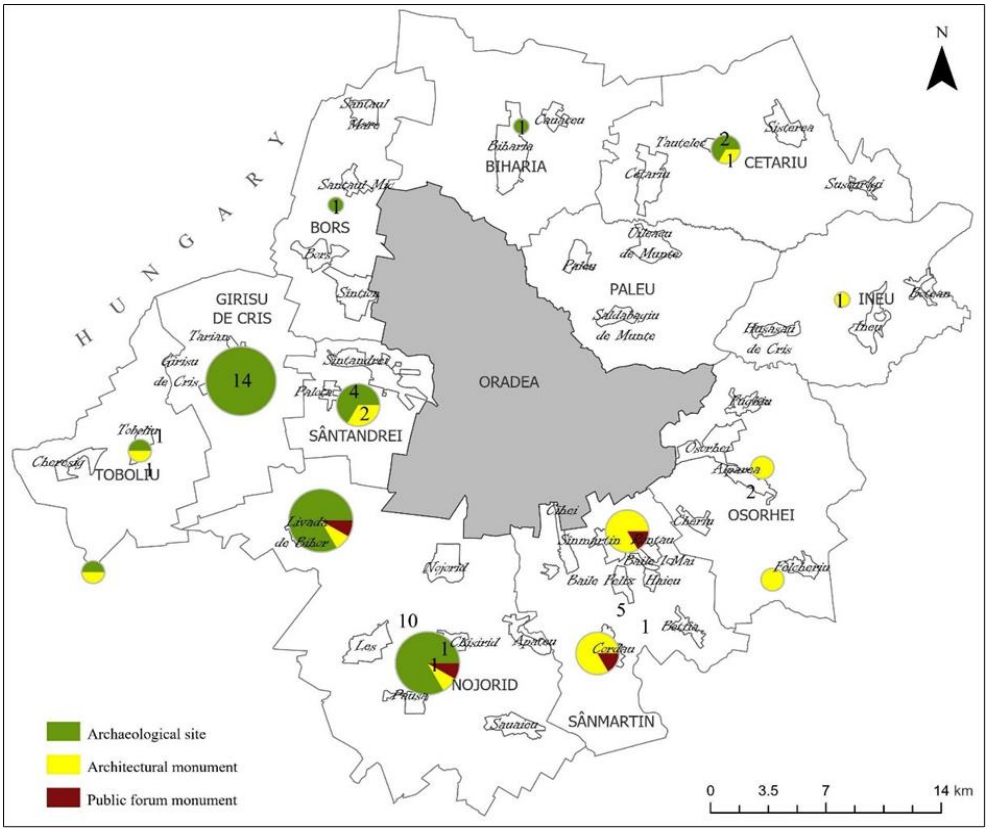

Figure 4. Map of archaeological sites and historical monuments within OMA

OMA – Evaluation of the degree of tourist attractiveness of anthropic resources

In the *Methodology regarding the evaluation of the tourist potential in the basic administrative-territorial units*, category B – man-made resources are assigned 25 points out of a total of 100. The structure of this category includes historical monuments of national interest, museums and public collections, folk art and tradition, institutions of shows and concerts, repeatable cultural events.

The section *Historical monuments of national interest* has 8 points in the previously mentioned evaluation methodology, which is distributed to some elements of archaeology, architecture, public monuments and memorial houses. The *Oradea metropolitan area has an average of 3.57 points* in this section. The communes of Nojorid with 6.5 points, Sînmartin with 6 points and Sîntandrei with 4 points stand out here. A numerical and graphic representation of the tourist potential expressed by the value of the historical monuments of national or local importance and of cultural heritage is found also in Figure 9.

Also noteworthy are the communes of Biharia with the quadrilateral earth fortress, Toboliu commune with Donjon from Cheresig (Figure 5), Ineu with the wooden Orthodox church from Botean village and Nojorid with the bust of Octavian Goga from the homonymous village, all monuments of category A (national importance).

There are many monuments of local importance (category B). We would like to draw attention to the churches, of which 9 have the status of historical monument category B (local importance) (respectively, 4 wooden Orthodox churches, a walled Orthodox church, a Roman Catholic church and 3 Reformed churches). Particularly important for Romanian culture are three other wooden Orthodox churches, monuments of popular architecture from the villages of Felcheriu

(18th century), Băile Felix (from 1785), Păușa (from 1770-1780) (Figure 6). To these are added the Reformed Church from Șișterea (13th century) (figure 6), the one from Cetariu (13th-14th century) and the one from Fughiu (18th century).

Figure 5. From left to right: Earth fortress from Biharia, historical monument, A category; Donjon from Cheresig, historical monument, A category

Figure 6. From left to right: Wooden orthodox church from Botean (1721) (Ineu commune). Historical Monument, A category; Reformed church from Șișterea (XIIIth century) (Cetariu commune), Historical Monument, B category

Even if they are not classified as historical monuments, other metropolitan churches attract attention through their religious heritage content. Orthodox churches, regardless of antiquity, are decorated with frescoes, icons on glass, wood or canvas, beautifully carved iconostasis, have precious or rare objects of worship. For example, in the wooden Orthodox church "St. Mihail and Gavriil" from Păușa Village (Nojorid commune), on one of the icons of the iconostasis on the long right side, is painted Archangel Mihail, a painting dating from 1838. In the church "St. Mihail and Gavriil" from Fughiu village (from Oșorhei commune) there are several sacred books printed in Bucharest, Sibiu and Cluj (between 1723-1896), three being selected for the National Cultural Heritage. The current church was built between 1948 and 1954 on the site of an older church dating from 1690-1700, the remains of which have been preserved until 1952. And in the village of Cheriu (from the commune of Oșorhei), in the Orthodox church there are old icons, painted in oil on wood and glass and some sacred books written in Romanian, but with Cyrillic letters. The church was built by Italian craftsmen between 1894 and 1896 on a river stone foundation.

Also, in this study we want to point out that in the village of Rontău (from Sînmartin Commune) still survives the "poor church of the poors" mentioned in the short story "Popa Tanda"

by Ioan Slavici, although it seems that there is the intention of demolition (a new Orthodox church was recently built behind it).

But the *Reformed churches* also attract attention. For example, in Cauaceu village (from Biharia commune), in the reformed church, the pulpit and the left balcony made in 1786 are kept, the service table from 1793 is still used today, and the organ and the clock mechanism (Figure 7) from the church tower are from 1916. In the village of Săldăbagiu de Munte (Paleu commune), in the reformed church (dating from 1791), under the pulpit is exposed the window of the medieval church (XII-XIII centuries) and some old coins found during the restoration.

Figure 7. From left to right: The clock mechanism from the tower and the organ of the Reformed Church in the Cauaceu village have been operating since 1916 (Biharia commune); The window of the medieval church and the coins from the Reformed Church from Săldăbagiu de Munte village (Paleu commune).

Figure 8. From left to right: Castle from Sînmartin, former Premonstratens monastery; Apollo thermal pool from Băile Felix; The Casino from Băile 1 Mai

Also, in the category of historical monuments of local importance, it should be mentioned that the territory of OMA it is dotted with archaeological sites, although not all of them can be found in the List of Historical Monuments (only 34 out of a total of 60). For example, in Sînmartin commune there are 10 such sites (only one is a historical monument), and in Girișu de Criș commune all 14 sites are historical monuments.

On the territory of Sînmartin commune there are several singular architectural buildings (of which 3 are historical architectural monuments illustrated in Figure 8): the Apollo thermal pool in Băile Felix, built in 1917, B category, historical monument; the castle of Sînmartin, in fact a former Premonstratens monastery (from 1784), B category, historical monument; the Casino from Băile 1 Mai, built at the beginning of the 20th century, historical monument, category B; the wave pool in Băile 1 Mai spa, considered the oldest pool in Romania, and the engine that generates the waves was built by the Austrians in 1896.

Public historical monuments are represented by two busts (Octavian Goga from Nojorid, A category historical monument and George Enescu from Băile Felix, B category).

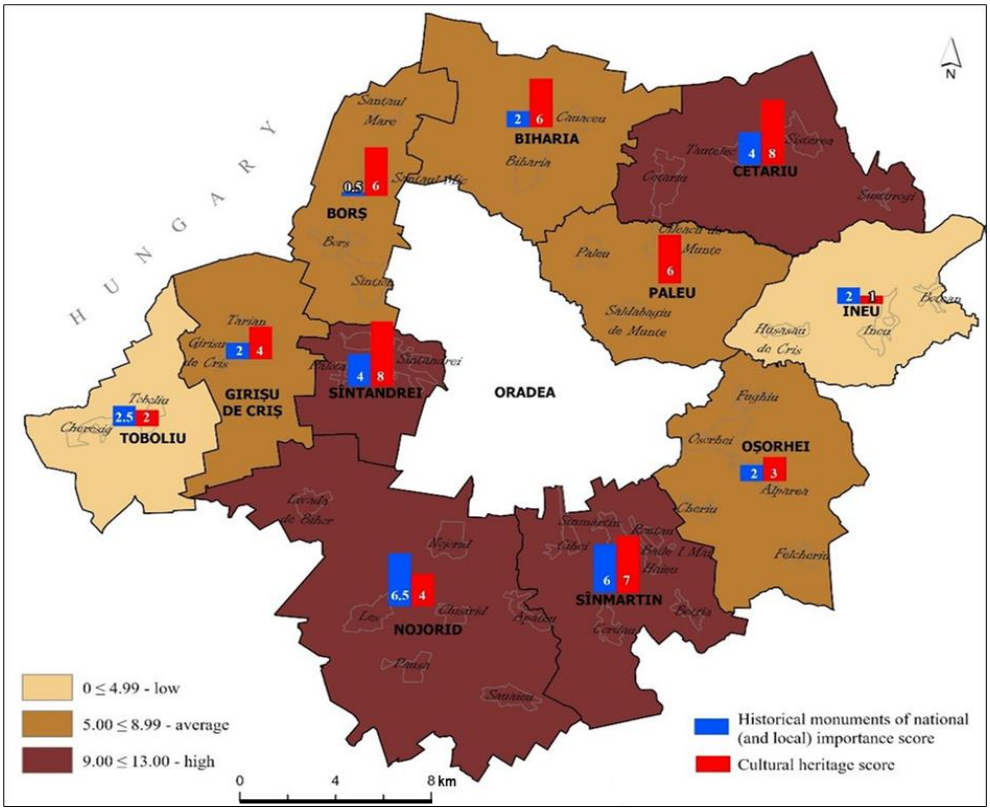

Figure 9. Map of the cultural heritage potential of the OMA expressed only by the score of historical monuments of national or local importance and cultural heritage

Figure 10. Independent cellars of households in the villages of Paleu (top left), Șișterea (middle), Tăutelec (top right and bottom left), and Cetariu (bottom right)

The *traditional rural architecture* and the age of the settlements are not taken into account in the Evaluation Methodology, although they certainly increase the tourist attractiveness of an area. In the OMA *rural settlements* are individualized by age (Figure 1), location in the territory (Oradei Hills in the north, and Tășadului Hills in the southeast, Crișurilor Plain and its contact with the hills from OMA) and through the elements of traditional architecture. Picturesque through the territorial isolation are the communes Peștera and Fertișag from Cetariu commune.

Figure 11. From left to right: Dam and the lake from Paleu; Dam and the lake from Șauaieu; The dam of the temporary accumulation from Băile Felix

Section B II - Assessment of cultural heritage refers to the existence of museums and public collections, folk art and tradition, institutions of shows and concerts, repeatable cultural events (table 4). OMA has an average score of 6 points. There are, in this section, 3 communes, respectively Cetariu and Sîntandrei with 8 points each and Sînmartin with 6 points (Table 4).

Table 4. Criterion B II. Cultural heritage assessment of the OMA
(Maximum score 17 points for each TAU, PATN Methodology concerning the tourist potential assessment in the basic territorial administrative units)

TAU	Locality	Museums and public collections (5 p)		Score	Art and popular tradition (8 or 4 points if repeated)		Score	Institutions of shows and concerts (Philharmonics, orchestras, instrumental, coral or vocal-instrumental bands, 2 or 0 points if already considered previously)	Score	Repeated cultural manifestations (2 or 0 points already considered previously)	Score	TAU Score
		Museums (3 p)	*Collections* (2 p)		*Festivals, fairs, traditions, holidays* (4 p or 2 p)	*Traditional crafts* (4 p)						
Biharia	Biharia	-	-	-	5 festivals 2 p	Traditional craftsman 4 p	**6 p**	-	-	-	-	**6 p**
Borș	Borș	-	-	-	6 festivals 2 p	Traditional craftsman 4 p	**6 p**	-	-	-	-	**6 p**
Cetariu	Cetariu	-	-	-	4 festivals 2 p	Traditional craftsman 4 p	**6 p**	1 traditional dance team 2 p	**2 p**	-	-	**8 p**
Girișu de Criș	Girișu de Criș	-	-	-	1 festival 1 p	Traditional craftsman 2 p	**3 p**	-	-	-	-	**3 p**
	Tărian				1 festival 1 p	-	**1 p**	-	-	-	-	**1 p**

Ineu	Ineu	-	-	-	2 festivals 1 p	-	**1 p**	-	-	-	-	**1 p**
Nojorid	Nojorid	-	-	-	1 festival 1 p	-	**1 p**	1 traditional dance team 2 p	**2 p**	-	-	**3 p**
Oșorhei	Oșorhei	-	-	-	4 festivals 2 p	-	**2 p**	-	-	-	-	**2 p**
	Felcheriu				1 festival 1 p	-	**1 p**	-	-	-	-	**1 p**
Paleu	Paleu	-	-	-	1 festival 1 p	Traditional craftsman 4 p	**5 p**	-	-	-	-	**5 p**
	Săldăbagiu de Munte				1 festival 1 p	-	**1 p**	-	-	-	-	**1 p**
Sînmartin	Sînmartin	-	-	-	2 festivals 1 p	Painter of icons Traditional craftsman Luthier 4 p	**5 p**	-	-	-	-	**5 p**
	Haieu (Băile 1 Mai)				1 festival 1 p	-	**1 p**	-	-	-	-	**1 p**
Sintandrei	Palota	-	-	-	1 festival 1 p	-	**1 p**	1 traditional dance team 2 p	**2 p**	-	-	**3 p**
	Sîntandrei				1 festival 1 p	Painter of icons 2p	**3 p**	1 traditional dance team 2 p	**2 p**	-	-	**5 p**
Toboliu	Toboliu	-	-	-	1 festival 1 p	-	**1 p**	-	-	-	-	**1 p**
	Cheresig	-	-	-	1 festival 1 p	-	**1 p**	-	-	-	-	**1 p**
OMA Total		**-**	**-**	**-**	**45 p**				**8 p**	**-**		**53 p**
OMA Average		**-**			**4.09 p**			**0.73 p**		**-**		**4.8 p**

The sub-criterion **Museums and public collections** is accredited with 5 points. As for the OMA, in Cetariu village there is a private *ethnographic collection* with objects belonging to the Hungarian ethnic group, and in Biharia, inside the building on the shore of the pond there are also *old photographs and objects* from the village's past. These collections are open to the public without financial interest. Because the methodology does not clearly specify the content of the expression "public collection", in this sub-criterion *the score is 0*.

The intangible cultural heritage is a synthesis of all the phenomena of the traditional culture of Romanians and minorities in Romania and consists of traditions, customs, crafts, oral productions, myths. Regarding its quantitative evaluation, it should be noted that it is difficult to achieve, even if there are some criteria in the Evaluation Methodology, but we find that not many aspects are considered, to which is added the difficult quantification of intangible events. We further scored the attractions according to the guideline of the methodology (Table 4).

The sub-criterion **Popular Art and Tradition** (through the sub-criteria *Traditional Manifestations and Traditional Folk Crafts*), through methodology is awarded 8 points or 4 points if the component elements are repeatable. The OMA is present in this sub-criterion, because in each commune there are such manifestations. These include complex cultural events, known as "Commune Days" or "Village Day" which takes place annually in each administrative-territorial unit. Within them, artistic, sports, social, economic activities take place for a day or two (Table 3). The average score assigned is 4.09 points.

From the category of *human activities with tourist functions* (cultural events), in OMA we find *patron saints* (among which stands out the Kirchweih from Palota dedicated to St. Anton of Padua) and numerous festivals such as: Cabbage Festival in Toboliu and Borş communes (organized annually); Chestnut Days in Cetariu commune (organized annually); Grape ball in the communes of Borş, Oşorhei, Paleu (organized annually); Thermal waters festival (Sînmartin commune) (organized irregularly); Festival of young pastry chefs (Oşorhei commune) (organized irregularly); Wine Festival (Cetariu commune) (organized annually); The days of the Romanian-Hungarian friendship (Girişu de Criş commune) (irregularly organized); Ignatul (cutting the pig) (Oşorhei commune) (organized annually).

Artistic creation is represented by handicraft production and crafts, music, dance, dress, literary creation. *Traditional folk crafts* are poorly represented in the OMA. We find some folk craftsmen in the communes of Cetariu, Biharia and Borş (blacksmiths-horseshoes, folk weavers, plum brandy makers, rush weavers and twigs), Girişu de Criş (producer of cold pressed oils), Sînmartin (painter of icons on glass, weaver, horn violin makers), Sîntandrei (painter of icons on glass), Paleu (painter of icons on glass, sculptor of crosses). However, traditional household items made of ceramic, wood or metal (being inherited and preserved over generations) are frequently used in village households (Figure 12). To the crafts are added other activities with tourist potential, but which are not found in the evaluation methodology.

Figure 12. Household objects

Regarding the *traditions*, in the Orthodox churches' prayers are sung at the liturgical service and in all communes some calendar customs related to the birth of the Lord and the arrival of the new year are kept (religious or secular carols, Viflaim, mask games, etc.). We find wedding customs better represented in the Hungarian and German communities.

Costumes, games and songs have a special tourist value and differ depending on the ethnic composition. In the OMA, the presence of ethnic Hungarians and Germans includes a strong note of colour in the *traditional folk costume* (the communes of Cetariu, Paleu, Oşorhei, Borş, Sîntandrei), but they are displayed only on big holidays, feasts, weddings (Figure 14). In Romanian villages, only the elderly population usually wears the traditional dress. In the Evaluation Methodology, the folk costume is not found in the scoring grid.

In terms of occupational tourism resources, in the OMA we notice a presence very diluted by the proximity of the city of Oradea, maybe also by the western border of the country that

removed the villagers from the ancestral practices. The predominant occupation remained the cultivation of the land, but with modern means and equipment, but "the intercalation of cultures influences the aesthetics of the landscape during the flowering period" (Cocean, 2007). Add animal husbandry, beekeeping and viticulture, but with strong accents of modernity. Among the modern agricultural occupations, but with an interesting landscape impact, is the lavender culture from Borş and Cetariu communes, and Toboliu commune is very well known for cabbage cultivation. All occupations specific to the rural environment that already attract tourists, but which constitute a reserve of viable, sustainable tourist resources, are related to the specifics of the local traditional household.

In the sub-criterion **Institutions of performances and concerts** we find numerous philharmonics, orchestras, instrumental, choral or vocal-instrumental ensembles which are awarded 8 points or 4 if they have already been considered previously. However, these institutions often characterize the urban environment, not the rural one where there are only cultural homes that concentrate, in fact, rural cultural life.

In the Oradea metropolitan villages, *folk* music and traditional dance are transmitted through folk ensembles (i.e. in Sîntandrei commune there is a German ensemble and a Romanian one, in Cetariu commune a Hungarian ensemble (Figure 13), in Nojorid commune a Romanian ensemble, in Sînmartin commune a folk dance group of the school). Therefore, the average for the OMA is 0.73 points (Table 4).

