CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE

FACULTY OF ENVIRONMENTAL SCIENCE

DEPARTMENT OF ECOLOGY

SOCIOECONOMIC ASPECTS ON TOURISM MANAGEMENT OF ŠKOCJAN CAVES PARK - SLOVENIA

Diploma Thesis 2020

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CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE

Faculty of Environmental Sciences

DIPLOMA THESIS ASSIGNMENT

B.Sc. Letizia Fambri

Engineering Ecology
Nature Conservation

Thesis title

Socioeconomic aspects of tourism management in Škocjan Caves Park – Slovenia

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Objectives of thesis

The objective of the thesis is to present a first socio economic evaluation of tourists in a natural regional Park of Slovenia: Škocjan Caves Park.
Through a multitarget integrated investigation, data and perceptions in relation to tourism activities and nature conservation will be presented.
The multiple recognitions of the Park (UNESCO Site, Rasmar Site, Natura 2000 Site, UNESCO Biosphere Reserve) let hypothesize a proper management plan that allows a quality conservation level. An evaluation of conservation outlook is therefore given.
The research contributes to the Škocjan Caves Park tourism management with the identification of current key aspects (either as problematic, either as opportunities) and with proposal of future monitoring activities.

Methodology

Multitarget integrated approach: on site distribution and collection of surveys for visitors and residents. Interviews to Škocjan Caves Park managers. Comparison of Škocjan Caves Park management plans. Statistical analyses of surveys and later, combination of them for the evaluation of tourism management in the protected area.

The proposed extent of the thesis

70 pages, appendix

Keywords

Škocjan Caves Park, tourism management, monitoring, mandates of protected areas

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Recommended information sources

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Expected date of thesis defence

2019/20 SS – FES

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Electronic approval: 30. 3. 2020

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Electronic approval: 30. 3. 2020

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Prague on 27. 06. 2020

I hereby declare that I wrote this thesis independently, under the direction of doc. Peter Kumble, Ph.D. I have listed all literature and publications used to acquire the information included in this thesis.

In Prague, 26.06.2020 Letizia Fambri

Acknowledgements.

I would like to thank my supervisor doc. Peter Kumble Ph.D. who supported me for this thesis research. At the same time, I definitely express my gratitude for all the people of the Škocjan Caves Park (residents and staff), for their competence and warm friendship. In particular I want to thank mag. Vanja Debevec and Darja Kranjc, Slavko Žnidaršič and all his family (Mirka, Jana, Lara, Sara). Moreover, Tomaz Zorman, Borut Peric, Samo Sturm, Borut Lozej, Istok , Alenka, Darja Hrib, Darja K., Pierpaolo Sonnoli, Bogdan, Damiana, Marko, Urska, Tomo, Jana and Edi, Špela, Flora, Borut and Katja, and all the seasonal guides who supported me during the collection of data, are warmly acknowledged.

Finally, I would like to thank my family and friends for their precious moral and technical support during these years.

Abstract

Socioeconomic Aspects of Tourism Management In Škocjan Caves Park – Slovenia

Protected areas, created for the conservation of biodiversity, are nowadays expected to stimulate and support sustainable development. Tourism, a global economic power, can remarkably impact the protected area's success in both conservation and sustainable development objectives. Therefore, it is mutually beneficial for tourism and protected areas to have a suitable effective management plan.

This thesis investigates the tourism management aspects of Škocjan Caves Park, a Slovenian protected area, which is rich of international designations (i.e. UNESCO World Heritage, Ramsar site, Natura 2000 site, Biosphere Reserve of UNESCO). ln the most recent decades, the Park has been experiencing a remarkable increase in annual visits, which supports the Park's goal of financial self-sustainability.

In a multi-target integrated investigation, 522 visitor surveys (the 0.2% of annual visitors), 13 resident surveys (the 17% of total local community), five managers interviews and two management plans have been analysed and combined together. From these, socio-economic aspects have been obtained through descriptive statistical analysis, tests of independence, and Regression Tree.

An identification of visitors and associated aspects related to the tourism management have been investigated. Conservation aspects have been also extrapolated, based upon IUCN Outlook 2017 that assesses the Park's natural and cultural heritage conservation as, "good with some concern".

In summary, permanent studies and regular monitoring activities can be definitively considered as essential for the (i) assessment of the overall quality of conservation and ecological integrity, for (ii) the quality of the visitors' experience, and for (iii) the well-being of local community. In conclusion, these three aspects are decisive tools for the decision-making of resources allocation in the trade-off between biodiversity conservation and local development.

Key words: Škocjan Caves Park, tourism management, monitoring, mandates of protected areas

Abstrakt

Socioekonomické aspekty turistického managementu ve Škocjanském jeskynním parku - Slovinsko

Chráněné oblasti vytvořené pro konzervaci biodiverzity by v dnešní době měly stimulovat a podporovat udržitelný rozvoj krajiny. Turistika, jako globální ekonomická síla, může podstatně a úspěšně ovlivnit cíle konzervace a udržitelného rozvoje. Proto je vzájemně výhodné pro turistiku a chráněné oblasti vytvoření efektivního plánu spolupráce.

Tato diplomová práce zkoumá aspekty turistického managementu ve Škocjanském jeskynním parku, chráněné oblasti Slovinska, který obdržel řadu mezinárodních uznání (tj. Světové dědictví UNESCO, lokalita Ramsar, lokalita Natura 2000, biosférická rezervace UNESCO). V posledních dekádách významně narůstá návštěvnost parku Park, což umožňuje, aby Park dosáhl finanční soběstačnosti.

V integrovaném výzkumu zaměřeném na více cílů bylo analyzováno a propojeno 522 dotázníků návštěvníků (0,2% ročních návštěvníků), 13 rezidentů (17% celkové místní komunity), 5 rozhovorů s manažery a dva plány řízení. Z těchto socioekonomických dat byly provedeny popisné statistické analýzy, testy nezávislosti a stromy regrese

Byla sledována identifikace návštěvníků a související aspekty turistického managementu. Aspekty záchovy Parku byly extrapolovány na základě IUCN Outlook 2017, který se zabýval záchovou přírodního a kulturního dědictví s ohledem na možná rizika.

Souhrnně lze říci, že další studie a stálé sledování aktivit v Parku mohou být považovány za podstatné pro (i) hodnocení celkové kvality konzervace a ekologické integrity, (ii) spokojenost návštěvníků a (iii) kvalitu života místní komunity. Závěrem lze zdůraznit, že tyto tři aspekty jsou rozhodující pro rozhodování o alokaci zdrojů s ohledem na zachování rovnováhy mezi ochranou biodiverzity a dalším vývojem místní komunity.

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1. INTRODUCTION

Globally the current mandate for management of protected areas has two obligatory aspects: biological conservation and sustainable development. This may appear to be attempting to appease two opposing objectives. International recognitions arising from Conventions such UNESCO World Heritage, Ramsar, Habitat and Bird Directives, require a management plan that guarantees the conservation of the criteria selected for the site designation.

Synergistically, sustainable development must be promoted in protected areas.

Beyond the conservation and protection of the integrity of ecosystems and their services (Cardinale et al., 2012), protected areas (i) should support and involve local communities, (ii) should raise awareness of global and local values as well as (iii) promote educational activities, and also, (iv) should enhance their recreational role for locals and for outsiders and be a model of nature-based tourism. In this view, it is clearly possible to individuate the potential contribution of protected areas to the 2030 Agenda for Sustainable Development and its seventeen Sustainable Development Goals (Dudley et al., 2017a). Also, in the Strategic Plan for Biodiversity 2011-2020 (UNEP, 2010) compiled for the Convention on Biological Diversity, which is a key document regarding sustainable development, over the twenty targets (also called Aichi Biodiversity targets), only one is specifically addressed to protected areas, requiring a global surface extension, an effectiveness and equitable management, and an enhancement of the ecological connectivity. Efficiency and equity become two key-features for the mandates of biological conservation and sustainable development, and accordingly, management should "ensure ecological integrity and the protection of species, habitats and ecosystem processes, with the full participation of indigenous and local communities, and such that costs and benefits of the areas are fairly shared" (Aichi target N.11, UNEP, 2011).

Consequently, the success of a protected area also requires the well-being of the local community. Vice-versa; the well-being of local communities is a characteristic for successful protected areas (Heagney et al., 2015; Liu et al., 2012). If a local community is willing to accept and collaborate with the protected area, then, the benefits are reciprocal.

Thus, in order to encourage and support the establishment of protected areas, there are many studies particularly in developing countries that query socio-economic impacts on the local community. On the other hand, in developed countries there are not any more urgent reasons for proving to the community the benefits arising from a protected area.

Nevertheless, the research of study cases is still active and it should be gleaned all over the world in order to spread the knowledge from best practices. This necessity arises also from the global increase in human pressure that affects many protected areas (Jones et al., 2018). In this framework, tourism, a worldwide growing industry, represents an influential factor, able to be a multiplier for beneficial or negative effects, either at social level or at environmental level. Many studies highlighted how tourism

in protected areas can play a relevant role in enhancement of economic opportunities, in protection of natural and cultural heritage, and in upgrading the quality of life of all concerned (Eagles et al., 2002). Thus, tourism management is a corner stone for a successful protected area. An overall sound management plan and monitoring system is fundamental for the integrity and development of a protected area and for a suitable involvement of the local community.

This Diploma Thesis focuses on a Slovenian protected area, rich of national and international designations. Škocjan Caves Park is a regional Park, a World Heritage Site, a Ramsar site, a complex of Natura 2000 sites, and it is the core zone of the Karst Biosphere Reserve. The Park has a relatively small core area (413 ha) where three likewise small villages are located. Here, the local community has been playing a precious role for more than two centuries in the history of explorations of the caves, and in the correlated promotion and development of tourism. From the establishment of the Regional Park (1997), both tourism and the caves are managed by the Škocjan Caves Park Agency.

The management plan and the monitoring system should pursue firstly the accomplishment of the conservation mandate, and secondly achieving meaningful sustainable development. If conservation conditions can be investigated through the compulsory monitoring activities requested for the maintenance of the several designations, the second one has a far wider area of action. Studies on socioeconomic aspects on tourism management are necessary to explore the progress in the sustainable development.