Figure 13. From left to right: Traditional Hungarian folk costumes from Cetariu; Traditional German folk costumes from Palota

Figure 14. Clothing from the Romanian folk costume in Şuşturogiu village

The sub-criterion *Repeatable cultural events* is accredited with a maximum of 4 points or 0 if they have already been considered previously. Because cultural events have been previously scored, the score is 0.

Figure 15. Agricultural crops and livelihoods that define peasant occupations in the O.M.A.

From the Evaluation Methodology *sports competitions* were omitted in the Evaluation Methodology. In the territory of the OMA there are annual team competitions (in the communes of Borș, Cetariu and Oșorhei), cycling (Sînmartin commune), triathlon and rally (Paleu commune) or occasionally other sporting events, such as a boxing gala, WBC version from 2017 (Sînmartin commune). All these constitute potential tourist resources, especially if we are talking about a medium and long-time horizon, when we will talk about a true tradition of profile events.

CONCLUSIONS

To speak of an adequate expression from the perspective of the potential of attractiveness and tourist activities in any territorial unit means to identify and point out consistent tourist resources. Within the OMA this criterion does not reflect the "*Methodology regarding the evaluation of the tourist potential in the basic administrative-territorial units*" really the degree of attractiveness of the villages, but even at the country level we do not think it reflects the reality on the field.

In summary, the section Man-Made/Cultural Resources (total 25 points) applied to the OMA has an average of 7.68 points (Table 5), which includes the metropolitan area in the category of territories with a significant representation of what the offer means for different forms of tourism that are practiced and can be achieved in the local rural area. At the level of the component metropolitan commune, we find the best score in Sînmartin, Sîntandrei and Cetariu commune with

12 points, followed by Nojorid with 9.5 points and Biharia with 8 points. The rest of the communes accumulated between 3-6.5 points.

Table 5. Evaluation of cultural man-made resources in the O.M.A.
(maximum total score allowed: 25 points out of 100)

TAU	Locality with resources	Score historical monuments of national (and local) value Section B I	Score cultural heritage Section B II	Total score
Biharia	Biharia	2.0	6.0	**8**
Borș	Borș	0.5	6.0	**6.5**
	Sîntion			
Cetariu	Cetariu	4.0	8.0	**12**
	Șușturogi			
	Șișterea			
	Tăutelec			
Girișu de Criș	Girișu de Criș	2.0	4.0	**6**
Ineu	Ineu	2.0	1.0	**3**
	Botean			
Nojorid	Nojorid	6.5	3.0	**10.5**
	Livada de Bihor			
	Păușa			
Oșorhei	Oșorhei	2.0	3.0	**5**
	Fughiu			
Paleu	Paleu	-	6.0	**6**
	Săldăbagiu de Munte			
Sînmartin	Băile Felix	6.0	6.0	**13**
	Sînmartin			
	Haieu (Băile 1 Mai)			
Sîntandrei	Sîntandrei	4.0	8.0	**12**
	Palota			
Toboliu	Cheresig	2.5	2.0	**4.5**
	Toboliu			
Total OMA		**31.5**	**55.0**	**86.5**
Average OMA		**2.86**	**5.00**	**7.86**

The highest scores are generally explained by the care of local rural communities towards heritage elements of real historical value and certification of a kind of identity. These two references, respectively the value and the identity of the material and intangible heritage elements, raise the value of the territorial and human ensemble, creating premises for supporting a tourist attractiveness.

For Sînmartin, the maximum score is explained by the fact that the town has two areas of spa-medical tourist activities (Băile Felix and 1 Mai) that provide tourists interested in other tourist activities than the main ones, namely the discovery and the spotlight of a nearby heritage in terms of distance and highly customized.

The case of Cetariu commune's high score is explained by the happy combination between the existence of a strong rural character, the existence of an old heritage, the domination of the Hungarian ethnic element and the sense of preserving the old, but also the sufficient openness of the local administration. The case of Sîntandrei and Nojorid communes that have high scores is due to a historical heritage influenced by the proximity of Oradea and the western border of the country. The other communes, although collecting a lower score due to a slightly poorer thematic tourism register, are strong enough through municipal investments and administrative decisions on the road of sustainable affirmation of tourism focused on culture, history and cultural-historical heritage.

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MOBILE PASTORALISM AND SOCIO-ECONOMIC DEVELOPMENT AMONG RURAL FULANI COMMUNITIES IN KWARA STATE, NIGERIA

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Abstract: This study makes a spatial analysis of mobile pastoralism and socioeconomic problems among rural Fulani communities in Irepodun Local Government Area of Kwara State, Nigeria. Specifically, the study assesses the socioeconomic characteristics of mobile pastoralists; identify the length of stay of mobile pastoralists in their host communities and identify socioeconomic problems confronting Fulani herdsmen in their economic activities. A multistage sampling technique was employed to sample 740 Fulani herdsmen from twenty Fulani settlements and from four adjoining villages. Descriptive statistical techniques such as tables cross tabulations, percentages and graphs were employed to analyze the demographic characteristics of the pastoralists, length of stay in their host communities and other sources of income. Matrix scoring was used to rank the socioeconomic problems identified. The results revealed that the mean average age of sampled respondents was 44.8years, 83.8% married and average household size of 11people. Dwindling pasture, land degradation and drought were the most pressing socioeconomic problems identified. The study concludes by recommending adult education for the Fulani pastoralists as this will assist in enhancing and improving the socio-economic life of the mobile pastoralists.

Key words: cattle rearers, rural communities, pastoralists and socio-economic problems

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INTRODUCTION

The contributions of the agricultural sector to the economy of Nigeria cannot be overemphasized. Apart from contributing to the GDP, it also provides food as well as employment opportunity for the people of the country. Livestock rearing (Pastoralism) is one of the major agricultural activities performed by the Fulanis of Nigeria. There are 268 million people that practice pastoralism across the African continent, both as a way of life and a livelihood strategy, contributing between 10 to 44 percent of the GDP of African countries (Brottem & McDonnell, 2020). Fulani are the main pastoral group in Nigeria with a population of approximately 15.3 million (Majekodunmi, Fajinmi, Dongkum, Shaw, & Welburn, 2014). Pastoral farmers' livelihood is dependent on three key assets: firstly, accessibility to important landmarks such as animal healthcare, land, water, livestock, pasture, water, community networks, markets, education and loan facilities; secondly, the given environment where the assets are used together for production and consumption, specifically the political, organisational and institutional infrastructure where they are operative; and lastly, the risks involved (human and animal disease, drought and competition for natural resources) and vulnerability of livelihoods (Rass, 2006).

Mobile pastoralists in Nigeria keep different species of livestock and these include cattle, camels, small stocks and equines. Seasonal variation encourages pastoralists to move from dry areas to wet areas where their cattle can be well fed and have access to drinking water. They also move from areas that are prone to frequent droughts which often affect the pastoralists and their livestock. One of the most sustainable food systems in the world is pastoralism (International Union for Conservation of Nature, 2014).

Mobile Pastoralism is an age long tradition among Rural Fulani cattle rearers in most parts of Nigeria and other West African countries. This is a form of nomadic farming in which herders move livestock across landscape so that they can exploit recourses such as pasture and water that are variable in space and time. It is an ancient livelihood pattern in rural Nigeria, which contributes to food security, and plays vital role in the ecology of dry lands. It also provides pastoralists with flexible strategies for dealing with uncertainties, such as a variable climate (Shanahan, 2013).

The importance of the mobile and nomadic cattle herders in Nigeria cannot be farfetched. Apart from the fact that 90% of the meat need of the growing population is supplied by this group of herdsmen also contribute efficiently to the growing culture of the surrounding villages, as well as in the growth of cattle markets (Kara) in the vicinities where they are found. One major characteristic of the nomads here in Nigeria, is that they are mobile in all things, but some of them are now having semi-permanent residency.

There have been various incessant problems of conflicts revolving around mobile pastoralism in Kwara State in the last two decades. This deserves attention as a lot of such conflicts had led to loss of lives and properties on some occasion in Isanlu Isin, Oro-ago, Afon, Bode Saadu and in some localities around Osi and Erinmope in Ekiti Kwara. The issue of mobile pastoralism generates consensus around major policies and make political action possible. But they can also be problematic as they involve destruction of non-pastoralist means of livelihood like farming and land degradation.

Pastoralists are however confronted with many natural as well as man-made problems. Over some decades now, there have been cases of conflicts between mobile pastoralists and rural communities in Kwara State and other parts of Nigeria. The questions to ask are: What are the socio-economic problems facing herdsmen? What are the coping strategies employed to cushion the effect of these socio-economic problems? Hence the purpose of this research is to examine the socioeconomic problems confronting the mobile Pastoralism among Rural Fulani Communities in Irepodun Local Government Area of Kwara State, Nigeria. Specifically, the study assesses socioeconomic characteristics of the mobile pastoralists; identified the socioeconomic problems confronting the herdsmen and evaluated coping strategies by mobile pastoralists and rural communities.

MOBILE PASTORALISM

Mobile pastoralism or transhumant is one of the major economic activities/livelihoods in the world. For instance, estimates of twenty million people are known to have been involved in pastoralist

livelihoods in the Horn and East Africa region (OAU/IBAR Policy Briefing No. 2, cited in Hesse and MacGregor) (Hesse & MacGregor, 2006). Keep varieties of livestock species such as cattle, goat and sheep. It is particularly common among the Fulanis of Nigeria. These herdsmen are economically important to Nigeria in several ways: These include provision of animal products in form of food such as beef meat and milk; provision of wool and leather for the teaming population. However, in the course of carrying out their economic activities, a lot of conflicts have been raised thereby causing economic problems. Pastoralists are confronted with many natural as well as man-made problems.

Based on the pattern of movement of the livestock, pastoralism is usually classified into nomadic, semi-nomadic, settled and semi-settled pastoralism (van Raay & de Leeuw, 1974), or nomadic, semi-nomadic, semi-sedentary and sedentary pastoralists (de Weijer, 2002). Nomadic pastoralists migrate all the time with their livestock without any permanent settlement. Semi-nomadic pastoralists spend more than half their time annually herding animals away from home or cultivated settlements (Hunter, 1997). Further description (de Weijer, 2002) elaborates that semi-sedentary (semi-settled) pastoralism is a system where the pastoralists settle (live in houses) during part of the year while part of the household moves with livestock to pasture, distinct from semi-nomadism where during movement the whole household moves. In sedentary pastoralism, the pastoralists live in villages all year round while taking livestock out to pasture every day, sometimes hiring shepherds.

The pattern of movement for nomadic pastoralists is random, non-directional. Movement of semi-nomadic and especially semi-settled or semi-sedentary pastoralists can be transhumant. This is a directional or regular back and forth movements between fixed locations, for example from mountains to the warmer valleys in winter and back to the mountains when it becomes warmer and frost has ceased.

Pastoralism is also based on enterprise system and degree of contact with cultivators (Frickle, 1978). This distinguishes pure pastoralism and agro-pastoralism, whereby pure pastoralism encompasses full-time livestock keeping ranging from those keepers with no consistent association with a particular farming or tenured land use system (nomads) to those who have more or less regular contact with cropping systems at their grazing sites. Agro-pastoralism, on the other hand, refers to livestock keeping while also practicing cropping. Accordingly (Hunter, 1997), agro-pastoralists are those farmers with animals who spend less than half their time in herding and more time in cultivation. The system exists in two sub-categories: sedentary agro-pastoralism and those who are transhumant. Sedentary agro-pastoralism is a system where livestock are kept throughout the year near cropping activities of the pastoralists.

MATERIALS AND METHODS

The study area for this research work is Irepodun L.G.A. The local government is located between latitude 8° N and 8° 25' N and between longitude 4° 40' E and 5° 30' E [see figure 1] Irepodun Local Government was created out of Igbomina/Ekiti Division in 1976.The headquarters is in Omu Aran town. It has four districts: Omuaran, AjasseIpo, Esie/ijan and Oro districts. The L.G.A has eleven wards (AjaseIpo I, AjaseIpo II, Omu-Aran I, Omu-Aran II, Omu-Aran III, Oro I, Oro II, Esie/Ijan, Oko, Arandun and Ipetu/Rore/Aran Orin) and six area offices for administrative services. It has an area of 737 km² and a population of 148,610 at the 2006 census (National Population Commission, 2006). It shares boundaries with Ifelodun L.G.A to the North, Osun to the South, Ekiti and Offa L.G.A to the East and West respectively. The L.G.A is populated by the Igbomina people of Yoruba cultural and historical significance Irepodun Local Government area has alternating climate of wet and dry season characterized with prevailing winds. The wet season is from April to November with about 1100-1500 mm of rain accompanied by the south westerly wind which originates from the Atlantic Ocean while the dry season starts in November and finishes in April characterized by harmattan. The climate condition favours the growth of food crops such as cassava, maize, guinea corn among others.

The area is on a gentle undulating land which falls within the older sedimentary rocks. The vegetation is savannah characterized by full grasses and shrubs. This is encouraged by high rainfall,

high temperature and high relative humility. River Oshin is the only important river in the area. Other streams are seasonal. The soil of the area is edaphic in nature containing natural mineral resources. The economic activities of the people include farming (subsistence) and trading. Animal husbandry is being practiced by the nomadic Fulani in some communities of the study area. Other activities in the area include handicrafts, pottery, weaving, dyeing, leather works and embroidery making. The area also has small scale industries such as black smiting, gari processing, candles and leather products, among others.

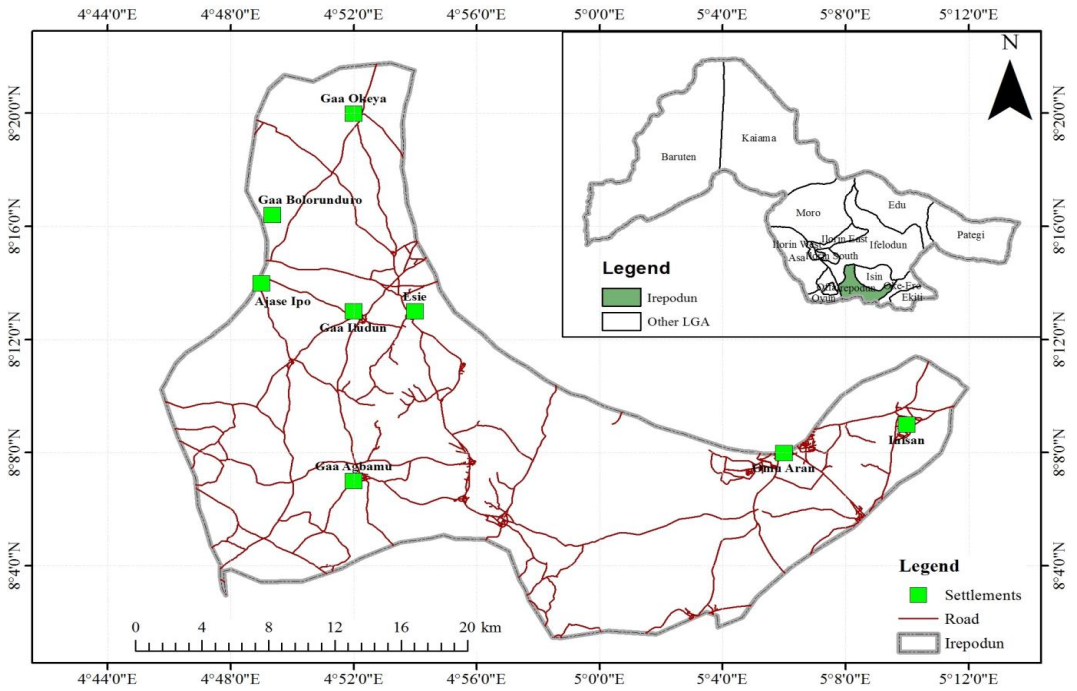

Figure 1. Irepodun Local Government Area showing the sampled settlements
Source: Irepodun Local Government Area

Data for this study were sourced from primary and secondary sources. The primary data was collected through questionnaire administration while the secondary data were sourced from relevant documents in government agencies, related textbooks, journals and magazines.

A multistage sampling technique was employed. Using the four districts as sampling units first, the procedure involved selection of two districts (Omuaran and Ajase) from the four available, sampling ten villages in each district. From the eleven wards, based on the knowledge of the area under investigation all household heads in twenty Fulani settlements (gaas) and adjoining communities were sampled in the local government area. This brings the sampled respondents to 740. Descriptive statistical techniques such as tables, cross tabulations, percentages and graphs were employed to analyze the demographic characteristics of both the rural communities and the pastoralists; length of stay of the pastoralist in their host community and the distribution of pastoralist by size of herds. Matrix scoring such as ranking was used to rank socioeconomic problems identified.

RESULTS AND DISCUSSION

Demographic characteristics of mobile pastoralists

The result of the age distribution of the respondents is presented in Table 1. It was revealed that most (37.8%) were between 41-50 years old. 29.7% were between 31-40 years old; 10.8% were between 51-60 years old; while 12.2% were above 60 years old and 9.5% were less than or equal to 30 years.

However, the mean age was 44.8 years. This implies that most of the mobile pastoralists were still active and were within their productive age. Also, results from Table 1 showed that majority (83.8%) of the respondents were married. Meanwhile, 9.5% were single while 2.7% were divorced, 1.4% was already separated and 2.7% were widowed. This implied that a high proportion of respondents had family responsibilities and would likely engage more in their economic activities intensely.

Table 1. Demographic distribution of respondents by age, marital status and household size
Source: Field survey, 2018

Category		Frequency (f)	Percentage (%)
Age (Years)	≤30	70	9.5
	31-40	220	29.7
	41-50	280	37.8
	51-60	80	10.8
	>60	90	12.2
	Mean		44.8
	Standard Deviation		11.5
Marital status	Married	620	83.8
	Single	70	9.5
	Divorced	20	2.7
	Separated	10	1.4
	Widowed	20	2.7
Number in household	1-5	100	13.5
	6-10	320	43.2
	11-15	210	28.4
	>15	110	14.9
	Mean		11.0
	Standard Deviation		6.0

Analysis of the size of the mobile pastoralists household in Table 1 showed that most of the respondents (43.2%) had household size of around 6-10 people with the average household size of eleven (11) people. Large family size is assumed to be the source of labour, skills and strong social capital to adapt to changing situations. However, if only a few members of the household are engaging in productive livelihood activities that can support the family, large household size could be a burden to the family. The implication is that the relatively large household size may mean more people to cater for and, perhaps also more hands to herd animal.

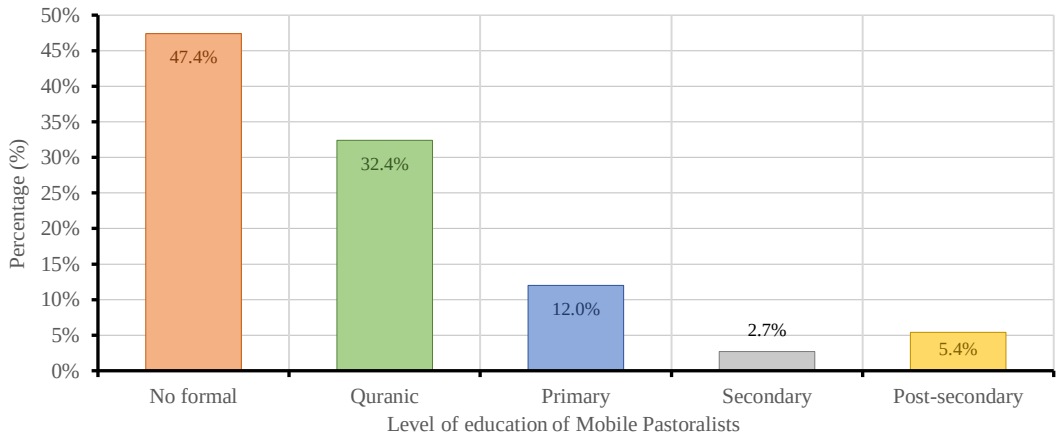

Figure 2. Demographic distribution of mobile pastoralists by level of education
Source: Field survey, 2018

The result of level of education of mobile pastoralists in Figure 2 showed that, 47.4% of them had no formal education. This suggests that illiteracy was still a common feature of mobile pastoralists, as about 32.4% had qur'anic education with 12% of them had primary education while only 2.7 and 5.4% had secondary and tertiary education respectively. The result implied that only few of mobile pastoralists were able taste the four walls of formal education in the study area.

Results in Table 2 revealed that the mean years of residence in host community of mobile pastoralists was 10.4 years and standard deviation of 14.3 years. Most (48.5%) of mobile pastoralists who constitute reasonable percentage of youth were born in their host communities, 20.4% had being residing in the host community for 1-10 years while 20.3% have being with their host communities for about 11-20 years. This suggests that most mobile pastoralists have relatively part of their various host communities for at least a decade which could have make them familiar and acclimatized to the host communities. Also in Table 2, its discernible that the average monthly income of mobile pastoralists was relatively equivalent to N31,693.68 with majority (63.5%) of them earn less than a hundred thousand per month while some 32.4 and 4.1% earn between 101,000-200,000 and above 200, 000 respectively per month. This corroborates Majekodunmi et al., (Majekodunmi, Fajinmi, Dongkum, Shaw, & Welburn, 2014) findings that the majority of pastoral households in Jos Plateau are in the middle wealth categories and only a few are poor in terms of livestock holdings.

Further results in Table 2 showed that about average (47.3%) of mobile pastoralists engaged in other economic income generating activities including farming, trading and hunting.

Table 2. Distribution of mobile pastoralists by years of residence in host community, income and other sources of income
Source: Field survey, 2018

Category		Frequency (f)	Percentage (%)
Years of residence	Born here	359	48.5
	1-10	151	20.4
	11-20	150	20.3
	21-30	20	2.7
	>30	60	8.1
	Mean		10.4
	Standard Deviation		14.3
Income (N'000)	≤100	470	63.5
	101-200	240	32.4
	>200	30	4.1
	Mean		31693.68
	Standard Deviation		70412.74
Other sources of income	None	390	52.7
	Fishing	10	1.4
	Farming	250	33.7
	Trading	30	4.1
	Hunting	10	1.4
	Farming & Trading	50	6.7

The results in Table 3 showed that the mean herd was 51 and standard deviation of 26. This implies that most mobile pastoralists in the study area had relatively small herd number which could fetch them relative low amount of income. The implication is that the larger the herd size the more the income and prone to farmer-herdsmen conflict because the herders have to feed their cattle. Table 2 showed that most (60.8%) of mobile pastoralists had herd between 1 and 50, 35.1% had herd size of 51-100 while only 4.1% had herd size greater than 100. Also, the mean period of mobile pastoralism was 30.1 years and standard deviation of 13.3 years. Some (10.8%) of mobile pastoralists spent up to 10 years in their host communities before they move on, 14.9% spent between 11-20 years while 36.5% and 37.8% spent between 21-30 and above 30 years respectively.

Table 3. Distribution of mobile pastoralists by size of herd and period of pastoralism
Source: Field survey, 2018

Category		Frequency (f)	Percentage (%)
Size of herd (Number)	≤50	450	60.8
	51-100	260	35.1
	>100	30	4.1
	Mean	51.0	
	Standard Deviation	26.0	
Period of mobile pastoralism (Years)	≤10	80	10.8
	11-20	110	14.9
	21-30	270	36.5
	>30	280	37.8
	Mean	30.1	
	Standard Deviation	13.3	

CONFLICT EXPERIENCE OF MOBILE PASTORALISTS

Results presented in Table 4 show the conflict experience of mobile pastoralists. The findings revealed that overwhelming majority (82.3%) of mobile pastoralists had experienced one form of conflict or the other from other people within their host communities while a few of them have not experience conflict before. The findings also showed that majority (63.5%) of mobile pastoralists had experienced conflict with crop farmers in their various host communities. These high figures indicate that farmer-herdsmen conflict is major form/type of conflict experienced by mobile pastoralists and which would continue to affects the quality of social relations between the herdsmen and their host communities (farmers). About 13.5% have had conflict with their fellow pastoralists/farmers, 2.7% had conflicted with their only fellow mobile pastoralists while 1.4% have had conflict with their cattle buyers and host communities. The mean frequency of conflict among mobile pastoralists and other was 4 and standard deviation of 1. Results also revealed that about 41.9% of mobile pastoralists involved in conflict in a countless number. This suggests that mobile pastoralists may be more aggressive to cause conflict with other people. About 25.7% involved in conflict with other people over a thrice number of time while 12.2% and 2.7% have been involved in conflict with other people in twice and once in their life time respectively. Supporting this is Awoniran et al., (Awoniran, Olugbamila, & Omisore, 2020) that discovered that food security is under threat in country.

Table 4. Distribution of mobile pastoralists by conflict experience
Source: Field survey, 2018

Category		Frequency (f)	Percentage (%)
Experience of conflict with other people	Yes	610	82.3
	No	130	17.6
If yes	Fellow pastoralist	20	2.7
	Crop farmers	470	63.5
	Fellow pastoralist/farmers	100	13.5
	Cattle buyers	10	1.4
	Host community	10	1.4
Frequency of involvement in conflict	Once	20	2.7
	Twice	90	12.2
	Thrice	190	25.7
	Countless	310	41.9
	Mean		4.0
	Standard Deviation		1.0

SOCIOECONOMIC PROBLEMS CONFRONTING FULANI HERDSMEN

Fifteen socioeconomic problems were identified as confronting Fulani herdsmen in the study area as revealed in Table 5. From the table, dwindling pasture is the most pressing socioeconomic

variable affecting Fulani herdsmen with a mean value of 3.82. This implies that the cattle rearers do not really have enough pasture for the cattle, hence, the need to move about in search of forage. Similarly, land degradation (x=3.70) was ranked as another pressing socioeconomic problem confronting the herdsmen in tendering their cattle. This could also be as a result of change in climate. Drought has mean value of 3.47 and was ranked as another pressing problem facing the Fulani herdsmen. This can also be linked with seasonal rainfall as a result of climate change. Other problems include: threat to survivals, conflicts with non-pastoralists, poor clinical/extension services, dead livestock, housing the nomads, threat of violence, and dispute over resources, nomadic education, theft, mobility problems, shortage of labour, trespass/resource encroachment. Supporting this is Sacareanu et al., (Sacareanu, Floarea-Saghin, & Sîrodoev, 2019) that reported that poor agricultural development represents a major problem in our society.

Table 5. Socioeconomic/Livelihood Problems confronting the mobile Fulanis in carrying out their economic activities
Source: Field survey, 2018

Problems	Strongly Agree {f(%)}	Agree {f(%)}	Disagree {f(%)}	Strongly disagree {f(%)}	Undecide {f(%)}	Mean	Rank
Dispute over resources	20 (2.7)	20 (2.7)	420 (56.8)	200 (27)	80 (10.8)	1.59	10th
Drought	400 (54)	320 (43.2)	5 (0.7)	5 (0.7)	10 (1.4)	3.47	3rd
Threat of Violence	5 (0.7)	5 (0.7)	450 (60.8)	250 (33.8)	30 (4)	1.60	9th
Conflicts with non-pastoralists	100 (13.5)	150 (20.3)	340 (45.9)	100 (13.5)	50 (6.8)	2.20	5th
Trespass/resource encroachment	1 (0.1)	2 (0.3)	500 (67.6)	235 (31.8)	2 (0.3)	0.47	15th
Theft	10 (1.3)	40 (5.4)	350 (47.3)	260 (35.1)	80 (10.8)	1.51	12th
Dead Livestock	10 (1.3)	10 (1.3)	550 (74.4)	150 (20.3)	20 (2.7)	1.78	7th
Land degradation	420 (56.8)	300 (40.4)	5 (0.7)	5 (0.7)	10 (1.4)	3.70	2nd
Threat to survivals	345 (46.6)	230 (31.1)	50 (6.8)	60 (8.1)	55 (7.4)	3.20	4th
Mobility problems	2 (0.3)	3 (0.4)	300 (40.5)	410 (55.4)	25 (3.4)	1.39	13th
Poor clinical/extension services	150 (20.3)	240 (32.4)	50 (6.8)	200 (27)	100 (13.5)	2.19	6th
Dwindling pasture	630 (85.1)	102 (13.8)	1 (0.1)	2 (0.3)	5 (0.7)	3.82	1st
Housing the nomads	1 (0.1)	2 (0.3)	535 (72.3)	200 (27)	2 (0.3)	1.73	8th
Nomadic education pull	55 (7.4)	64 (8.6)	110 (14.9)	506 (68.4)	5 (0.7)	1.53	11th
Shortage of labourers	1 (0.1)	3 (0.4)	100 (13.5)	630 (85.2)	6 (0.8)	1.14	14th

COPING STRATEGIES EMPLOYED BY MOBILE PASTORALISTS

The results in Figure 3 show the coping strategies employed among mobile pastoralists to ameliorate the socio-economic problems facing the pastoralists in the study area. Results showed that overwhelming majority (94.6%) of mobile pastoralists avoid grazing on people's farm, 83.8% diversified into other economic income generating activities while 77% used drought tolerant breed of cattle.

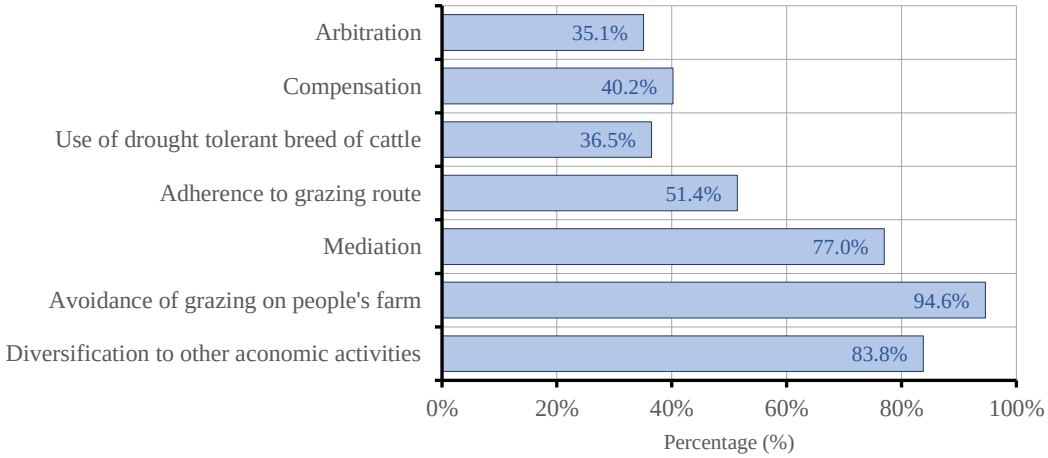

Figure 3. Coping strategies used by mobile pastoralists
Source: Field survey, 2018

MANAGING THE NOMAD'S PROBLEM

Pastoral nomadism in West Africa is faced with a lot of problems ranging from socio-economic to cultural problems as well as resource based.

Various solutions can be suggested especially if examined as affecting the cattle Fulanis. These include:

A. Central provision of folder cities, reserves and planting of grasses in peculiar locations. This will reduce long distant travelling and wondering of the nomads. This will also reduce clashes with farmers.
B. Provision of annually based buildings of locations of farming rural cities. If the nomads are housed majority of their problems are solved.
C. Provision of water ponds at ranching fields will serve a large proportion of the nomads and their cattle.
D. Government can organize modern cattle ranches in specified locations.
E. Veterinary centres, clinics and hospitals can be built at specified locations to treat cattle regularly. This could be supervised by the ministry of agriculture.
F. The Government can also increase extension services by training extension officers who should monitor and visit the Fulanis on the field.
G. Introduction and extension of nomadic education to all Fulani children. This will afford them the opportunity towards education and to sustain the future of cattle rearing.
H. Marketing broads can be introduced to assist the nomads to have regular prices for their products.
I. Massive production of animal feeds can be encouraged to assist in availability of food and feeders for animals during the dry season. This will also reduce travelling and distance coverage during the dry season.
J. There could also be inventory, records and tracking of all cattle rearers. This will help in monitoring them while on field as well as helping to know the range of stock in designated location. When they are traced and tracked, funds can be allocated for them and many of them will have access to capital, public goods and service.

CONCLUSION

The study had actually evaluated spatial analysis of mobile pastoralism and socioeconomic problems among rural Fulani communities in Irepodun Local Government Area of Kwara State,

Nigeria. From the study, it was discovered that dwindling pasture, land degradation and drought were the most pressing socioeconomic problems identified. The implication of this is that there is possibility of food insecurity as the livelihood of the pastoralists in the study area is being threatened. It can therefore be concluded that awareness programme should be created for the Fulani pastoralists on how to manage their cattle as well as the pasture they feed on in order to reduce the problems being faced in rearing cattle in the study area. Recommendations made include provision of adult education for the Fulani pastoralists as this will assist in enhancing and improving the socio-economic life of the mobile pastoralists. Also, there should be provision of infrastructure such as feasible dams and grazing reserves. There should be strict adherence to environmental law as well as monitoring the activities of the pastoralists as this will enhance food security in the country.

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INTERNATIONAL MOBILITY AND EDUCATIONAL TOURISM. CASE STUDY: ERASMUS PROGRAM AT U.S.A.M.V. IAȘI

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Abstract: Regardless of which perspective is analysed, in or out - going, the educational tourism in the city of Iasi is strongly related to its status as a regional center of educational polarization. Our objective is to analyse and inventorize the evolution of Erasmus international mobilities of "Ion Ionescu de la Brad" University of Agricultural Sciences and Veterinary Medicine Iasi between 2013 and 2019. These mobilities, along with school trips, travels for seminars, conferences or symposiums, language schools and educational events shape the educational tourism in the city of Iasi. Our study is based on the statistical provided by the International Relations office of the university. The first step in our research was the investigation of the specialised literature, we continued with the analysis of the statistical data related to this subject and the creation of graphic and cartographic materials. The study area is the city of Iasi. The interpretation of the obtained results highlights a series of transformations, as the increase in the number of Erasmus+ international mobilities. This is a sign that educational tourism has a growing interest from students of this university, being an important element of the tourism development strategy of the city.

Key words: educational tourism, international cultural exchanges, internships, Erasmus mobilities

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INTRODUCTION

As countries become more and more independent, the success, development and the economic prosperity depend to a large extent on the ability of two industries - *education and tourism* in order to create the revenue needed to support international sustainable trade and learning (Bowan & Dallam, 2020). The tourist experience, knowing the tourist destination and local communities are today defining elements in the practice of tourism. The forms of alternative tourism (where educational tourism is an important component) satisfy such requests.

Although the concept of educational tourism and specialized tourism products are recently beginning to take shape worldwide, educational travel has been going on for centuries, education within

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universities located outside the tourist residence, product of the educational tourism industry (edu - tourism), being today a multi-billion dollar business at global level (Mok & Cheung, 2011). Considered a niche tourism, this form has been gainig ground in the context of globalization (Novelli, 2005).

Educational tourism is defined as a tourist activity carried out by people who spend at least one night in accommodation facilities or by those who participate only in a trip to the destination region and for whom learning is the main or second motivation for travelling (Ritchie, 2003).

It is also a program through which participants travel to a location as a group, with the primary goal of engaging in a learning experience which is directly related to that location (Bodger, 1998) and it can range from *general interest while traveling to purposeful learning* (Maga & Nicolau, 2018).

In general, the activities of *edu-tourism* (educational tourism) include primarily conferences participation, study tours for adults, studies at universities inside or outside borders and secondly school trips or international mobilities programs (Ojo & Rajayuso, 2019).

Globally, there are countries that host quality higher education institutions such as the United Kingdom of Great Britain and Northern Ireland (the birthplace of this form of tourism) or the United States of America. Given current trends and the approach of Brexit, Germany, which also stands out, is on the verge of overtaking the United Kingdom as the number one nation in Europe regarding the higher education domain, just like Switzerland and Canada.

There are many examples in the world. We have identified, for instance, the longest educational programs taking place in prestigious educational institutions.

Table 1. Educational tourism programs worldwide
Data source: after Dan Mihai Gherțoiu, Geographical bases of niche tourism (Ghertoiu, 2014)

No.	University and Program	Country	Description
1.	Educational Tourism Program, University of Cambridge	United Kingdom of Great Britain and Northern Ireland	Camps for young people (10-20 years) - English language courses (grammar, cultural English, Shakespeare, Cambridge writers, etc); rates - between 900 euros (1 week) and 2800 euros (4 weeks);
2.	Educational tourism program, University of Oxford - Management and theater in Oxford	United Kingdom of Great Britain and Northern Ireland	Program for children (12-15 years old), young people (over 16 years old) and adults (over 30 years old)
2.1.	Educational tourism program, University of Oxford - International Student Lyceum	United Kingdom of Great Britain and Northern Ireland	Program for children (over 16 years) - business, management and culture (photography, creation, film, theater, communication, etc)
3.	Educational tourist program - French language	France	Program for children (10-14 years) - learning French;
4.	Educational tourism program - Girls' School	Switzerland, Montreux	Program for girls and teenagers (10-22 years old) - courses in good manners, horse riding, tennis, water skiing, ceramics, design, piano, etc; Rates - 6000 Swiss francs (3 weeks)
5.	Educational tourism programs - Dublin	Ireland, Dublin	Learning English (program that includes: English lessons, type of accommodation and meals chosen, sports, social activities, excursions, permanent supervision and medical care etc)

Moreover, the main destinations for educational trips are schools, institutions, universities, historical sites and famous school campuses. It is expected that each participant will be able to acquire skills and knowledge during the tours. It is believed that an educational tour leads to the enrichment of a person's knowledge and can improve the tourism products of the local tourism industry (Wang, Xiang, & Yunpeng, 2013).

Educational tourism is focused on the basic needs of students: psychological, psycho-physical, emotional, social expressions, the need for change, the need for self-esteem, intellectual development, exploration and development of creative potential (Dembovska, Silicka, & Lubkina, 2017). It also contributes to formation, acquisition and development of essential qualities of a person that are expressed in the form of universal, general professional and specialized skills (McLagan, 1997).

Thus, student mobility (national and international/interregional) is important not only from an educational point of view but also from a tourist point of view. Students often choose universities not from the perspective of the advantages offered by the institution but from the perspective of the attractions that university cities provide and even more, educational mobility generates additional income for tourist destinations. As a result, educational tourism should be seen as an important element of the tourist destination management (Árva & Könyves, 2010).

In the category of international mobilities are also Erasmus internships, which along with school trips, travels to seminars, conferences or symposia, language schools and educational events shape the educational tourism in Iasi, the study area for our research. Iasi is a university city with six universities (five public institutions and a private one) and for the academic year 2018/2019 it had about 55,000 students according to CNFIS (CNFIS, 2020).

We focused on the *Erasmus+ 2014-2020* program as it covers most of the analysis period of our study, 2013/2019. The Erasmus program was born in 1987 and offers to students the opportunity to study in a European country for a certain period, a period that is later formally recognized by the host institution (Erasmus Program History, 2020).

Following its evolution over time, the following programs are scored: Erasmus Socrates (2000-2007); Erasmus Lifelong Learning Program (2007-2014, study mobility and university staff in well-known universities in Europe); Erasmus + (2014-2020, mobility individual students and university staff), with new directions: inter-institutional cooperation, exchange of good practices at international level and support for institutional policy reforms.