This thesis “Socioeconomic aspects of tourism management of Škocjan Caves Park”, aims at the assessment of the current status of tourism management, its opportunities and threats, thanks to the analyses and the combination of (i) visitors surveys, (ii) interviews of the Park’s employees and residents, and (iii) Park’s management plans. Socioeconomic aspects are certainly fundamental in this study. Nevertheless, the conservation aspect of natural and cultural heritage must be the starting point for the accomplishment of the mandates of protected areas: biodiversity conservation and sustainable development.

In this way, the perennially debated trade-off between conservation measures and welfare of local communities could be properly evaluated and could effectively contribute for future management planning at local level and for the worldwide research of case studies and good practices for effective and efficient management of protected areas.

2. LITERATURE REVIEW

2.1. The mandates of protected areas

Protected areas are nowadays called to cover an important role of responsibility and of heritage for the future and present generations. Their mission has been developed throughout the years after the first official establishment.

Dating their origin in the nineteenth century, the primary goal of the first countries that delineated protected areas, was the protection of iconic landscapes and spectacular natural features (Phillips, 2004). Many of these newly established protected areas were designated for public use. For instance, it is noteworthy that the Yosemite Land Grant, signed into law by president Abraham Lincoln in 1864, established the first formally protected landscape area noted for its public recreation and enjoyment. The act – the Yosemite Land Grant – was therefore the pioneer of conservation ethics and, at the same time, set aside land for the public enjoyment: *for public use, resort and recreation …inalienable for all time*. (Dilsaver, 1994).

The Act served as the basis for the American national park system, by opening the Yellowstone National Park (1872), the world first national park, a "*public park, pleasuring ground for the benefit and enjoyment of people*" (Dilsaver, 1994).

Afterwards, all over the world beautiful places started to be protected also for public enjoyment with the consideration of use for current and future generations (La Monica, 2018). Particularly, throughout last century several different driving reasons brought new management approaches and establishments of protected areas. For example:

- game parks and safari largely contributed to the creation of protected areas in Africa (Phillips, 2004);
- landscape protection and last wilderness conservation were motivations of establishments especially in Europe (La Monica D., 2018) since the old continent has been broadly exploited and inhabited;
- protection of natural resources against harmful and destructive uses, such as regulation of timber extraction, management of water uses, protection and support of honey production are some examples from developing countries (Balmford et al., 1992);
- tourism identified protected areas as suitable destinations. It rised and expanded globally, becoming a revenue stream and contributing to the national and local economic development;
- emerging concern over the alarming environmental degradation and the loss of habitat and species, brought emphasis and more attention on the conservation of biodiversity and ecosystems;

Overall, beside the establishment of further protected areas, outputs of the global awareness about these above-mentioned topics are expressed in international agreements protocols and conventions, opening debates about goals, approaches and management of sites.

Consequently, an expansion of protected areas in the geographical distribution and in the conceptual goals occurred (Watson et al., 2014): beyond the increasing coverage system, economic benefits and social well-being largely enriched the vocabulary of protected areas management. Within this new multidisciplinary sight, protected areas are called to make a contribution to human welfare and wellbeing (for example a contribution in poverty alleviation, famine rescue, food and water security, threatened cultures protection, education and knowledge development, contribution in strategies for sustainable cities or climate mitigation or land degradation….and many other possibilities are listed in Dudley et al., 2017a).

In the end, it is important to underscore that "n*ew and increasingly diverse focal objectives have added to, rather than replaced, pre-existing objectives*" (Watson et al., 2014).

2.1.1. Primary role of conservation: history and objectives

There are several motivations which confirm the need of biodiversity conservation (Cardinale et al., 2012): habitat protection is fundamental requirement for this goal. Biodiversity, defined as the variability of different genes, species and ecosystems, and their interaction, represents an ecosystem which in turn affects many ecosystem services. Additionally, Cardinale and others (2012), reporting the study "Biodiversity and ecosystem services: a multilayered relationship" of Mace et al. (2012), define biodiversity as an *ecosystem service in-and-of itself.*

Within this vision, protected areas are the cornerstone of effective biodiversity conservation (Watson et al., 2016) and hence, cover a fundamental role for human wellbeing.

Extinction, invasive species and pathogens spreading, demographic growth and human consumption of natural resources, pollution, wildlife trafficking, poaching, urbanization, agricultural homogenization, habitat fragmentation and conversion are some of the threats on biodiversity loss.

The fast raising of these problems brought to a bloom of Natural Parks and protected areas, while at the same time, it opened international and national debates involving several stakeholders at several scales. Conservation need started to be a global matter, and already in the 1948 the International Union for Conservation Nature (IUCN) was founded. This paved the way for worldwide collaborations and commitments established through a multitude of important international conventions (Ramsar, World Heritage, International Trade in Endangered species, Biological Diversity), protocols and commissions (World Parks Congress, Conference of Parties).

The Convention on Biological Diversity (CDB) has been the most attended and signed international environmental treaty, ratified during the Earth Summit of Rio de Janeiro (1992). Biological diversity, its sustainable use and the fair and equitable sharing of benefits from genetic resources, were the main objectives. The signing 168 Parties pledged for biodiversity conservation, particularly requested in situ, and its sustainable use. Protected areas and appropriate planning were called as a primary solution against

threats on biodiversity. The response was an expansion of the estate system of protected areas.

Almost 20 years later, the tenth meeting of Conference of the Parties claimed the necessity of further expansion and improved efficiency of Protected areas, pointing at the insufficient current situation and at the necessity to have a shared vision and mission. Among the 20 Aichi targets developed in the Strategic Plan of Biodiversity 2011-2020, the Aichi target 11 requires by the 2020 that at least 17% of terrestrial and inland water areas and 10% of coastal marine areas are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscape and seascape (UNEP 2011).

Since the Earth Summit of Rio, the size of protected areas has been roughly doubled (Jones et al., 2018). The World Conservation Monitoring Centre reports 238,563 designated protected areas that together cover 14,9% of the earth's land surface and 7.3% of world's oceans (UNEP-WCMC et al., 2018).

Although these data are considered a conservation success story (Naughton-Treves et al., 2005; Watson et al., 2016) the definition and evaluation of the efficiency, the equity, the representativeness, might affect the accomplishment of the Aichi target 11.

For example, the study of Jones et al, 2018 revealed that one third of protected areas are under intense human pressure. This can indicate the inefficient management of several sites, besides considering the problems of inexistent efficiency of paper parks ("*A legally established protected area where experts believe current protection activities are insufficient to halt degradation*.", Dudley & Stolton, 1999, in Humphreys & Clark, 2018, ex) and problems of the PADDD phenomenon (downgrading, downsizing and degazettement of protected areas) which appears as a trend especially in developing countries (Pringle, 2017). The authors suggest that in order to properly achieve objectives of CDB, it is necessary to consider the human pressure on protected areas (for instance, authors evaluated human footprint through built environments, intensive agriculture, pasture lands, etc) and to increase the strictness of protection zones. The identification standards and criterions result a fundamental step for the evaluation on the effectiveness of sites and their management.

On the other hand, protected areas suffer from chronic underfunding which affects the possibility of success (Balmford et al., 2002; Siikamäki et al., 2015). Therefore, it is important to recognize and objectively quantify the return on investment that well-managed protected areas provide, in terms of ecosystem services and in terms of economic and social well-being.

In this way, the main and primary goal of biodiversity conservation, which in turn ensures ecological integrity and eventually favours human welfare, can be widely approved and incentivized.

2.1.2. Mission of sustainable development

By global mandates, protected areas are now supposed to do far more than conserve biological diversity (Naughton-Treves et al., 2005): they are required to be a key role for sustainable development at overarching scale. As a matter of fact, conserving nature means conserving ecosystem services and functions. It means caring at:

- provisioning services: material and energy from nature, tangible goods that can be used and traded (e.g. timber, food, water, genetic materials…);
- regulating services: the ways in which ecosystems affect the biotic and abiotic characteristics of man's environment; ecosystems can work as climate regulation, pest and disease control, pollination, water retention, carbon dioxide sequestering, erosion control, air circulation, wind breaks, etcetera;
- cultural services: non-material products of nature that have a symbolic, cultural or intellectual significance; nature can be seen with aesthetic meanings, or spiritual significance, or as tourism attraction, or as information and knowledge source, or also, as a place for recreation and social activities;

It dawns on how protected areas had to amplify their mandate: from the conservation of iconic landscape and seascape and endangered species, to the support at local, national and global welfare.

In addition, ethical implications enriched the meaning of the protected area management.

As many of the first protected areas were located in remote spaces, once management began it allowed the presence of humans, such as rangers, managers, and visitors. A dark note in the establishment of protected areas, is the forced eviction and persecution of local community, for example in US and East Africa (Brockington et al. 2006, and Downie 2009, in Pullin et al., 2014) and some authors evoke protected areas and biodiversity conservation as the new form of colonialism (Garnett et al., 2007, ex Hellquist, 2004). It is known indeed that poverty and outstanding biodiversity are located in same countries (the "Rich Forest, Poor People" syndrome; Peluso, 1994, in Naughton-Treves et el., 2005).

The 20th century saw a dramatic increase of human pressure on the environment and the increasing tax of poverty. Consequently, the creation of new protected areas started to be thought also insofar as they could address human concern (IUCN, 1982), supporting social and economic development. The biodiversity conservation's path into the sustainable economic development was further stressed and enhanced during the World Commission on Environment and Development in 1987 (the Brundtland Report "Our Common Future", WCED, 1987). Moreover, IUCN (1994) gave a fundamental contribute for a worldwide uniformed language in the definition of protected areas and their interaction with the human sphere. Defined protected area as a " "A clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values" (Dudley, 2008), it was also

necessary to give further mainlines for the identification of management system. Thus, six management categories have been delineated. Based on the human interaction, it is possible to divide these into two subcategories: for primarily biodiversity conservation (categories I and II) and for the sustainable use of resources (categories III – VI) (Leung, et al., 2018, ex Dudley, 2008).

Through Sustainable Development goals set by the United Nations General Assembly (2015-2030) and the Aichi targets (2010-2020), the appeal for a sustainable development became greater and wider in the overarching scale. The attention to the present natural, social, human capitals and their development and inheritance, is required to be suited in protected areas management. The potentials of protected areas rely on:

- their conservation and protection goals. Natural capital and the range of ecosystem services must be guaranteed for the present and future generation. The prior objective of protected areas is biodiversity conservation, which means that a protection plan must be developed. An efficient management practice for conciliating conservation mandate and human presence is the development of zoning. This approach foresees strict conservation rules in a core zone and certain sustainable human activities in a buffer zone. Beyond its use by national parks, zoning is mandatory for some type of designation, as it is for a Biosphere Reserve UNESCO or for ICDPs (integrated conservation development projects).