Therefore, the Erasmus+ program is the European Union's program for education, training, youth and sport in Europe. With a budget of € 14.7 billion, it will give more than 4 million Europeans the opportunity to study, train and gain experience abroad (European Commission, 2020). 34 countries are currently participating. It brings together seven European Union programs in the field of education, training, youth and supports, for the first time, sport. The seven European funding programs together are: Lifelong Learning, Youth in Action, Erasmus Mundus, Tempus, Alpha, Edulink and the cooperation program with industrialized countries (University of Bucharest, 2020). However, educational tourism is little studied, although there is no lack of attempts to draw up its own theory and methodology (McGladdery & Lubbe, 2017). From a statistical point of view, the significant figures for the Erasmus+ program (2014/2020) are the following:

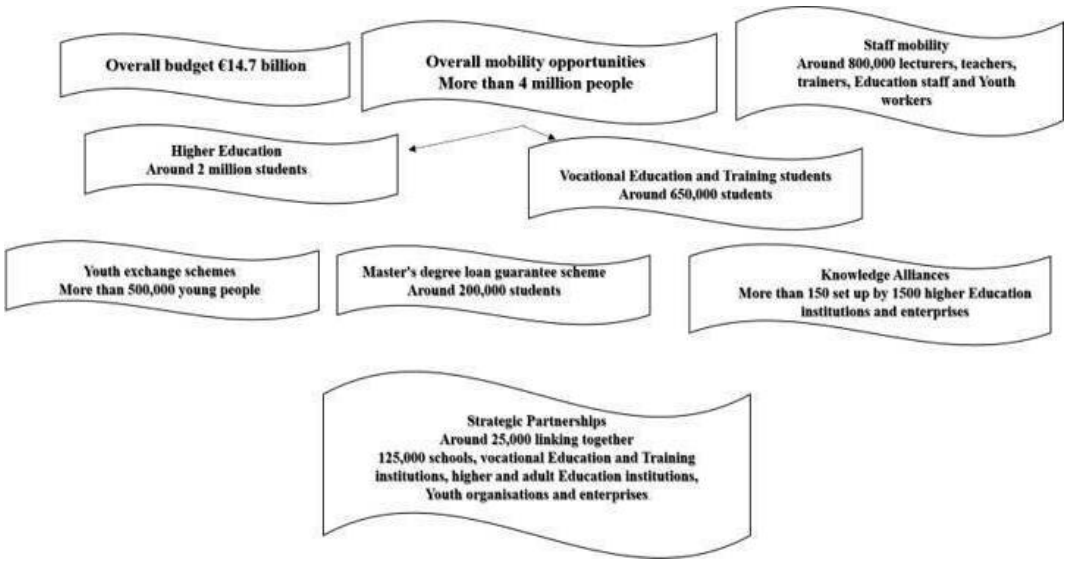

Figure 1. *Erasmus* + program in figures, 2014-2020
Data source: after Erasmus Plus, relevant figures (Erasmus Plus, 2020)

METHODOLOGY

The methods used are: *geographical* (complex approach of higher education tourism phenomenon in the territory) and *analytical* (detailed analysis of the components of higher education tourism as a tourist activity: in this case – Erasmus international mobilities of students from "Ion Ionescu de la Brad" University of Agricultural Sciences and Veterinary Medicine Iasi).

Furthermore, we used the *synthetic* (detailed analysis of the educational tourism components at a global, regional and local level and the integration of the partial information in a unitary representation, highlighting the complexity of the analyzed tourist phenomenon: in this case - international student mobilities) and *cartographic* methods (using specialized softwares, such as PhilCarto and Adobe Illustrator).

Regarding the means, we used *bibliographic sources, mediated collection techniques* (reports and statistical data from the International Relations Offices of the analyzed university), *specialized software* (ArcGis, Phil Carto, Adobe Illustrator) and *classic ones* (Microsoft Office Package).

In this study we start from a general hypothesis: formal education in classrooms is not enough today, students' preferences are much more diversified; therefore, activities in which students can get involved, in which they can learn and acquire new knowledge, skills and abilities are requirements that only specialized forms of tourism (in this case, higher education tourism) can fullfil.

Our *working hypothesis* is: the increasingly active participation of students in Erasmus study and practice programs on both Incoming and Outgoing components between 2013 and 2019 within "Ion Ionescu de la Brad" University of Agricultural Sciences and Veterinary Medicine Iasi is an impetus for the development of educational tourism in the municipality. Finally, the hypothesis will be confirmed or invalidated, based on the research results.

The *work objective* established within the research is to analyze and inventorize the evolution of Erasmus international mobilities registered in this university between 2013 and 2019.

The data provided by the International Relations Office covers the period between 2013 and 2019 (just to capture the beginning of the *Erasmus+* program) and consists of specific information related to the number of students who accessed an Erasmus study and practice mobility between 2013 and 2019 by the two components, *Outgoing* and *Incoming* from and to the Romanian territory.

RESULTS AND DISCUSSIONS

"Ion Ionescu de la Brad" University of Agricultural Sciences and Veterinary Medicine had much smaller numbers of participants in Erasmus international mobilities compared to "Alexandru Ioan Cuza" University, one of the most prestigious higher education institutions in Romania and the first public university in Iasi regarding Erasmus international mobilities. The annual average is around 32 participants (in the case of the *Incoming* department) and 50 participants (in the case of the *Outgoing* department), by both components: *Study* and *Practice*. However, the distribution of student flows may be of comparative interest or may indicate the presence of specific destinations, which is why the case study was considered necessary. The results are presented separately for each of the two departments: outgoing and incoming.

Outgoing Department

In the analyzed period, 2013-2019, in respect of the *Outgoing* component, the total number of participants in Erasmus international mobilities had an ascending route, starting from 44 participants in 2013/2014, with a peak of values in the academic year 2016/2017 (54 participants) and ending the 2018/2019 academic year with 49 students who chose an Erasmus mobility outside the country.

Interesting is the number of students who chose a study mobility abroad, which registers a continuous and sustained decline in the entire period, from 23 participants in 2013/2014 to only 8 participants in 2018/2019 (Figure 2).

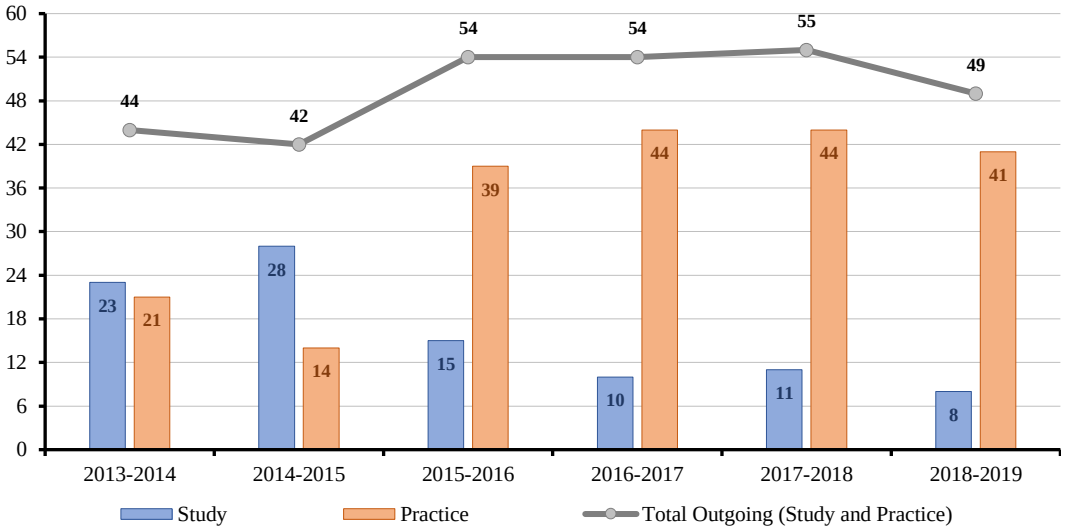

Figure 2. Study internships Erasmus Outgoing Study and Practice (2013/2019)
Data source: U.S.A.M.V. "Ion Ionescu de la Brad" Iași (International Relations Office, 2020)

One explanation is that students are rather attracted by a placement mobility/internship (where they can have a double advantage: obtaining professional experience and a salary) but also the number of bilateral agreements between "Ion Ionescu de la Brad" University and the other institutions from the partner countries. We outline a number of 20 partner states, compared to 45 ones registered by "Alexandru Ioan Cuza" University (however, the higher number of faculties and specializations of the university must be also taken into account).

Other reasons for the students' choices could be the distance from the destination country and the non – attractive study programs provided by foreign institutions. The compatibility of the study programs is also a frequently cited cause. In some cases it is difficult to equate courses or grant credits. This also explains the preference for internship programs, which are easier to equate. Some studies indicate a link between the compatibility of study programs and the size of student exchanges (Quezada, 2004).

In respect of the *Outgoing* component, in 2013/2014 (the beginning of the program) the Romanian students accessed 8 foreign countries and the highest shares of participants were held by Italy (34%), followed by France (20%), Spain and Greece (each with about 14 percent). In the end of the analyzed period, 2018/2019, the total number slightly increased, reaching the total number of 10 countries chosen by the Romanian students.

Throughout the analyzed period, constant flows of Romanian students went to Italy, Spain, Turkey and Germany, mainly for an internship, as a result, just like in the case of the *Incoming* component, of the old partnerships between institutions. Greece and Portugal can also be mentioned in this category, without the academic year 2013/2014. Options for an internship (placement mobility) or study were also Croatia, Poland or the Netherlands, which received Romanian students during the 2016/2017 and 2017/2018 periods (Figure 3). The study program followed is important in choosing the destination, southern European countries being accessed especially by students in horticulture and northern countries by those in veterinary medicine and animal husbandry.

New countries appear on the destination map, which in the future could have important flows of participants, as, for example, the Czech Republic and Estonia. The spreading area of the Erasmus Outgoing phenomenon goes beyond southern and central Europe, respectively towards the north and west of the continent. Therefore, the students of this university may enjoy new study and practice opportunities.

The previously visible unidirectional concentration of flowssuffered a significant dispersion during this time interval. In several years, departures were registered towards the other states with which there are agreements, as mentioned on the map. The most attractive states have consistently maintained their preferred destination status.

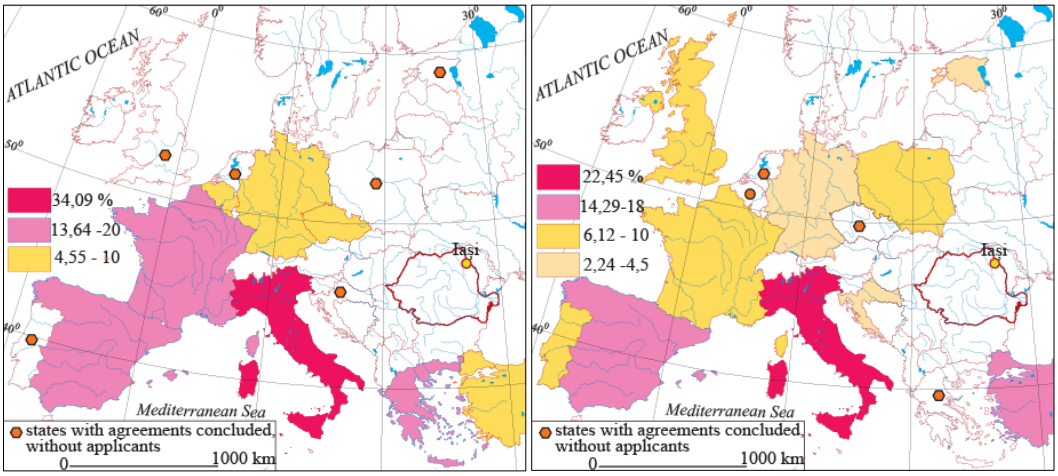

Figure 3. The percentage of the Erasmus Outgoing participants for each destination country in 2013/2014 (left) and 2018/2019 (right)
Data source: U.S.A.M.V. "Ion Ionescu de la Brad" Iași (International Relations Office, 2020)

Incoming Department

As regards the Incoming component, throughout the analyzed period (2013/2019) the total number of participants in international Erasmus mobilities recorded a constantly ascending trend during the first five years and a slightly descending one in the last year, starting from 22 participants in 2013/2014, with a peak of values in the academic year 2017/2018 (48 participants) and ending the academic year 2018/2019 with 37 foreign students who had chosen an Erasmus mobility abroad (Figure 4).

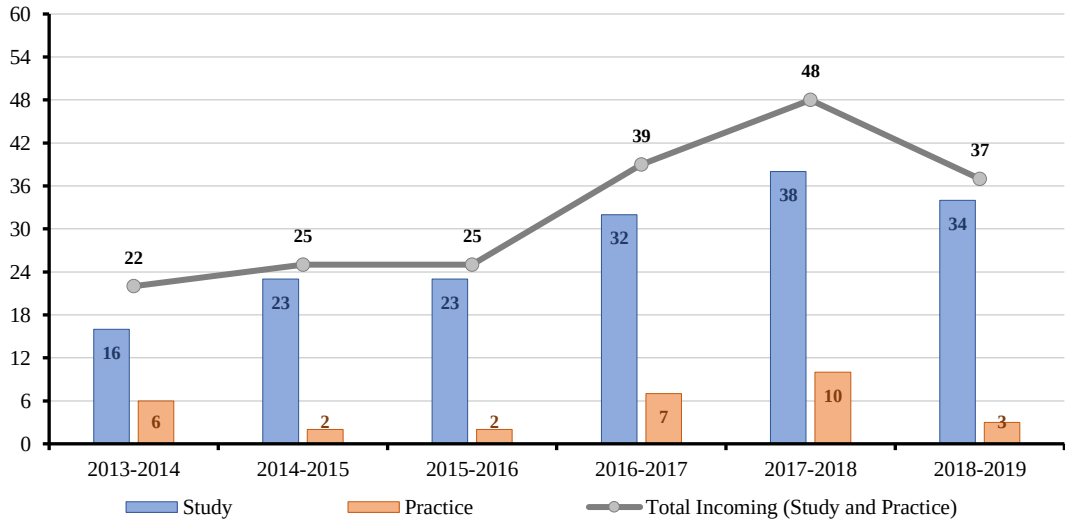

Figure 4. Study internships Erasmus Incoming Study and Practice (2013/2019)
Data source: U.S.A.M.V. "Ion Ionescu de la Brad" Iași (International Relations Office, 2020)

Unlike the previous component (*Outgoing*), the study mobilities were attractive for foreign students, the faculties and specializations within Ion Ionescu de la Brad University providing new opportunities for them. The total number of participants experienced an ascending trend, starting from 16 foreign students in 2013/2014 and ending the academic year 2018/2019 with 34 students, except for the last academic year, with registered a slight decrease of 4 students. Similarly to the Outgoing component, the distance between the origin countries and our country and the attractiveness of study and placement programs provided by the Romanian institution are important pull factors for the foreign students. At the beginning of the program, 2013/2014, foreign students arrived from 4 countries (Italy, Spain, Turkey and Portugal) and in the end of the analyzed period, 2018/2019, the number slightly increased to 7 countries. The partner countries category enlarged with Poland, Greece and the Netherlands. If we refer to fluctuations, we can mention that in the next two years of the study period, the university also received students from Poland.

Only in the academic year 2016/2017 the university received students from France, the Czech Republic and the Netherlands, while for Greek and Dutch students our university was an Erasmus destination in 2016/2017 and 2018/2019. The highest shares are held by Portugal, followed by Turkey and Italy, as a result of the old partnership between foreign and Romanian institutions, shares that relatively remain constant, despite the slight fluctuations during the entire period (Figure 5).

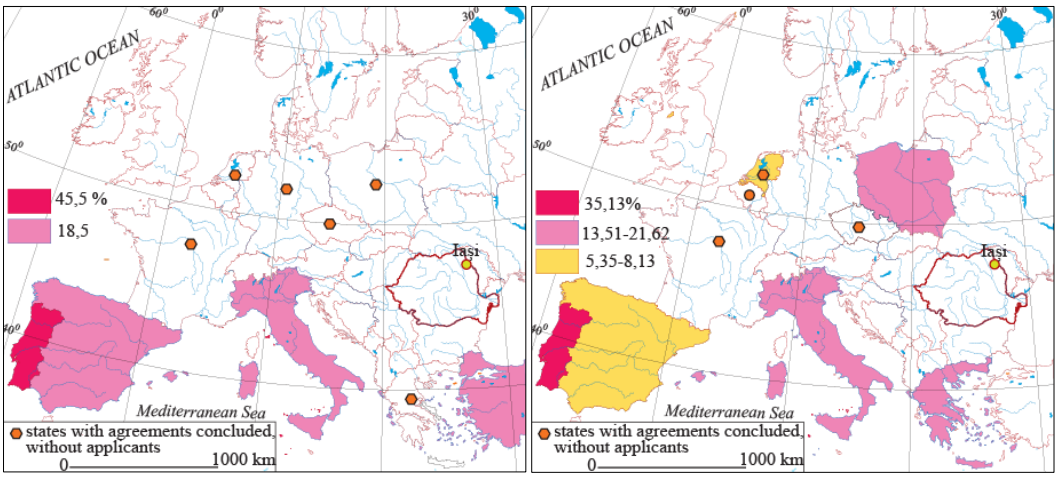

Figure 5. The percentage of the participation of the Erasmus Incoming Study for each destination country in 2013/2014 (left) and in 2013/2014 (right)
Data source: U.S.A.M.V. "Ion Ionescu de la Brad" Iași International Relations Office

The concentration of arrivals flows is much stronger than in the case of departures and can be correlated with the specificities of the agricultural higher education, whose attractiveness is lower today. The place occupied by Portugal, despite the distance that separates it, does not seem to be accidental if we refer to certain similarities such as the high share of the rural population or of the people working in agriculture, as in other states or regions in the south of the continent. In this case, the slight dispersion to the northwest of Europe, more urbanized and with a highly industrialized agriculture, becomes explicable.

The total number of students participating in an international Erasmus mobility at "Ion Ionescu de la Brad" University (both Incoming and Outgoing components) has a slightly ascending course between 2013 and 2019, a peak of values being registered in the academic year 2017/2018 (over 100 participants, as a result of capitalizing partnerships by the university and opportunities by the Romanian/foreign students).

The spreading area does not expand beyond the European continent (significant numbers of students heading to Italy, Portugal, France or Spain and arriving from the same countries). The only exception is Turkey, where important and constant flows are involved in Erasmus mobilities; however, this is debatable since the context is mainly attributable to its European part.

Gathering the data on the Erasmus international mobilities to and from "Ion Ionescu de la Brad" University of Agricultural Sciences and Veterinary Medicine Iasi between 2013/2014 and 2018/2019, the hypothesis launched at the beginning of our study is confirmed: the increasingly active participation in study programs and student practice on both components (Incoming) and Outgoing between 2013/2019 within the university is an impetus for the development of educational tourism in the city (Figure 6).