- the possibility to be an active area for raising local and global awareness. Outsiders appreciation can induce a strengthening in the local identity awareness about local natural and culture values. Furthermore, educational activities about ubiquitous and locally-based values (e.g. biodiversity, ecosystem processes, tradition, innovation...) can be offered for visitors as well for local community and operators. In turn, then, they can act as a successive vector of knowledge. At a further scale, collaborations into different networks of multi-actor projects, contribute to increase the global knowledge fostering dialogues and sharing experiences. In this view, education has a key role for the urgent call of the global sustainable development: investments on human capital are fundamental for a safe and high-quality environment and society.

- the chances in supporting local communities. The global spreading of protected areas posed them more often next to inhabited zones, opening new debates on management priorities about the trade-off between conservation activities and sustainable uses of resources. Rights of local communities must manifest in terms of use of natural resources and in terms of socio-economic benefits. Several are the ways for supporting local communities. Management plan can coordinate the interaction of people and the resources; zoning approach particularly helps the integration of conservation objectives and the use of local resources. From the socioeconomic perspective, protected areas can offer residents new jobs possibilities, involving also disadvantageous groups; can

deliver development of better conditions of infrastructures (e.g. water systems, bridges, road networks, facilities…).

- the opportunities of involving local communities in the activities of education, conservation, recreation offer; the effect consists in an enforcement of the local identity, enforcement of social identity, enhancement of conservation efforts and recreational offer.
- being a recreational place for locals and visitors. Intact natural places and wellbeing of the local community (i.e. safety, equity...) can attract national and international funds and earnings, bolstering national or local economies. For instance, recreational activities can be a vector of revenue for local communities and could act therefore as an incentive for conservation management.

These are just some mainlines for the contributions to a sustainable development. Precisely addressed Sustainable Development Goals (SDGs) to protected areas are just two over seventeen (n.14 and n.15), while actually, potentials of well-managed, properly valued protected areas can effectively contribute to each one of the seventeen SDGs (Dudley et al., 2017a). For a deeper insight into the opportunities and implications that protected areas can present for each SDG is possible to consult the briefing "Protected areas helping to meet the Sustainable Development Goals" written by Dudley, N., Ali, N. and MacKinnon, K., for IUCN World Commission on Protected Areas (Dudley et al., 2017b)

At the same time, in the Strategic Plan for Biodiversity 2011-2020, over 20 targets, only one is specifically provided to protected areas (n.11); in the description of the target, the effectiveness and equitable management is meant to "*ensure ecological integrity and the protection of species, habitats and ecosystem processes, with the full participation of indigenous and local communities, and such that costs and benefits of the areas are fairly shared*" (UNEP 2011). These requests easily open the debate over the trade-off between conservation measures and the welfare of local communities, since the achievement can be measured based on the level of protection and conservation success as well as based on the level of fair and sustainable integration of local communities. However, it is important to remember, that the target does not involve only protected areas in sensu stricto, but also other sites under the effective area-based conservation measures (OECMs), like indigenous and local community conserved areas, ICDPs areas, and Biosphere Reserves of UNESCO.

The Protect planet report 2018 (UNEP-WCMC et al., 2018) gives results for each of components of Aichi target 11 and it declares that the "*lack of comprehensive and consistent data on this aspect has made the management effectiveness element surprisingly hard to assess* (*Coad et al., 2015)*" and that "*there is still no globally applied systematic assessment of equitable management*".

In this regard, the worldwide ongoing discussion and the seeking for uniformed set of standards and indicators (Tittensor et al., 2014; Tomás et al., 2016; UNEP-WCMC et al., 2018) aims to effectively:

- create uniformed shared online database platforms and hence to contribute to the global knowledge and projects planning;
- quantify objectively progress towards the international commitments;
- assess impacts and efficacy of management activities;
- develop an appropriate monitoring system;

In this view, it is important to collect case studies and experiences: several active initiatives are working in order to offer guidelines and best practices. Among these, it is right and proper cite a recent and commendable project, the Green List of Protected and Conserved Areas, presented by IUCN. This *is the first global benchmark of best practice for area-based conservation*. Protected areas that are effectively managed and fairly governed can receive the Green List certification and be registered at it (IUCN & WCPA, 2017). From 2012 to 2016, IUCN and 25 protected and conserved areas worked for the development of a list of criteria and indicators. So far, based on "good governance, sound design and planning, effective management and successful conservation outcomes", the Green List Performance Standard certificated 46 sites all around the world. However, the list is developed mainly for ensuring qualitative conservation and, although the assessment of important elements of equity and good governance has been included through a set of criteria and indicators, *measuring equity has proven difficult to monitor and measure* (UNEP-WCMC et al., 2018).

Future steps must be addressed to strengthen networks and projects that increase numbers of best practices and that elaborate effective quantitatively measurable benchmarks.