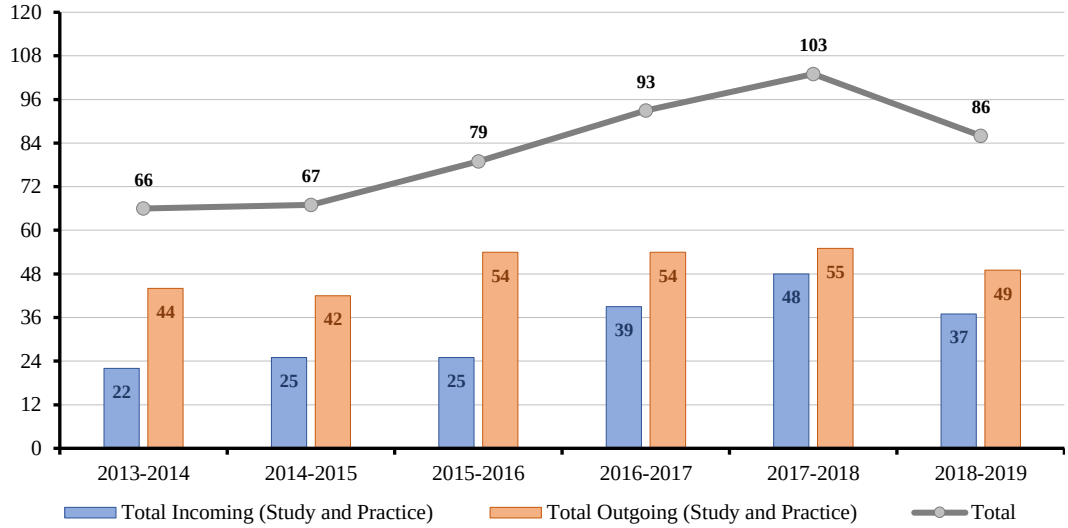

Figure 6. The evolution of the total number of Erasmus Incoming and Outgoing participants between 2013/2014 and 2018/2019

Data source: U.S.A.M.V. "Ion Ionescu de la Brad" Iași, (International Relations Office, 2020)

The analysis of the flows generated by the Erasmus+ exchanges in the case of this university from Iasi highlights a lower dispersion and attractiveness corresponding to its share in the local higher education. Its strong specialization and the particularity induced by agricultural activities reduce the possibility of establishing connections with states where agriculture has long been a secondary activity. This explains the preferential relations with the Southern or Eastern European states that have certain similarities. Beyond this specificity, the student exchanges to which this university is a partner represent an opportunity for tourism, in both directions, the number of participants working as indisputable image vectors.

CONCLUSIONS

Although educational traveling has had an old tradition which dates back to the seventeenth century, the concept of *educational tourism* is relatively new. Educational or edu tourism - tourism is born as a reaction to mass tourism (standardized) and responds to the new requirements of tourists: tourist experience, knowledge as closely as possible of the tourist destination and involvement in the life of local communities.

The main/secondary motivation is participating in a learning activity/an activity that involves acquisition of knowledge, skills or abilities. The main form of manifestation of educational tourism is the *higher education tourism*, more specifically international mobility programs for students in world famous higher education institutions and beyond. In fact, our paper is dedicated to this form

of edu-tourism. This form of tourism can play a major role in raising academic standards, as some studies show (Smith, 2013).

Worldwide, the highest level of educational tourism is in countries with quality higher education institutions, such as the United Kingdom of Great Britain and Northern Ireland, the United States of America and Germany. For Romania and the city of Iasi, "Ion Ionescu de la Brad" University of Agricultural Sciences and Veterinary Medicine is placed on the forth position in Iasi regarding Erasmus international mobilities for students, teaching and university staff. Romanian students chose Italy, Spain, Turkey and Germany and foreign students arrived from Italy, Spain, Turkey and Portugal.

During the analyzed period, 2013/2019, Erasmus international mobilities increased, a fact that confirms the hypothesis launched at the beginning of our research. There is an increasingly active participation of students from the university in international mobility programs on both components (Incoming and Outgoing), which leads to the development of educational tourism in the city.

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INFORMATION NEEDS OF WILDLIFE HUNTERS IN KWARA STATE: IMPLICATION FOR EXTENSION SERVICE DELIVERY IN NIGERIA

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Abstract: Access to accurate, timely and reliable information has crucial roles in production efficiency of wildlife hunters. An understanding of information needs could propel actors in the agricultural information business to provide information that will meet the needs. To this end, the present study investigated the information needs of wildlife hunters in Kwara State, Nigeria. A three-stage sampling technique was used to select 120 respondents for the study. Primary data collected with the use of interview schedule were analysed using descriptive and inferential statistical tools. The result revealed that hunters' group (M = 2.48) and consultation with older/experienced hunters (M = 2.02) were the prominent channels of information accessible to the hunters. Information on market situation (M = 2.16), games search techniques and ethics (M = 2.07) and hunting locations (M = 1.98) were the major areas of information needs of the hunters. Also, lack of awareness of extension information source (M = 1.96), inaccessibility of extension workers (M = 1.86) and trust of the information source (M = 1.79) were the major identified obstacles to accessing information from extension channels. The study further showed that age of the hunters, level of education and years of experience have a significant relationship with their information needs at $p < 0.05$. The study concluded that the hunters have ample information needs and recommends that an arm of extension service operation should be

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devoted to wildlife with the mandate of hunters' education on vital areas of wildlife management for improved livelihood.

Key words: bushmeat, hunting location, market situation, information source

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INTRODUCTION

In Nigeria and other developing countries, wildlife hunting is a popular activity in rural areas. Aside crop farming and animal husbandry, hunting is a major source of livelihood for most of the people in these areas (Adefalu, Aderinoye-Abdulwahab, Akangbe, Ogunlade, & Matanmi, 2013). Hunting is an activity where animals in the wild are been killed for food or market purposes. Wildlife hunting is presumed to have dated back to the time of human evolution (Ljung, Riley, Heberlein, & Ericsson, 2012). Despite the lack of precise estimates on bush meat consumption and total production, bush meat still remains a highly valued and well-preferred protein of animal source in the diets of both in the rural and urban populace in many parts of Africa (FAO, 1997).

Based on the purpose for hunting, hunters are usually categorized as market hunters, subsistence hunters, and sport hunters. Market hunters provided meat for buyers. Subsistence hunters hunt primarily to feed their families. While sport or trophy hunters hunt as a form of recreation (Adefalu, Aderinoye-Abdulwahab, Akangbe, Ogunlade, & Matanmi, 2013). In Nigeria, these hunters have a common attitude that wildlife is limitless. Hunting of wild animals on this scale threatens wildlife conservation, increases risk of zoonotic disease transmission and gradually declines bushmeat trade due to uncontrolled hunting (Keatts, et al., 2021). Deforestation which sometimes results from bush burning as a strategy for the hunters to capture their games has also been identified for its effects on the microclimate of Kwara State (Agaja, 2019; Karesh & Noble, 2009).With the growing campaign for wildlife conservation around the world and to avert the unsustainable hunting practices in Nigeria, hunters must be adequately furnished with information that will guide them and improve their efficiency while observing ethics of hunting operations. Effective access to relevant information by wildlife hunters is essential for regulating their activities and bringing about social and economic change.

Information has been described as a very crucial factor in development owing to the fact that, it serves as a vital tool of communication between stakeholders. Additionally, it is a medium for trends assessment and also aid in sharpening decision in an enterprise or a social setup (Whitfield, 2017). Knowledge emerging from information are essential in order to respond to the opportunities and challenges of social, economic and technological changes including those that help to improve productivity, food security and rural livelihood (Olabanji & Ogunlade, 2020). Dutta (Dutta, 2009) acknowledged that information plays an important role in the lives of the wildlife hunters as it helps them become more knowledgeable with best hunting practices for improved productivity, better welfare and ethics consciousness. Information is a catalyst for solving a problem and a very important tool for economic development (Sobalaje & Ogunmodede, 2015; Ogunmodede & Akangbe, 2013). The extension service delivery system is the most important information service for the public that has the widest range of responsibilities for rural and agricultural development. An extension worker serves as conduit pipe between researchers and farmers through the transmission of information on improved technique that will enable increased productivity even in hunting expedition.

Ozoma (Ozoma, 1998) noted that wildlife hunters need information on hunting activities, ethics, weather conditions, treatment and control of diseases, type of animal to kill, hunting techniques, safety precautions, market situation among others. The need for increased ethical understanding and attitude in hunters has been recognized in a growing climate of polarized thinking about hunting. With increased knowledge, a hunter will be able to articulate why he or she hunts, and to hold or to work toward a consistent ethic (Chapman, 2009). Consequently, the inadequate

attention given to hunting services in Nigeria by extension organisations, understanding the information needs of hunters could form a base for the establishment of hunters' education in the service sector. Based on this background, this study sought to investigate the extension needs of wildlife hunters in Kwara state, Nigeria with the objectives of determining the information needs of hunters in the study area, assessing the current information sources available to the hunters and examining the obstacles to the hunters' information access. The hypothesis tested was whether or not there is a significant relationship between some selected socio-economic characteristics of the respondents and their information needs.

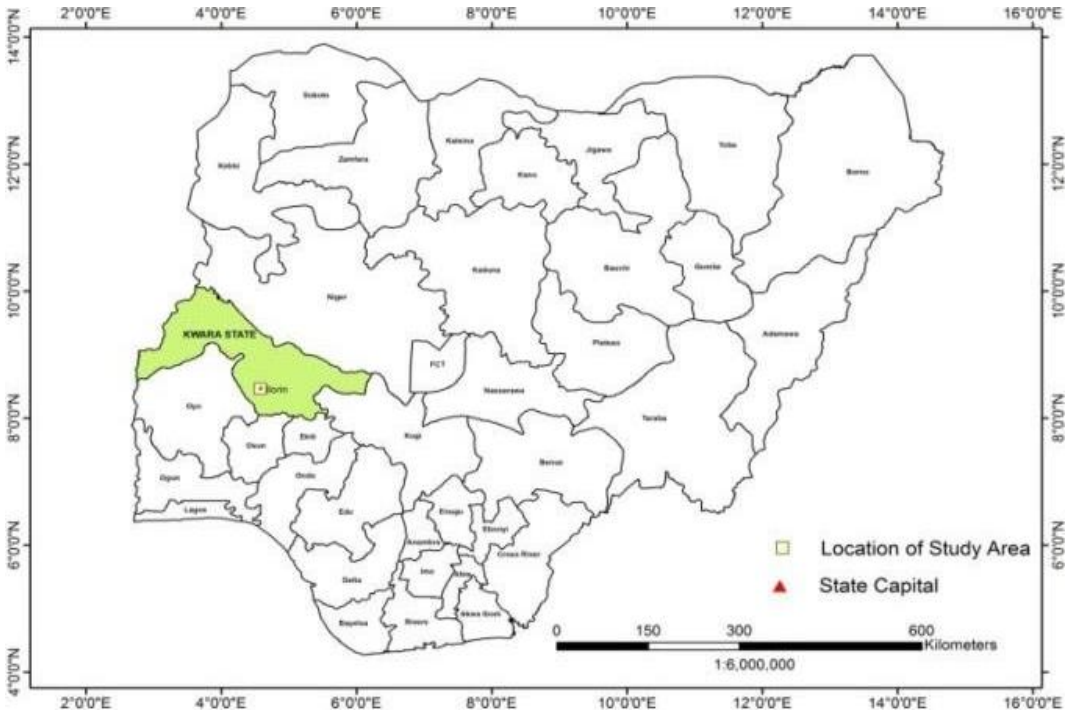

Figure 1. Map of Nigeria showing Kwara State as the study area and other States of Nigeria
Source: Researchgate.net

METHODOLOGY

The study was carried out in Kwara State, Nigeria. Kwara State was created in 1967, and it covers eight percent of the total land area of Nigeria. The state extends from latitude 7°45`N in its southern end, latitude 2°45`E to the west and longitude 6°40`E to south east as shown in figure 1. It has a total population of 3,192,893 (National Bureau of Statistics, 2017) with a population density of 66 people/km^2. The State is typically agrarian. Eighty percent of the population resides in the rural areas and 90% of this rural population are farmers (Yusuf, Tiamiyu, & Aliu, 2016). The state has a mean annual temperature ranging between 30-35°C and a relative humidity of 60% on the average. The area is located within the Guinea Savanna and a tropical hinterland (Ifabiyi & Oluwashina, 2011) . The climate, vegetation pattern and forest densities make the state a major hunting area. The state has 16 Local Government Areas (LGA) classified by Agricultural Development project (ADP) into four Agricultural zones, 23 blocks and 184 cells in consonance with ecological characteristics and cultural practices. The zones comprise Zone A (with headquarters at Kaiama), Zone B (with headquarters at Lafiaji), Zone C (with headquarters at Ilorin East) and Zone D (with headquarters at Igbaja). The population for the study comprises of all wildlife hunters in Kwara State, Nigeria. Three stage sampling technique was adopted for the study. The first stage

was a purposive selection of Zone C and D of the ADP zones based on the population of wildlife hunters in that area and the abundance of forest land where hunting activities are carried out. In the second stage, 4 Local Government Areas were randomly selected from each of the selected zones. Lastly, a proportionate sampling technique was used to select the respondents from a list of hunters in each LGAs. Information on the number wildlife hunters in each LGAs was obtained through the assistance of the hunters' association in the area. In the end, a total of 120 respondents were used for the study. Data were collected through personal interview schedule for unlearned respondents and questionnaire for the learned ones. The data elicited were on the information needs of hunters, their current information sources and the obstacles they face to access Information. Descriptive statistics such as precisions counts and percentage were used to describe the data collected, while Pearson product moment correlation was used to test the formulated hypothesis. The information needs of the hunters was assessed using a four-point Likert type scale of Very Highly Required (3), Highly Required (2), Required (1) and Not Required (0) with a cut-off point of 1.5 The accessible information sources were measured using a four-point likert scale of regularly (3), sometimes (2), rarely (1) and Never (0). Also, obstacles faced in accessing information were determined using four-point Likert scale of very severe (3), moderately severe (2), severe (1) and not severe (0).

RESULT AND DISCUSSION

Socioeconomic Characteristics of the Respondents

The data of the figure 2 shows that the average age of the respondent was 39.7 years. According to Oladeji and Thomas (Oladeji & Thomas, 2010), populations within the age group of 31-40 years are productive and energetic enough to take part in toilsome activities as hunting. Considering the Nigerian Youth Policy (Nigeria Youth Policy, 2019) which puts youth to person with age range between 18 and 29, the average age of the respondents therefore shows that they are no longer youths. Adefalu et al. (Adefalu, Aderinoye-Abdulwahab, Akangbe, Ogunlade, & Matanmi, 2013) had identified that the average age of hunters in Kwara State was 27.8 years. With this current finding that the average age of hunters is 39.7 years, it is enough to say that youths are no longer actively involved in hunting in the state. This finding also confirms Layade et al. (Layade, Layade, Kehinde, Alaye, & Jayeoba, 2021), which posited that the age range of hunters in Ido, Oyo State, Nigeria is between 31 and 50 years. Also, available literatures show that only people below the age of 12 are not allowed to hunt in states like, California, Colorado, and Gorgia among others, while states like Florida, Illinois, Hawai put the minimum hunting age to be 16 (Gothunts, 2021). The prevalence of people of about 40 years in hunting activities may be for financial gains owing to the current unemployment situation in the country as identified by Layade et al (Layade, Layade, Kehinde, Alaye, & Jayeoba, 2021).

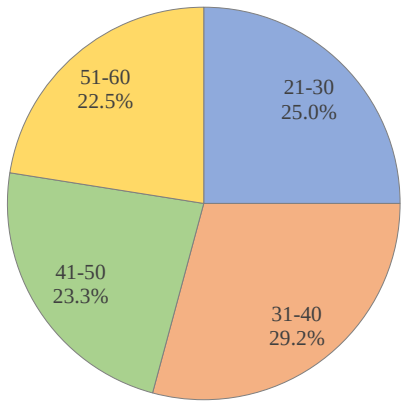

Figure 2. Age of the respondents
Data source: Field Survey, 2019

The result further revealed that all (100%) of the respondents were males. This is very much in line with the findings of Layade et al. (Layade, Layade, Kehinde, Alaye, & Jayeoba, 2021) where 96% of hunters in Ido, Oyo State, Nigeria were men. This is however appropriate for the study because men are known with the responsibilities of taking care of their families and will take on any task to deliver this responsibility even when it is onerous, though, women too according to some studies were highlighted as being partnering with men in hunting (Singh, 2001). Additionally, the result shows that the majority (65.0%) of the hunters were married while 17.5%, 11.7%, and 5.8% were single, separated/divorced and widowed respectively. By this it is obvious that most of them have responsibilities to discharge in their homes (Matanmi, et al., 2015). The majority of respondents being married also confirm Layade et al (Layade, Layade, Kehinde, Alaye, & Jayeoba, 2021), where 84% of the hunters assessed in Oyo State, Nigeria was married.

Figure 3 shows that about 26.7% of the respondents have no formal education while a notable proportion (73.3%) was formally educated. 20.8% had secondary school education, this is not far from the findings of Layade et al. (2021), where only 13% of the hunters identified had no formal education. 35.0% had primary education, and 17.5% had tertiary education). This implies that the hunters have the ability to acquire knowledge when information is made available.

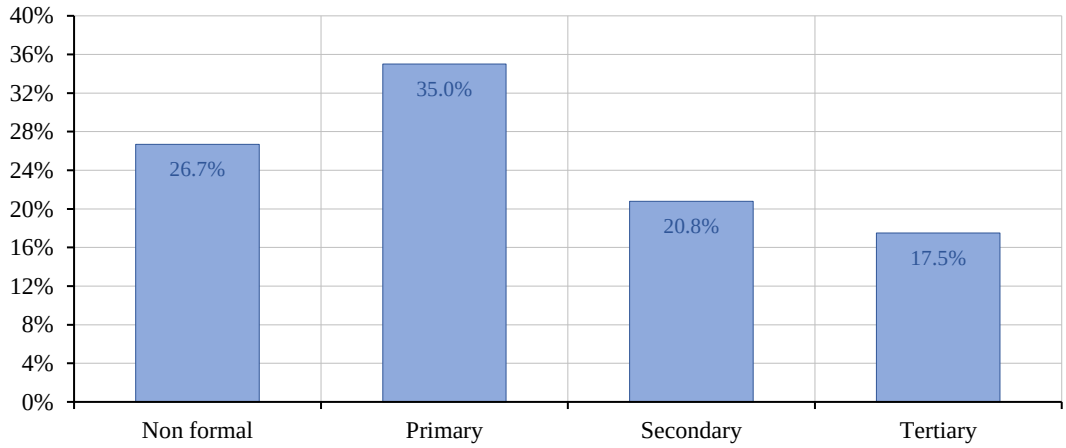

Figure 3. Respondents' level of education
Data source: Field survey 2019

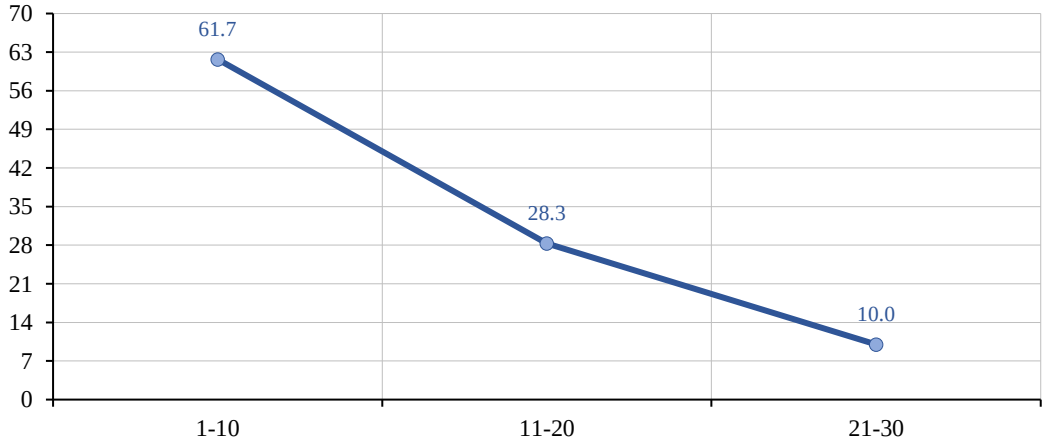

Figure 4. Respondents'hunting experience
Data source: Field Survey, 2019

From figure 4, the mean of the hunters' years of experience was 10.3years, which shows that they are highly experienced in the hunting activities. This may also due to the profitability of the enterprise which ensures it continuance for more than 10 years. Averagely, each of them has a household size of 6 persons. This shows that they are responsible. Being responsible to the family will open more ways to seek means of sustainable livelihood.

Accessible Sources of Information

Table 1 shows a list of information sources on hunting activities and how accessible they have been to the respondents. Hunter' group ranked first as the most accessible source of information with a weighted mean score of 2.48. This implied that hunters get information on where to hunt from their fellow hunters. In Kwara State, each village or rural community has stipulated time when their bush will be hunted, and the information about such is mostly shared from peer to peer as revealed by this study. In some occasions, a calendar of dates for hunting different villages or rural community will be announced in gatherings that precede any hunting activity. Apart from the information gotten from the hunter's group, information is also gotten by consulting older/experienced hunters (2.02). Such kind of information however has to do with issues that bother hunting activities like the mode of engagement in an event of dangerous animals, mentoring on the preparation for a hunt, markets for the game, among others (Layade, Layade, Kehinde, Alaye, & Jayeoba, 2021). Radio takes the 3rd position in the ranking of sources of information of the hunters on hunting activities with mean 1.95. Dedicated Radio program titled *Akinkanju Ode*, meaning "the brave hunter" is being aired on a dedicated day and time of the week. Through this program, hunters who were already aware of this program use the opportunity to listen to announcements, shared experience and skills that may be useful in their hunting activities. Other relatively accessible information sources include television (1.90), which ranked 4th; family and friends (1.83) which ranked 5th, internet (1.68), print media (1.59), and extension agents (0.80) which ranked 6th, 7th and 8th respectively. Rural people will always explore various options to get the information they need per time, and more information will be gotten through the means that is easily accessible to them (Demiryurek, 2010).

Table 1. Distribution of respondents based on level of access to various information sources
Data source: Field survey, 2019

Accessible Sources	Mean Score	Rank
Consulting elders/experienced hunters	2.02	2nd
Hunters' Group	2.48	1st
Family and Friends	1.83	5th
Radio	1.95	3rd
Television	1.90	4th
Internet	1.68	6th
Printed materials (Newspapers, articles, Journals etc)	1.59	7th
Extension agents	0.80	8th

Perceived Information Needs by the Respondents

It is evident from figure 5 that the respondents required all the listed information areas to improve their expedition experience as hunters. Based on needs, information on market situation was regarded as the most required (M = 2.16). The trading of the products of wildlife represents a very important income source the poor (McNamara, et al., 2016), that could be the reason why the information on the situation of wildlife products market ranked 1st. Situation of the market determines the supply of wildlife products, as many hunters will be pushed to more hunting activities having realized the market demands for the products. Fortunately, wildlife products provide a source of livelihoods for the hunters, the traders and the sellers of the products, while it is also an important source of protein both rural and urban consumers of the products. The Games search techniques and ethics ranked 2nd (M = 2.07). This could be due to the fact that anyone can not just go into hunting

without prior mentorship. Friant et et al. (Friant, Paige, & Goldberg, 2015) has identified that hunters are predisposed to different types of risks during hunting activities, among which is the risk of contacting zoonotic disease, and encounter with dangerous animals. This has enhanced the need for the ethics and techniques in search of games. Hunters always seek means to be safe, as coming back home safely is more important than getting the games. Information on hunting location ranked 3rd with mean 1.98. Getting the knowledge of the locations to hunt will bring about necessary preparations that may be needed. Hunters always seek to know where hunting activities will take place so as not to lose the chance of the hunting experience. Information on Safety precaution ranked 4th with mean 1.89, this also is in line with games search techniques and ethics. Awareness of diseases from games and the possibility of brutal attacks by some dangerous animals necessitate the need for information on safety precautions (Friant, Paige, & Goldberg, 2015). Other areas where information are needed by the hunters with less severity were; laws guiding hunting (M = 1.83), weather situation (M = 1.80), processing of captured games (M = 1.68), and types of animal to hunt (1.67), and they ranked 5th, 6th, 7th and 8th respectively.

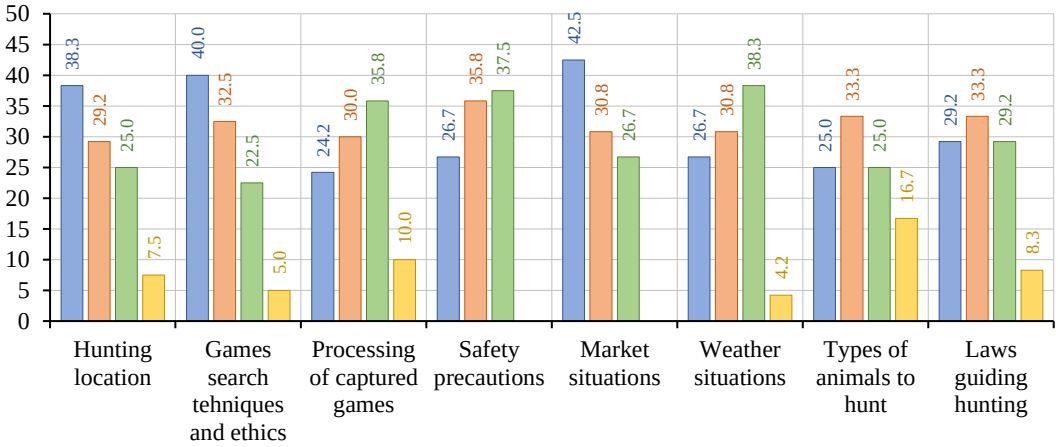

Figure 5. Perceived information need by the respondents
Data source: Field Survey, 2019

Obstacles to accessing Extension Information Source

Figure 6 shows that the most severe obstacle to accessing information from extension source was lack of awareness of the information source (M = 1.96). The importance of the delivery of extension information in a bid to help smallholder farmers to overcome agricultural production challenges or provide better ways of increasing production has been well identified (Antwi-Agyei & Stringer, 2021). Unfortunately, hunters in Kwara State were still not aware of any extension services aimed at helping the hunters. In addition, there is dearth of information on extension information to the hunters, and this may contribute to the lack of its awareness. This was followed by inaccessibility of extension workers by the hunters (M = 1.86). Maulu et al (Maulu, Hasimuna, Mutale, Mphande, & Siankwilimba, 2021) has identified that effective extension programs in the rural areas is crucial in solving many rural problems, extension activities have been greatly affected by myriads of factors that made it inaccessible to the farmers and rural people (Akinnagbe, Ezeuzo, & Onwubuya, 2017). Trust of the information source ranked 3rd, with mean 1.79. This is because, the majority of the hunters were addicted to indigenous knowledge, and they put their trust more on peer to peer information or information from more experienced hunter as revealed above. Other perceived obstacles included doubt on availability of required information (M = 1.75), and distance from home to extension office (M = 1.67). However, Preference for other information sources (M = 1.33), language barrier (M = 1.23) and cultural belief (M = 1.16) were regarded as not severe

obstacles to accessing information from extension source. Issa (Issa, 2010) mentioned that extension service delivery in Nigeria has not met the desired coverage own to the challenges facing it.

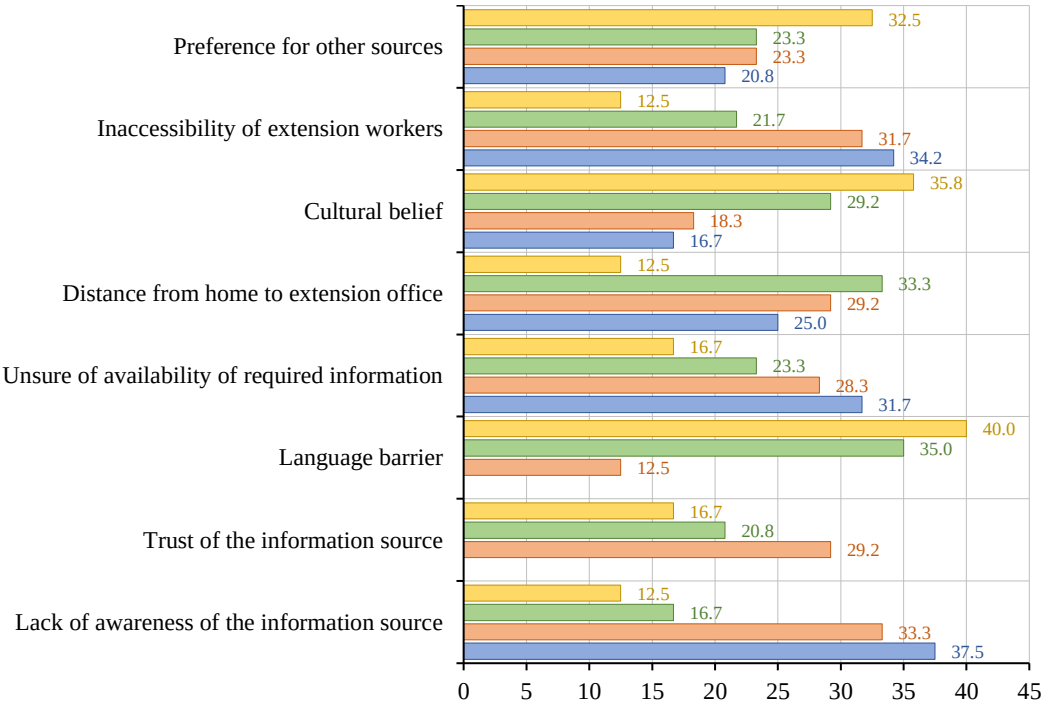

Figure 6. Obstacle to accessing Extension information by the respondents
Data source: Field Survey, 2019

Test of Hypothesis

Table 2 revealed that at 5 percent degree of freedom, age (p = 0.033), level of education (0.010) and years of hunting experience (p = 0.037) shows a significant relationship with information needs of the hunters. This also confirmed Friant et al (2015). However, marital status (p = 0.065) and household size (p = 0.063) were not significant. The negative significance of the age implies that the younger the hunters the more inquisitive they are to acquire new knowledge. Also, the more educated an individual is, the more the chances of wanting more knowledge. In addition, lesser years of experience could prompt enquiries for more knowledge. Adeogun (Adeogun, 2008), had opined that, the younger the farmers the more likely the willingness to spend more time obtaining information on improved technologies compared to the old farmers. Educated farmers can easily access information from various sources, and can be able to generate knowledge out of those sources (Estruk & Oren, 2014). Longer years of experience implied accumulation of knowledge and skill which contributes to utilization of technologies (Namwata, Lwelamira, & Mzirai, 2010).

Table 2. Pearson Product Moment Correlation results of the relationship between Hunters' Socioeconomic Characteristics and their information needs
Data source: Source: Computed from Field data, 2019

Variable	r-value	p-value	Remarks
Age	-0.194	0.033	Significant
Marital status	0.236	0.065	Not significant
Level of Education	-0.357	0,010	Significant
Household size	0.246	0.063	Not significant
Hunting experience	-0.191	0.037	Significant

CONCLUSION AND RECOMMENDATION

With increasing human populations, increasing commercialisation of bush meat and increasing access to the forest, games hunting has become the most significant immediate threat to wildlife in most African countries. Unsustainable levels of hunting threaten not only the survival of hunted species and their ecosystems, but also the livelihoods and food security of the rural poor who are dependent on wildlife as a protein resource. For this reason, educating hunters with requisite information is a significant way forward. Sustainable hunting promises a good source of income to the farmers, in a way that will not destroy the conservation of wildlife. Arising from the foregoing, hunters have needs for information especially in the areas of market situation, games search techniques and ethics as well as hunting locations for wildlife. The quest for information on market situations of products of wildlife hunting due to the growing markets and poverty situation of the country should not be an avenue to uncontrolled hunting which will be a great threat to the ecosystems of the wildlife and food security, since the majority of the majority of rural poor depend on wildlife as a source of protein. Rather, the growing market of wildlife products should be welcomed by proper information and required guide on the need to preserve the forests through sustainable hunting. Also, with the hunters need for games search techniques and ethics, proper guide should be given to the hunters as the hunters in many occasions resort to bush burning to get their games. This in some occasions have resulted to uncontrolled wild fire which has wrecked havoc to many farms, destroyed ecosystems in many countries, and has even led to the loss of lives. With their need for information on hunting locations however, anti-poaching laws should be made known to the hunters in order to avoid hunting in restricted areas. Furthermore, several ways through which hunters always employ to evade arrest and persecution in events of poaching should be identified and made known to the hunters so to enable more consciousness. Also, hunters' lack of awareness of extension information source and inaccessibility of extension workers were identified as the most severe obstacles to accessing extension information. Though the hunters prefer getting information from their group members and more experienced hunters, this may be due to their lack of awareness of extension information on wildlife and inaccessibility of the available ones. Based on these results, agricultural development programme should dedicate an extension department to service wildlife hunters. This will however be very instrumental in addressing several issues that has roots in lack of awareness of laws guiding hunting, ethics in search of games, safety of the hunters, information on hunting locations, and the need for sustainable hunting

IMPLICATION FOR EXTENSION

To transform wildlife hunting in Nigeria, positioning extension as the driving wheel is essential. It is a well-known fact that agricultural extension is an important service for assisting the rural poor to enhance their livelihoods. Anticipated outcomes of agricultural extension service delivery in improving rural lives is yet to be attained. This is mainly due to the fact that public extension service, which is the only way in Nigeria, has not maximized the full potentials of rural areas. It has been noted that public extension service is geared towards crop and livestock production, paying almost no attention to wildlife hunting and management. In a growing climate of polarized thinking about hunting, especially with the increasing demands that hunters be ethical, developing an understanding of the role of hunters' education is vital. Hunting when unregulated may reduce wildlife populations below the environmental carrying capacity and change the behaviour of wildlife. When regulated wildlife could tremendously impact rural livelihood and add values to agricultural sector of the country. To this end, the agricultural extension experts, practitioners, and promoters could play significant roles. Agricultural extension workers, who are major promoter of the knowledge and technology transfer, should be well equipped with communication and demonstration skills to implement the task of hunters' education in most effective ways. Effectiveness, efficiency and quality of agricultural extension service provision are mainly a function of the competency of professionals in terms of the required knowledge, skills and attitudes. Technical and communication skills are paramount for promotion and dissemination of information

Aknowlegments

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ENVIRONMENTAL CITIZENSHIP FOR THE RATIONAL MANAGEMENT OF HOUSEHOLD AND SIMILAR WASTE IN THE CITY OF BEJAIA, ALGÉRIA (REPORT AND LIMITS)

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Abstract: The problematic of rational management of household and similar wasteis a responsibility shared between all the actors of the city. The citizen or user has a great contribution in the success of this management. This by contribution to the realization of their duty and right in the collection of household and similar waste (HSW). The objective of this study is to examine the degree of enrollment of environmental citizenship in relation to the management of (HSW) in the collection and pre-collection phase in the city of Bejaia. The amount of waste generated in this city continues to increase (0.84 Kg/d /Inhabitant), with a daily tonnage which reaches 191 tonnes. These quantities of household waste produced and thrown away daily appear dispersed and scattered randomly in the sectors of the city. This observation reflects the negative behavior of the inhabitants, and has caused several consequences on the living environment, and on the tourist vocation of the city in general. This does not allow the city to play its functionality and represents a discomfort in front of all users, and particularly a failure in front of the actors of this city. Resorting to the implementation of shared management will allow the city of Bejaia to strengthen the level of environmental citizenship. Thus, correct the level of offset in the collection phase.

Key words: environmental citizenship, rational waste management, user, living environment, city of Bejaia

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INTRODUCTION

The evolution of consumption patterns and the limits inherent in our living space have become more pressing. Over time, the issue of waste has become increasingly problematic in particular because of its considerableincrease.Today, the discoure on the issue of waste management

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proves significant and takes the first places in terms of challenge for cities.This for two fundamental reasons, the first concerns ecological questions; it is a question of knowing how to atrophy the negative impacts on the environment and on the quality of life of citizens.The second reason is purely economic related to the registration of a circular economy in the field of management of household and similar waste. The recourse of integrated waste management can help meet these two challenges, leading to a less fragile environment and considerable economic development.

A lot of actors are involved in waste management. They are involved in whole or in part, from the design and marketing of a product until its elimination. As a consumer, discarder, household waste collection user, and recyclable waste sorter, citizen or taxpayer, everyone can and must be an actor in better waste management. Each actor responsible for playing his role appropriately position in order to better realize effective management. The citizen is an essential factor in the waste management chain. His role begins in the pre-collection phase of household and similar waste. It can contribute to efficient collection on the one hand, on the other hand it can register inefficient collection by his behavior. The organization of collection can be greatly facilitated if the pre-collection is well designed Pre-collection or private collection of household waste includes all of the waste disposal operations from their place of production (housing) to pick-up location by a public collection service. This article examines this aspect from the angle of environmental citizenship.

For better approach the vision on the problematic of environmental citizenship and its relation to the registration of a relevant pre-collection of household waste, we have opted for the example of Bejaia City .A city known by its growing population and high density.Which have influenced the production of daily quantities of household waste.With the appearance of new materials and the overall change in consumption patterns; the composition of household and similar waste of Bejaia's inhabitants has also changed.

The citizen is a direct generator of waste, but also responsible for its disposal in places designated by the collection service. However, in the city of Bejaia, household and similar waste are scattered and dispersed in public spaces and not deposited in their own recommended places (in the reserved garbage bins). This observation has a negative influence on the living environment and the image of the city mainly when it is a tourist city. This situation affects the smooth running of the collection phase.

The success of the pre-collection of household and similar waste actually depends on the nature of the daily practices of the inhabitants (environmental citizenship). The inhabitants have the absolute responsibility of integration in the program underlined by the service of removal of household and similar waste in terms of collection through the respect of the schedules of taking out their household garbage and the deposit of this garbage in the places designated by the concerned departments.

DEFINITION OF ENVIRONMENTAL CITIZENSHIP OR ECO-CITIZENSHIP

The concept of eco-citizenship was born in Western countries at the end of the 1970s and became popular with the United Nations Summit on Sustainable Development in Rio in 1992.

This concept focuses on the need for individuals to have responsible actions and behaviors both in relation to their place of life and to their fellow human beings, especially future generations.

According to Ghandi, being an eco-citizen is "to live simply so that others can live".

According to Larousse, eco-citizenship is an individual or collective behavior consisting in observing the principles and rules intended to preserve the environment (Larousse, 2021).

Along with this definition of eco-citizenship, the notion of "responsible consumption" quickly appears.

"Responsible consumption is about giving an ethical sense and social utility to the act of buying. The consumer must become a "consumer", that means he shoud have a thoughtful purchasing process: he must no longer be passive in his act of consumption" (Vedura, 2021).

Thus, the basic principle of responsible consumption is to consume only if it is really necessary.

ENVIRONMENTAL CITIZENSHIP AND THE PRE-COLLECTION OF HOUSEHOLD AND SIMILAR WASTE: WHAT IS THE RELATIONSHIP?

The severity of the problem of waste can vary and cause more significant impacts.That is why we must strive to consolidate environmental citizenship in urban areas.So that its integration takes place above all at the individual level Environmental citizenship is in a relationship compatible with the rational management of waste so that it contributes to the success of the various waste collection channels, in particular the pre-collection which starts from the private space (apartment).Some of them are inhabitants who have a high level of compulsory exercise of their environmental citizenship, and this aims to build their living environment.

Today, the increasing quantities of household and similar waste have dispersed in urban areas. These quantities caused odors and visual pollution. Thus, they put the image of the city in degradation. The citizen with his practices participated negatively to all observed effects, is considered the primary responsibility on this finding (increasing the dispersion of waste).

In order to have better disposal of these quantities of household and similar waste to their final destination, appropriate waste management should be highlighted. The organization of the pre-collection of household and similar waste is a constant connection with the practices reported by the user (resident, trader tourist…) The citizen who does not manage to take out his waste within the determined hours, he has no worries about his environment, he throws his waste away from the reserved bins, all these practices do not allow an effective pre-collection.