Indeed, beside the fact that countries have pledged international commitments such the Strategic Plan for Biodiversity and the Sustainable Development Agenda, protected areas and OECMs areas in the sustainable development process, perform as objects of heritage and promote a wide range of benefits.

2.2. Tourism

This thesis treats another global driving force of the last century. Over last decades, tourism saw a continued growth and diversification representing one of the major business volume-worldwide (WTTC 2019).

It is hard to determine the origin of practice of tourism; analyses of its history are largely debated and criticized in the academic literature. Certainly, one of the reasons of problems of the dating and studying tourism is the lack of agreed semantic. Besides historical reasons, such controversial semantic is given by the fluidity, dynamic, non-linear reality of tourism knowledge since it involves several disciplines, many processes of knowledge production, with its related and several networks, constraints, environments, and also emotional sphere (Leiper, 1979; Tribe & Liburd, 2015).

However, the overall diversified use of the term "tourism" brought the UNWTO to develop a unified a common glossary, a result from a two-years project (2005-2007).

Definition of tourism is then given as "*a social, cultural and economic phenomenon which entails the movement of people to countries or places outside their usual environment for personal or business/professional purposes. These people are called visitors (which may be either tourists or excursionists; residents or non-residents) and tourism has to do with their activities, some of which imply tourism expenditure* (UNWTO 2008).

If the history of tourism is somehow easy to delineate starting from the 18th-19th century, the situation backward and sources are more blurred and limited. Nevertheless, we can consider ancestors of tourism practices like the roman summer retirement in villa, or like British people in their cottage seaside, or pilgrimages to sacred sites, commercial trade overseas, or the exploration outdoor activities like Alpine tourism (Butler, 2015; Walton, 2009) or also just the research for pure enjoyment of nature in specific sites as it was in Yosemite National Park.

Motivations for travelling, range from leisure, medical, religious to sport, like it was the migration of spectators for Olympic Games in the Ancient Greece (Romero, 2013).

The dawning of our modern tourism phenomena can be dated with the advent of the Grand Tour of Europe in the 18th century. The tour was addressed to wealthy young Englishmen or women who were willing to finish their education in some recommended high value cultural destinations in Europe.

Thanks to the development of infrastructures (particularly railways, 17th century) and to the more available incomes, an increase in mobility of a higher number of individuals occurred.

Technological innovation in transportation and communication, and democratization processes are the basis for the birth of mass tourism, which by many researchers has been dated with the activity of Thomas Cook, father of package tours and of popular international tourism (Walton, 2009). However, we must note that also the definition of mass tourism is still imprecise and largely debated among researchers (Vainikka, 2013, ex Torres, 2002 and Miller & Auyong 1998).

Especially from the second half of the 20th century, next to these developments, an explosion of work and literature in tourism occurred, in fields as economy, business, sociology, anthropology and geography. Each of these disciplines sees tourism under slightly different light, and all of them contribute to the production of tourism knowledge.

It is important to open an ontological parenthesis about tourism knowledge since it affects the past work, the future and the current work, and this thesis as well. Tribe and Liburd, 2015, developed a complex and universal knowledge of tourism system. They point out the several constraints in the knowledge production, for instance how persons, ideologies, aims of the research influence the results. The knowledge production is also influenced by the social, political, natural environment and by the historical moment: "*Change and continuity, fashion and tradition can all receive due consideration when studies are placed in an historical context*" (Butler, 2015, ex Butler & Wall 1985). Therefore, especially when we look at the history of tourism,

we must keep in mind that our sources are produced with specific goal and consequently we can't assume to have a pure historical point of view, like historians as Walton 2009 and Butler 2015, claim.

Nevertheless, it is evident how currently tourism involve a huge and growing movement of tourism masses. Data from World Travel & Tourism Council 2019, reports that the Travel & Tourism industry contributes with the 10.4% of global GDP (US$8.8 trillion) to the global economy, provides one in five jobs (313 million), and had a 3.9% growth, for the eighth year, faster than the global economy (WTTC, 2019).

Tourism represents a worldwide fervent topic that caught the attention of countries since long time, since they understood its potential impacts on the economy, society and environment at local and global scale. As a matter of fact, the origin of United Nations World Tourism Organization (UNWTO), is dated at the beginning of the 20th century (1925) and just in 1970 it has been founded. Today it gathers together 159 countries (UNWTO, 2019a).

Many necessary meetings conferences were carried out, understanding and revealing the interdisciplinary and omnipresence of tourism. For instance, UNWTO lists charters and conferences concerning several key topics under worldwide attention, such as: trades and international travel, maritime traffic, peace, security, ethic codes, environment, cooperation among local, regional and national authorities, policy-makers, Agenda 21, education, technology, sport, climate change, poverty, sustainable development, handicrafts, children exploitations (UNWTO, 2019b).

2.2.1. Definitions

As previously mentioned, the Grand Tour of Europe gave origin to the modern tourism. Tourism industry started to be shaped, requiring *commercial transaction based on travel, hospitality and entertainment in pursuit of pleasure and fulfilment* (Walton, 2009) and as consequence, it started to generate an industrialization of leisure (Leiper, 1979).

An industry, by definition, aims to give a specific product; for instance, the tourism product can be defined by services and products in accommodation, transport, catering, attraction, and providers (UNEP & WTO, 2005).