The relationship between environmental citizenship and the efficient pre-collection of household and similar waste is relatively correlated. It includs the level of responsibility of the inhabitant in ensuring that public spaces are healthy.

Secondly; environmental citizenship is always related to the living environment and quality of life of the inhabitants and marks an inseparable correlation and that from environmental citizenship we can consider and improve the living environment of citizens and put it back at the service ofan acceptable and relevant lifestyle. To this end we refer to all the reports that have initiated this notion.

Cutter, for example, defines it as “individual happiness or satisfaction with life and environment, including needs and wants, aspirations, preferred lifestyle and other tangible factors” (Cutter, 1985).

Schwab on the other hand sees that the quality of life does not understand only on the individual well-being but it extends to the collective objective conditions of the individuals, of which Schwab proposes that the quality of life “... is the difference between whatshould be and what is in a community; the difference between the goal and the evaluation, the measurement of the quality of life requires the analysis of the objective conditions, as well as the subjective evaluation of these conditions in a given place and their comparison between several places” (Bates, Murdie, & Rhyne, 1996).

On the other hand, Mc Dowell and Newell affirm that the quality of life is an inseparable combination between material opportunities and the feelings of individuals: They suggest that it refers to “the adequacy between the material circumstances and the feelings of the individuals in relation to these circumstances” (Renwick, Brown, & Nagler, 1996).

The protection of environement is the most factors in the dévelopment of tourisme (Sonko & Deac, 2020). But it is not enough but citenzenship is also a key to make a city more attractive.

THE ENVIRONMENT OF BEJAIA CITY

With regard to the Algerian cities, the city of Bejaia manifests itself as a banner city, known for its tourist vocation, it has an environment which presents itself as a remarkable natural heritage (the national park of Gouraya, the lake of mezaia which comes to the heart of the city). It occupies a fairly growing population of around 190,181 inhabitants totaling all the municipality of Bejaia until the year of 2019 (Figure 1) (Monographie of City of Béjaia, 2010).

One of the factors that allows the city to play its tourist vocation is accessibility, it has benefited from the following four national roads (Béjaia City Administration, 2010):

- the NR 09 linking it to Sétif;

- the NR 12 connecting it to Algiers Passing by Tizi-Ouzou;
- the NR 26 along the Soummam valley connecting it to Brouira where it joins the RN 05;
- the NR 24 connecting it to the wilaya of Algiers by the coast.

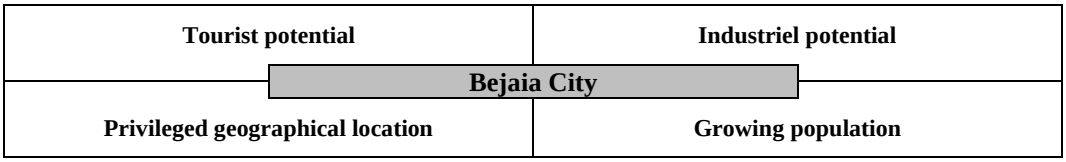

Figure 1. The characteristics of Bejaia City
(Source: Authors, 2021)

The population of the city of Bejaia has changed considerably. It estimated in the end of 2019 190,181 Inhabitants (National Office of Statistics, 2019). In 2008 it estimated a 177,998 inhabitants (National Office of Statistics, 2008), So the population of the municipality of Bejaia has evolved considerably, with an absolute increase of about 12,193 inhabitants and an increase rate of around 2.65%, The population density is 1,546.18 inhabitants per km (National Office of Statistics, 2015).

The distribution of the population shows that 98.90% of the inhabitants live within the perimeter of the capital of the municipality, 0.26% in the secondary agglomerations.

The presentation of the set of characteristics of the city of Bejaia is based on the analysis by the SWOT method (assets, strengths, opportunities, weakness, and threats). This analysis allows us to bring out a series of issues concerning the city of Bejaia, thus, it will allow us to give several assessments that will be useful to take them into consideration, to point out the negative impacts on the living environment of citizens.

A summary table includes all the elements of this analysis are as follows (table 1):

Table 1. The city of Bejaia and its diversity: SWOT analysis
(Data source: (Béjaia City Administration, 2021) and authors' contribution)

Strengths (internal)	**Weaknesses (internal)**
- **Strength 1**: La situation stratégique et privilégiée (un paysage naturel plus côtier) - **Strength 2**: La présence d'un véritable centre-ville, identifiable et reconnu par ses habitants avec un grand parc de logements, de nombreux services, des équipements situés de manière équitable. - **Strength 3**: Proximité d'un port et de l'aéroport (à quelques minutes) - **Strength 4**: un patrimoine naturel (la mer) et un patrimoine historique important (la vieille ville). - **Strength 5**: Une large gamme d'hôtels. - **Strength 6**: Nombreuses ressources naturelles et grande diversité écologique et paysagère. • Population de plus en plus sensibilisée au thème de la protection de l'environnement, à travers la présence d'une multitude d'associations pour la protection de lenvironement/	- **Weakness 1**: The perimeter is entirely saturated and urbanized, so it is difficult to intervene in the urban fabric. - **Weakness 2**: An industrial zone which occupies a large part of the urban fabric (342 ha), which represents a cut in the sprawl of the city center, a door zone which results from harmful effects on the environment. - **Weakness 3**: Centralized management which slows down local development in the city center. - **Weakness 4**: The location of the stadium in the heart of the city center shows strong co-management. - **Weakness 5**: Lack of know-how in the valuation and economy of heritage, - **Weakness 6**: Degradation of historical and cultural sites. - **Weakness 7**: appearance of quantities of uncollected waste scattered throughout the city.
Opportunities (external)	**Threats (external)**
- **Opportunity 1**: Beginning of the highway east-west (03 lanes) which link Bejaia and Algiers, which will make the city of Bejaia more attractive and economical. - **Opportunity 2:** Important land bases will support the overload (hypertrophy) of downtown Bejaia by the commune of Oued Ghir. - **Opportunity 3**: **A** great possibility of relocation of the industrial zone to the municipality of EL-Kseur (municipality of a commercial sale) reported to PADU 2010.	- **Threat 1 :** Bad watersheds Controlled causes flooding (oued Soummam). - **Threat 2:** A significant number of newcomers from neighboring municipalities, who want to build spontaneously and illegally. - **Threat 3:** The centralization of large-scale equipment forces neighboring citizens to move hundreds of kilometers, which causes congestion in the heart of the city. - The little-used local resources.

MANAGEMENT OF HOUSEHOLD AND SIMILAR WASTE IN THE CITY OF BEJAIA: WHAT IS THE CONCLUSION?

The accelerated urbanization, population concentration and economic development are factors that have amplified the production and deposit of urban waste. The problem of waste leads to an urban crisis, and represents a major challenge for the technical and administrative services by creating a certain dysfunction in the cities. According to the National Waste Agency: 12 million tonnes is the volume of household and similar waste at the national level in 2016 (Algerian National Waste Management Strategy, 2016).

The city of Bejaia, like other Algerian cities, suffers from the degradation of its environment. This situation has resulted in large part by the narrow waste disposal. High quantities generated without effective management have caused negative impacts on the urban environment (living environment) which has become of great concern in the city (Algerian National Waste Management Strategy, 2019).

The city of Bejaia is faced with; quantities of waste generated which continue to increase (0.84 kg/d/Inhabitant) and which represents 191 tonnes per day (Bejaia Waste Management, 2020). This observation constitutes an element which does not allow the city to play its functions; it has a negative influence on the well-being of users. Waste management presents itself as a failure in the eyes of city actors, who have failed to boost the local development in the city and put its tourist vocation in decline.

The issue of adequate management of household and similar waste is often mentioned in the city's good orders. It comes down to all the effects caused by this type of waste. Despite the wealth of the waste management policy and the regulatory framework in particular (Law N°. 01-19 of 12 December 2001 related to the management, control and disposal of waste on the management and control of waste) which represents a common thread for authorities (Algerian Ministry of Environment and Renewable Energy, 2020). However, at the organizational level, its implementation remains less applicable. Restricted management which sets aside the citizen (user). This latter, represents one of the keys players in the rational management of household and similar waste; It can help build a healthy living environment.

At the level of the city of Bejaia, the success of the management of household and similar waste focuses on the contribution recorded on the part of the citizens of the city of Bejaia. In other words, it reflects the nature of the environmental citizenship of the inhabitants. Based on this citizen report in achieving effective or ineffective management. Therefore, we opt to analyze the effects observed in the city of Bejaia in terms of household and similar waste; we report the daily practices of citizens towards the quantities of household waste generated per day. Thus, to measure the impact of all these practices on the living environment.

In order to identify the reality of environmental citizenship in the city of Bejaia and its role in ensuring adequate management of household and similar waste. We opted for a field survey among citizens of the city of Bejaia. This survey allows us to understand their opinions as well, to highlight all the acts noted in the management of household and similar waste in the city of Bejaia, in particular at the level of pre-collection and waste collection.

Therefore, we tried to treat the report of environmental citizenship in the management of household and similar waste (HSW) through a set of elements that are related to the usual practices of citizens in terms of management of (HSW) at the stage of pre-collection and collection and which led to the negative effects observed in the town of Bejaia.

THE FREQUENCY (HOURS) EXIT (HSW) FROM THE TOWN OF BEJAIA

In the logic of the collection of (HSW) citizens have a reasonable degree to throw (frequency of taking out the garbage) their quantities of waste generated in the reserved spaces (bins) in all the operations of the pre-collection. The collection of household waste by citizens must be fully coordinated with the schedules of the collection service. Obtaining the assurance of this coordination expresses the degree of environmental citizenship of the inhabitants.

Concerning the frequency and the output schedules (HSW) by the inhabitants of the town of Bejaia is estimated to approximately 61.29% of the inhabitants are out waste every day. This value represents the total average of the city. This witness has given special attention to the production of waste deposit in the city of Bejaia. Having this relatively high frequency (61.29% each day) will push us to think about the adequate collection of these generated quantities or their outputs by the inhabitants themselves. Thus, to ask the question on the relationship between this output frequency of (HSW) and the means used (number of rotations) by the cleaning center of the municipality of Bejaia in the collection. Secondly, there is a category of 28.54% of the inhabitants of the city of Bejaia take out their waste every two days, this finding remains worrying and does not give the collection phase a good function (Figure 2).

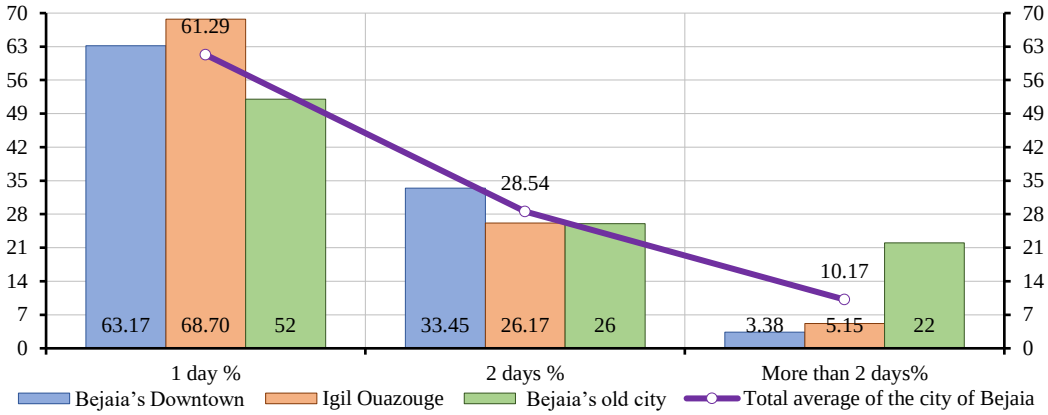

Figure 2. The frequency (hours) exit (HSW) from the town of Bejaia
(Source**:** authors, field survey, 2021)

The reason behind this high frequency is that cleanliness among residents is concentrated at the apartment level; without thinking about the cleanliness of the outside of the building. This observation led us to record the question of the cleanliness of the common space in the city of Bejaia. It appears narrow and is not in the service of a healthy living environmen.

RATE OF COMPLIANCE WITH WASTE (HSW) OUTPUT SCHEDULESFROM THE TOWN OF BEJAIA

In the issue of management of (HSW) a good collection can facilitate the phase of transport of the waste, thus registering a better disposal towards the final destination. The citizen can be an effective contributor who can make a certain degree of success in the collection of household and similar waste in his neighborhood or in his sector. This success lies in the respect by all the inhabitants of the exit times of their waste and to put it in the places kept for collection. This practice should be done almost at the pre-collection level. In the city of Bejaia and during the survey carried out in the field, a rate of 51.47% deplores the non-respect of the unloading schedules of household and similar waste on the part of the inhabitants (Figure 3). This observation is absolutely recorded in commercial and craft activities. All traders do not have a specific deadline for disposing of their waste (cardboard boxes in particular) and have made a considerable gap with the deadlines for the collection service. As a result, this practice always caused overflows in the trash cans and they always seemed full. These practices have resulted in visual pollution in the city.

At this stage of analysis, the collection of household and similar waste is not only based on the operation of an adequate collection plan by the cleaning center of the municipality of Bejaia, but indeed on the degree of respect for residents of their waste exit schedules. Strictly at the pre-collection level.

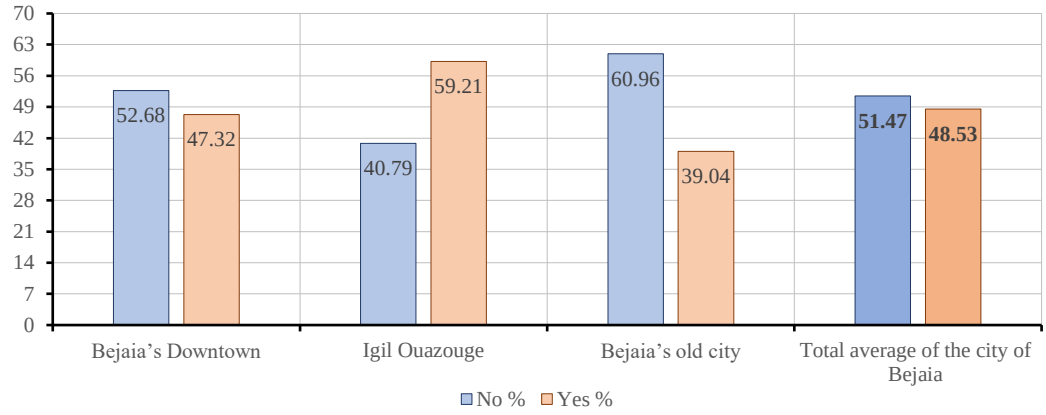

Figure 3. Rate of compliance with household waste disposal schedules
(Source**:** Authors, field survey, 2021)

The success of the household and similar waste collection phase has a strong correlation with the respect of waste exit schedules on the part of the inhabitants of the city of Bejaia.So we see that the pre-collection operation is not limited to the exit of household and similar waste, but indeed to show a certain respect for exit times.

THE QUANTITY OF HOUSEHOLD AND SIMILAR WASTE PRODUCED PER DAY FROM THE TOWN OF BEJAIA

The report of the production of household and similar waste in the city of Bejaia is presented in three categories. A category that produces less than one (-1 kg) per inhabitant per day (-1 kg/ inhabitant/day) represented on the diagram with a rate of 46.43% as the total city average. This shows that the city of Bejaia is approximately in the national average of the country (0.8 kg/d/inhabitant) (Algerian National Waste Management Strategy, 2020) (Figure 4).

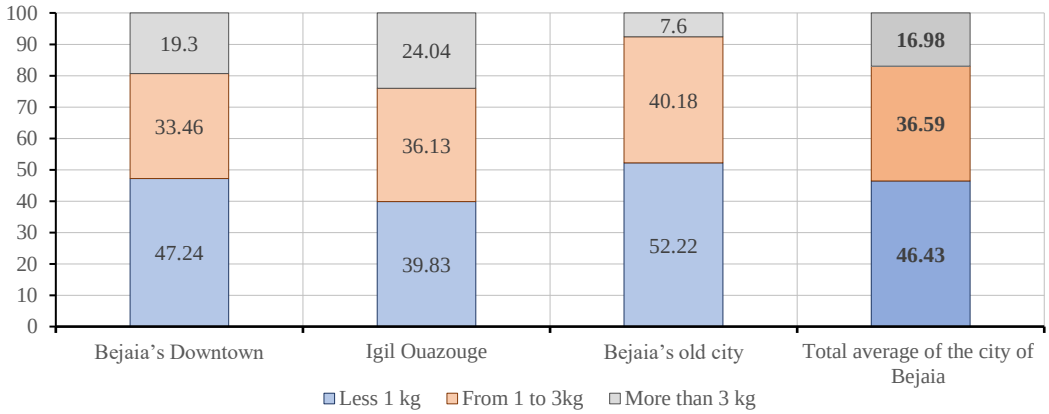

Figure 4. The amount of householdwaste produced per day
(Source**:** Authors, field survey, 2021)

The ratio of the production of household and similar waste in the city of Bejaia is relatively influenced by a set of factors, of which we summarize:

Population density by sector; this is the case for the area of igil ouzaough which has a high population density:

- Household income, which influences the consumption pattern and the quantities of household and similar waste per household;
- The vocation of the city of Bejaia, as being a tourist city, household and similar waste can have extreme productions during the summer periods.

The determination of the quantity generated per day per inhabitant per kilogram in the city of Bejaia, plays a considerable role in the design of a collection plan by the authorties responsible for the collection of household and similar waste. When the authorities responsible for the collection of household and similar waste have a perception of the sectors which have a high frequency of waste exits on the part of the inhabitants (every day). They will arrive at a reasonable distribution of material and human resources for each sector.

THE COMPOSITION OF (HSW) GENERATED FROM THE TOWN OF BEJAIA

In the logic of the management of household and similar waste, knowledge of the composition and characterization of the household waste generated is considered an essential step. It allows a better classification of waste to be buried, incinerated or reclaimed and composted which are of economic interest. The diagram (figure 5) represents the rates of the composition of household and similar waste in the city of Bejaia through the three sectors taken into consideration:

- In first position comes the organic matter which is majority in the composition of household and similar waste with a rate of 51.38%. This comes down to the consumption mode of the inhabitants;
- In the second position of composition of household and similar waste in the city of Bejaia is plastic with a rate of 23.87% (product packaging).

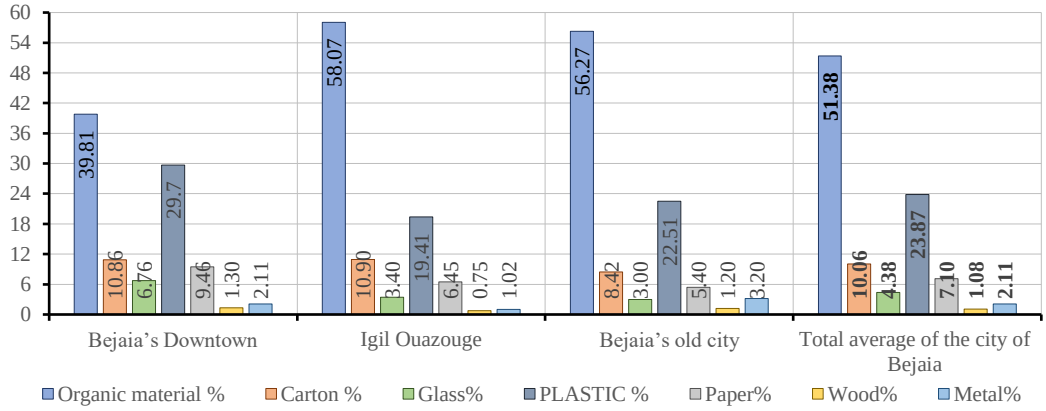

Figure 5. The composition of (HSW) generated from the town of Bejaia
(Source**:** Authors, field survey, 2021)

Having a relatively dominant rate of organic matter in the composition of household and similar waste in the city of Bejaia, prompts us to reflect on the final destination of this type of household waste. In the city of Bejaia, all of the (HSW) produced are evacuated to the wild landfill at the seaside (boulimat) and they have put intoxication in less healthy fragility. To this end, residents are responsible for recording this finding.