Leiper in his paper "The framework of tourism: towards a definition of tourism, tourist and the Tourist Industry" (1979) reports three different approaches for defining tourism industry: economic, technical and holistic. At that time, the definition of tourism in Oxford English Dictionary was very short compared to the current definition of tourism given by UNWTO in 2008, and it defined tourism as "*the theory and practice of touring, travelling for pleasure*".

It was the interest of firms and governments to explore further and enhance this economic resource in order to create always better suitable tourism products and support them. Until that time, indeed, the most explored definitions were the economic and the technical ones, as a pure business with economic implications and statistical analyses. Analysing the past scholarship, Leiper identified the third definition in a

holistic approach. As also clearly Darbellay and Stock (2012) state, before the '70s there was already an emerging worldwide awareness of the multi-facets aspect of tourism, enriched and differentiated by the several traditions, nationalities and academies in a world that was starting the globalization process.

From the mid of the 20th century a stronger academic involvement gave birth to a flourishing scholarship. Many disciplines were involved, and more and more authors were trying to find niches in the multi-facets aspect tourism sector (Butler, 2015). To mention some, studies were carried on about anthropology, sociology, economics, geography, political science, ecology and urban studies, but also marketing, law, management, psychology and many others….

Tourism sector started to be looked not only as a pure economic source, but also with positive and social potentials phenomenon. For instance, UNWTO declared tourism a tool of peace and understanding (in 1967 UNWTO adopted the motto: "Tourism, Passport to Peace"). As mentioned before, a big part of research carried out before that time, aimed to a mere increase of economic benefits. Particularly, firms and governments developed, studied and enhanced mass products, thought for the consumption of mass tourism. Vainikka, in her study of "Rethinking mass tourism" assigns to this kind of production and consumption of tourism products, a deterministic definition of the mass tourism: "a separable entity that has its own laws and restrictions". This type of tourism is often treated and seen with negative connotations, like for example, reporting Aulian Poon, 1993 : *the holiday is 'standardized' and 'rigidly packaged', it is mass produced, it is mass marketed to an 'undifferentiated clientele', and it is 'consumed en masse' by tourists without consideration of local norms or culture*. In this context, mass defines not only the quantity in the processes of production, consumption and destination, but also indicates qualitative characteristics. Production, consumption, destinations and their possibilities, were standardized within a Fordism process typical of that time: large scale and controlled.

Keeping in mind that concepts and representations are historically and culturally specific (Vainikka, 2013, ex 1995 Burr), in our postmodern times the idea of mass lost value in favour of individuality and mass tourism changed features, also thanks to an always better access to transport and an increased economic well-being (Hall, 2005). Vainikka identifies this trend with a new definition of flexible mass tourism. Due to the enhancement of facilities and to the easier accessibility to multiple places, the tourist started to be more active, more protagonist in the choices of consumption creating its own experience. Tourism product experiences are co-produced or co-created by producers and consumers (Benur & Bramwell, 2015): tourism industry developed a more flexible production, through multiple options in the varied components of the tourism sector, such technology, markets, actors, codes, norms and values.

As a result, albeit researchers preferred to deal the changes in tourism with new and more segmented ways of dividing tourism, the overall complex of these several groups of individuals make the mass tourism, since they are part of the mass leisure phenomenon (Vainikka, 2013, ex Sharpley, 2000).

All things considered, the definition given by UNWTO 2008 is able to gather together all the heterogeneous mass of tourism: *Tourism is a social, cultural and economic phenomenon which entails the movement of people to countries or places outside their usual environment for personal or business/professional purposes. These people are called visitors (which may be either tourists or excursionists; residents or non-residents) and tourism has to do with their activities, some of which imply tourism expenditure."*.

We can from here extrapolate many elements that in their interaction among each other, delineate tourism niches and groups:

- Movement: cross countries, in the own countries; it involves the travelling modalities and the path.
- Motivation: a wide range of motivations, such as: sport, religious, business, cultural.
- Activities: mainly related to the motivation, it is also strongly influenced by the destination offer.
- Time lapse: day trip (which defines the excursionist), overnight, month trip or week.
- Expenditure: a visitor, either an excursionist or as a tourist, spend a certain amount of money at the destination area as well as during the travel time.
- Products and services: Offered by the destination, by the path and from home. In turn, these are classified in main components (Leiper, 1979, ex Gunn 1972; UNEP & WTO, 2005): inbound and outbound tour operators, transport, accommodation, catering service, attractions and their facilities, and management plans/regulation.

Each component has a dynamic market, with varied stakeholders who provide and define that specific market, the other markets and the overall market of tourism industry. The actors are governments, private agencies (inbound and outbound realities) NGOs, local communities, and of course, tourists (beside the difference between excursionists and tourists, UNWTO lists and describes the domestic, the inbound, the internal, the outbound, the national, the international tourism).

The combination of all these elements, components and actors, can give a very wide range of possibilities in the definition of niches, in the development of products and in research studies. However, tourism industry and tourism researches always tried to develop smaller homogenous groups.