THE LOCATION OF THE GARBAGE BINS HSW FROM THE TOWN OF BEJAIA:

The collection of household and similar waste depends on the mobilization of material resources. It includes all the pre-collection equipments installed in the residents' residences (garbage bins). The location of the garbage collection bins can help control collection operation that is why it

was necessary to find suitable locations to place these bins in accordance with the needs of citizens. As a result, we can achieve efficient pre-collection of waste.

The results of the survey led us to classify and present the different opinions of the inhabitants of the city of Bejaia, and gave us an overview of the extent and level of their satisfaction with the disposal of the garbage bins of the waste in residential areas. The results are shown in the diagram (figure 6). The city of Bejaia's total average for the location of the garbage bins across the city is presented by a rate of 60.72% of the population satisfied with the location of the garbage bins throughout the city. In contrast, a rate of 39.27% of residents are not satisfied with the location of the garbage bins and do not respond to effective pre-collection of waste according to them. Most are citizens who are engaged in commercial activities. They consider that the garbage bins are far from their place of exercise (figure 8).

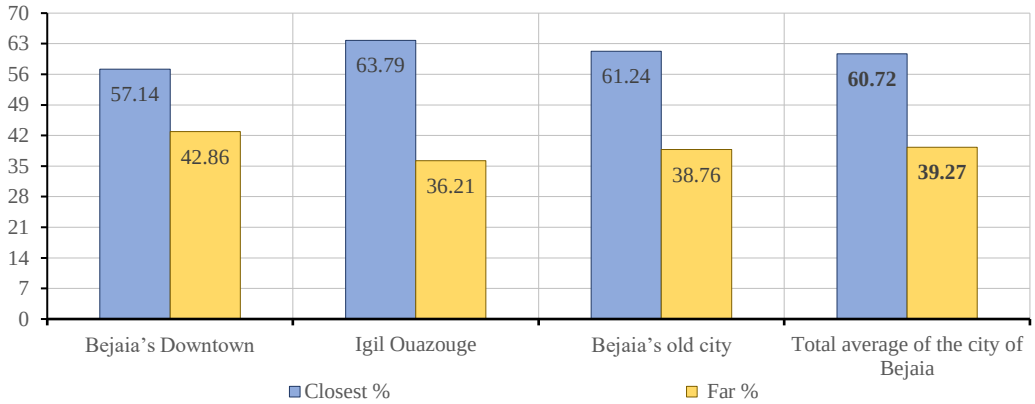

Figure 6. The location of the garbage bins HSW
(Source**:** Authors, field survey, 2021)

Figure 7. Waste from commercial activities not disposed of in installed bins
(Source**:** Authors, 2021)

ANARCHIC SCATTERING OF HOUSEHOLD AND SIMILARWASTE ACROSS THE CITY OF BEJAIA

Citizens by nature want a clean living environment that is unaffected by various environmental impacts. But absolutely no one wants to accept that dispersionwaste throughout the city is the result of the (practical) behavior of each user of the city (citizens, inhabitants, tourists, traders). Household appliances in neighborhoods are considered to be an influencing factor and have multiple consequences on the living environment. The citizen with his different behaviors and

practices contributes to the dispersion of this waste and causes pollution. By this behavior, he harms the image of the city. Therefore, in order to underline this phenomenon of random diffusion and to determine its different effects, we have mentioned this problem in the city of Bejaia.

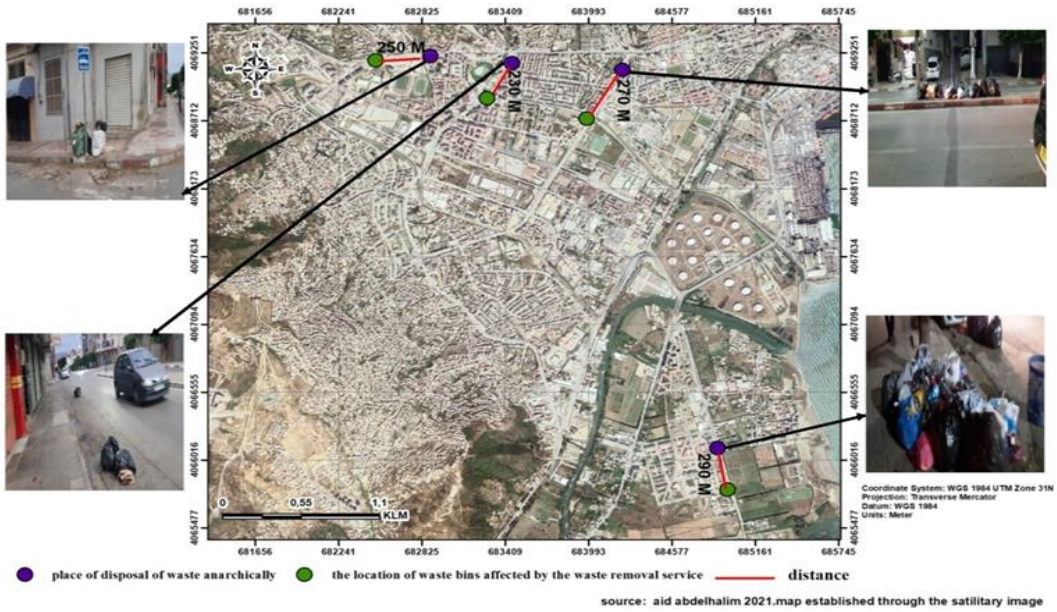

Figure 8. Impact of the inadequate location of the bins
on the uncontrolled discharge of waste in the city of Bejaia.
(Source**:** aid abdehalim 2021.map establishes through the satilitary image and authors' contribution)

The inhabitants of this city declared that this phenomenon is presented by severity and does not serve to make the well being of the people in the city. This severity is presented by a rate of 55.34% comes as a total average for the city of Bejaia (Figure 9).

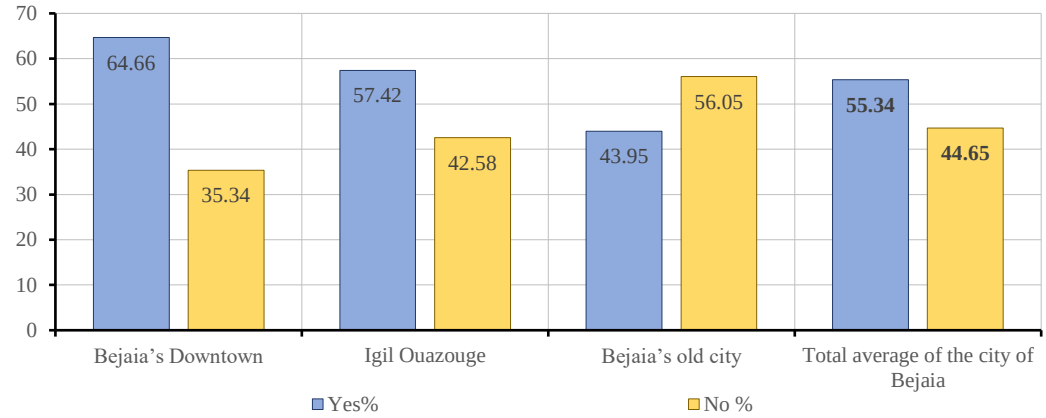

Figure 9. Citizens' opinions on the scattering of household and similar waste in the city of Bejaia
(Source**:** authors, field survey, 2021)

Faced with this alarming observation, a set of behind factors resulted from this scattering of household and similar waste in the city of Bejaia. Of which it has been recorded: that the dispersion of waste caused by:

- The use of fast food in all of the city's boulevards and especially at bus stops and at the bus station observed among all users.
- The considerable attractiveness of the city for users.
- Lack of respect for the household and similar waste exit schedules of a certain number of city residents (uncivil practices of individuals).
- The schedules of the exit of waste resulting from commercial activities which make a considerable difference contributed to register this mediocre image of the city.
- Having discrepancies in the collection from the cleaning center of the municipality of Bejaia almost contributes to the appearance of the phenomenon of scattering of household and similar waste in the city.

Therefore, in order to reduce the severity of random waste scattering, it is recommended that citizens change their behavior.

Figure 10. Spreading HSW through the city of Bejaia
(Source**:** authors, 2021)

FACTORS OF HSW SCATTERING ACROSS THE CITY OF BEJAIA:

The random scattering of waste in the city cannot be limited to single factor urbanization and the behavior of citizens, but there are other factors that cannot be overlooked such as the method of waste management by the authorities concerned.

A set of factors behind the scattering of household and similar waste in the city of Bejaia.In order to better classify all of these factors, we opted to have the opinions of the inhabitants of the city, the results of which we have in the diagram (Figure 11)

- A rate of 46.45% of the inhabitants of the city of Bejaia declared that the scattering of household and similar waste is a result of a lack of civility of certain users noticed in the operation of the pre-collection, and the principle of the cleanliness of the external environments and in common is less affirmed;
- Secondly some residents have questioned the deficit recorded in the agency responsible for the management of household and similar waste; the testimony came to 30.36% of total residents.

Therefore, the reality is that we are faced with a conflict of a citizen or user who will play their right and duty in terms of the management of household and similar waste in the city of Bejaia. We need a resident who respects the rules of the environment and a healthy living environment. The assurance of this challenge lies in the empowerment of citizens towards their duties. Thus, and the promotion of citizen behavior through awareness, information, and involvement. However, as part against the agencies responsible for management have the responsibility to ensure a certain level of cleanliness in the city of Bejaia; by implementing effective management of household and similar waste and putting an end to all the discrepancies observed.

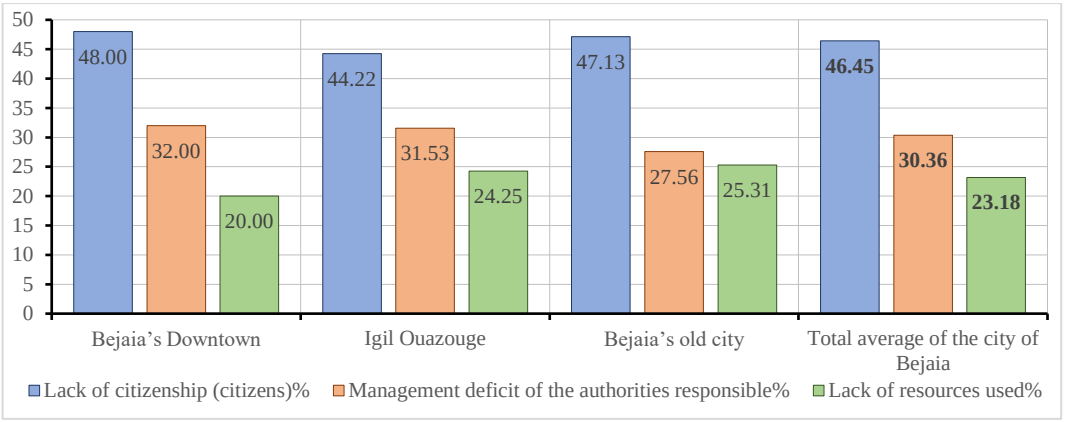

Figure 11. Factors of HSW scattering across the city of Bejaia
(Source**:** authors, field survey, 2021)

Figure 12. Dispersion of household and similar waste in view of all inhabitants in the city of Bejaia
(Source**:** authors, 2021)

THE CONSEQUENCES OF SCATTERING WASTE THROUGHOUT THE CITY OF BEJAIA

Several urban facts have the degree of impact on recording progress or creating gaps in the city. The problem of the management of household and similar waste plays a large part in the achievement of this progress in the city and contributes massively in the construction of the image of the city (tourism promotion) this comes back to setting up a rational management of household and similar waste. However, other cities suffer from the problem of household and similar waste management and are experiencing poor results.

A result of a management deficit. In this present study, we have analyzed the impacts of the poor management of household and similar waste in the city of Bejaia, through the analysis the consequences of dispersion and accumulation waste. All the inhabitants of Bejaia City deplored that poor waste management has a negative impact on their living environment.

This observation, confirmed by a rate of 46.2%, comes from a total city average over their various sectors Another considerable part of the population of the city of Bejaia declared that the poor management of household and similar waste has repercussions on the tourist vocation of the city represented by a rate of 35.89% of the total inhabitants of the city. Of which, they focused on the wild landfill of Boulimat which is located by the sea and on a site classified as a tourist site (figure 13).

At this level of analysis, we see that the living environment and the tourist vocation of the city of Bejaia are less secure and call for their development. The shared management of household and similar waste in the city of Bejaia can revitalize the tourist vocation of the city and mark an acceptable living environment. The shared management in the management of household and similar waste resides on the encouragement of the associative movement in order to record the notable behaviors of the inhabitants, thus resides on the widening level of responsibility of the organizations responsible for the management of households and similar waste in the city of Bejaia, and correct the level of mismatch in management.

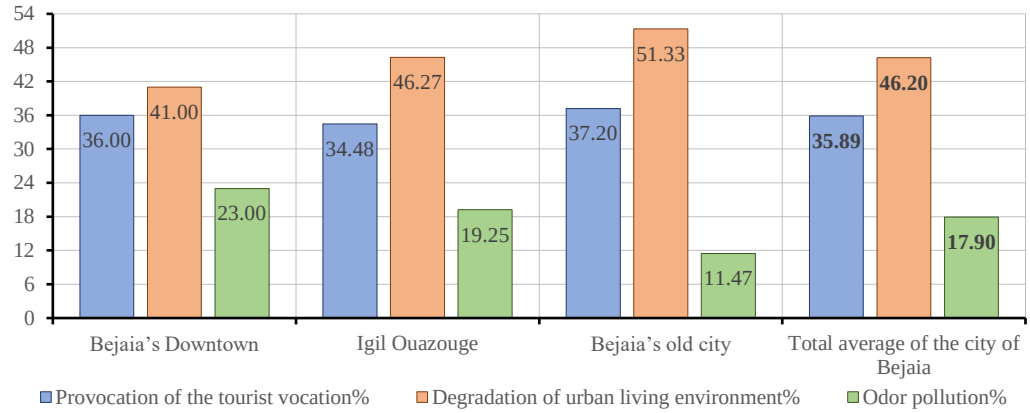

Figure 13. The consequences of scattering waste throughout the city of Bejaia
(Source**:** authors, field survey, 2021)

Figure 14. The considerable effects of waste on the living conditions of theinhabitants of the cityof Bejaia
(Source**:** authors, 2021)

TOWARDS THE INTEGRATION OF PARTICIPATORY LOCAL MANAGEMENT IN THE CITY OF BEJAIA

The worrying record of environmental citizenship in the city of Bejaia in terms of the management of household and similar waste has prompted us to integrate participatory local management. This approach will focus on collaborative work between the inhabitants of the city of Bejaia, thus, working on the inclusive involvement of the citizen in all management actions. This approach will train us to register for rational waste management, thus addressing a certain level of ecological and economic resilience (figure 15).

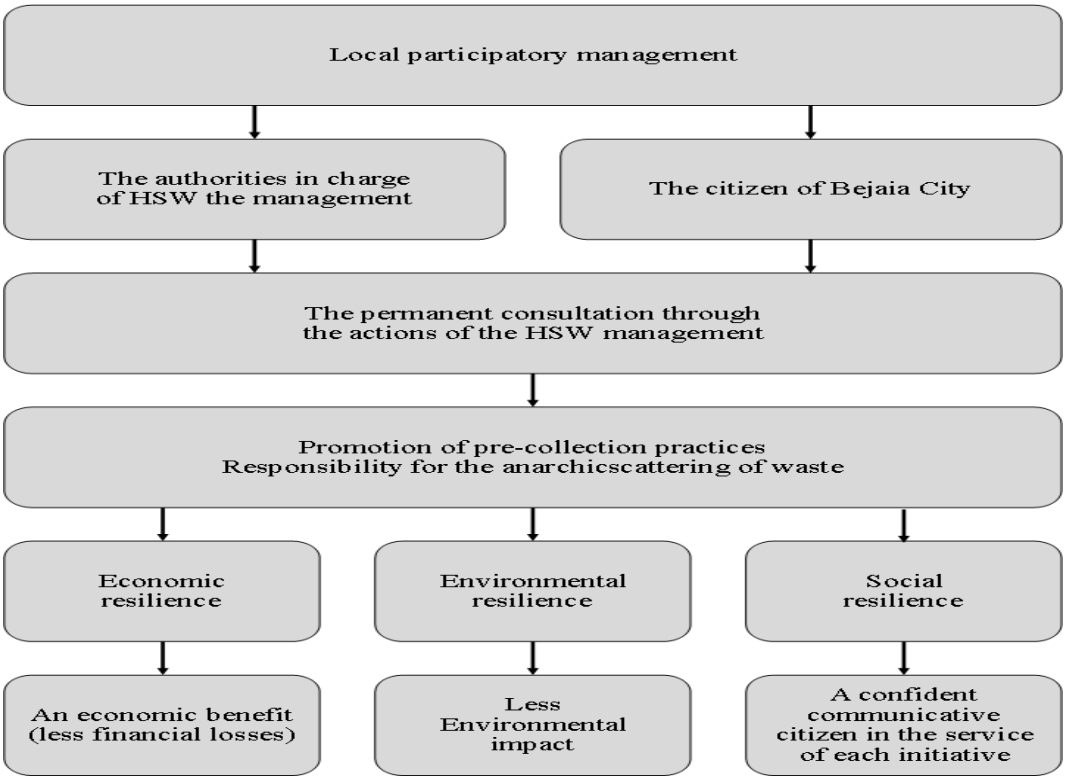

Figure 15. Integration methodology of environmental citizenship into the management of HWS in the city of Béjaia
(Source: Authors, 2021)

CONCLUSION

The problematic of household and similar waste management remains an absolute priority for the inhabitants of the city of Bejaia.But also a responsibility to be highlighted between all the users of this territory (the city of Béjaia).

To this end, this study came to present the reality of the management of household and similar waste in the city of Bejaia; we based on the presentation of the level of environmental citizenship of the inhabitants between rights and duties. The citizen, who has a right to a healthy living environment that is less polluted, has a responsibility to contribute to building the image of his city and the well-being of social groups in the city of Béjaia.

The observation of the city of Bejaia in terms of the management of household and similar waste led us to record several observed effects and declared that environmental citizenship is less expressed and remains restricted. This by contributing to the anarchic scattering of household and similar waste across all sectors of the city. A result of the inadequacies and practices recorded in the inefficient operations of the pre-collette as well, a management deficit on the part of the authorities responsible for the management of household and similar waste has accentuated the situation in the city of Béjaia. The consequences of the absence of a rational management influence firstly on the living environment of the inhabitants, secondly, it offends the tourist vocation of the city of Béjaia.

To this end, the results of the investigation allow us to put a result of this worrying situation. We opted for the integration of management shared between the citizen and the agency responsible for the management of household and similar waste (cleaning center of the city of Béjaia). Those in charge must invest in the citizen by informing and raising awareness about their duties, to make them a driving force behind every initiative, capable of registering positive behavior in the

management of household and similar waste in the city of Béjaia. The recourse to correct all the difficulties remains the authotities responsible for the management of household waste and assimilated a request to implementation.

The problematic of household and similar waste management, its success is based on the degree of environmental citizenship of users of the city of Bejaia (inhabitant, merchant and tourist, etc.). Environmental citizenship considered as a cornerstone of rational waste management household and assimilated of the city of Béjaia which can assert a certain level of ecological and economic resilience.

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