The aim of this segmentation attempts is to investigate opportunities for competitive advantages in the marketplace, suitable for destination cases. Assessing segments in tourism industry can help decisions about on product development, pricing, promotional media and distribution channels. Dolnicar (2009) clearly defines benefits from these opportunities of competitive advantages: 1.competition can be reduced from the global market to tourism destinations specializing on the same segment;

2.resources are allocated and product is developed in a specific way rather than to provide everything for everybody; 3.effective messages reach selected target through peculiar communication channels; 4.a specialized destination gains more possibilities that guests revisit and advertise it among their like-minded friends, compared to destination less specialized and more generalized.

In order to maintain and enhance activities and benefits**,** monitoring emerges as a key factor for the segmentation process. In addition, as international and national standards became a competitive mechanism tool (compulsory or on voluntary base) studies on tourism industry and its monitoring are essential to accomplish and enhance required standards (e.g. Global Sustainable Tourism Council Criteria or ISO 21401).

Throughout the literature, we can see many efforts and contributions for defining segments of new tourism masses, either from researchers who seek academic niches (Butler, 2015) or contribute to any market analysis, either from organizations like e.g. UNWTO which wants support and address tourism for the economic growth, for an inclusive development and the environmental sustainability.

The process of market segmentation is a concept introduced by Wendell R. Smith ("Product Differentiation and Market Segmentation as Alternative Marketing Strategies", 1956) as an exploratory process that tries to see the heterogeneous market in a number of smaller homogeneous markets. In this case the heterogeneous matrix can be identify as the tourism mass which acts as a "*a loose umbrella term for different kinds of large-scale and popular tourism segments"* (Vainikka, 2013).

The identification of segments gave names such as: ecotourism, nature-based tourism, alternative, backpacking, cultural, "new tourism", responsible tourism… As well as for the definition of tourism itself, also a universally shared definition of certain segments has been debated and developed during the decades (for instance ecotourism). Definitions of these segments can overlap with each other, can be controversial, can be clearly different or be variables of other definitions. Giving an example, Vainikka reports that ecotourism compared to mass tourism, has been defined as completely separated, as a variety of mass tourism or also with a blurred border, and also for other authors ecotourism is a subset of Nature-based tourism activities (Weaver & Lawton 2007). It is the aim of the research, the background, what delineates the production of knowledge.

Classification among tourists can involve several criteria that partially match with the previous mentioned components identified in the framework of UNWTO definition of tourism (2008).

- Motivation: recreational and leisure, cultural, social, therapeutic, sportive, nature exploring, adventurous (adrenaline sports), professional, political, educational, shopping, religion, etcetera. It is often considered the main segmentation criteria.
- Modalities: organized or not; way of transportation (hike, railway, cycling, naval, airline);

- Destination: domestic or international tourism; isolated remote place versus crowded;
- Time: short term or long term; seasonal distribution (winter, summer, or circumstance tourism);
- Budgets: amount of expenditure, way of payment and main beneficiaries (e.g. local community versus outbound organization);

Assessing typologies allows decision makers to allocate resources properly, to discover new opportunities, to be competitive, and to help in the accomplishment of required standards.

Certainly, simultaneously it is fundamental to delineate what, where and who are the resources. The features of destination area, so called also the primary tourism product PTP (Benur & Bramwell, 2015, ex Jafari, 1982) helps to delineate some suitable tourist segments. A study about PTP involves physical, environmental and socio-cultural attributes of the destination area. Generally, it is composed of climatic conditions, landscape, ecology, politics, history, cultures, economic activities and the built environment. These characteristics can be interrelated, and they must be managed and studied. Thus, a sound management must consider these aspects, their flexibility in creating linkages among them (Benur & Bramwell, 2015, ex Jansen-Verbeke, 1986, Weaver &Lawton , 2007, Farmaki, 2012).

A study that considers specific features (such accessibility, attractiveness, existing offer, facilities in the region, funding possibilities, and so on….), the opportunities of the PTP and possible further segmentations of tourists, would allow the development of new efficient, sustainable, competitive touristic products.

Tourism competitiveness is given through innovation which is given by the development, enhancement, and new assembly of e.g. new goods or new quality, new methods of production, new market for a good, new source of supply for products, new organization of the industry…

The definition of tourism and sub-segments is very broad and dynamic, and studies that help in further delineation of tourism industry elements are valuable for the efficiency, although often limited to each destination's context.

2.2.2. Impacts of tourism and the need for sustainable tourism

For years tourism industry has been a driving force for developing countries and areas. Of course, this is not without negative consequences, which had led WTO and UNEP to several meetings and conferences. As previously stated, tourism is a multi-facets reality, and thus, it is possible to list impacts from several points of view.

Environmental impacts are the greatly studied and claimed. Environmental degradation in tourist places can have different aspects. Tourism contributes to the air, water, solid waste and visual pollution; it can foster the destruction of habitats and endanger indigenous species of flora and fauna, through illegal poaching, collection and trade, or disturbing them in their natural habitat during critical times (mating,

breeding…). Also, tourism has being seen as a vector for the introduction of alien species acting thus as a threat to the biodiversity conservation (UNEP, 2014).

Furthermore, because of tourism, landscape's appearance is altered: loss of open spaces, introduction of buildings in inappropriate scales and styles, expansion of infrastructures, change of residential areas with introduction of tourist services.

In terms of impacts on livelihood, a destination requires a range of services and goods for the needs and desires of tourists, which basically are found in the accommodation sectors, in the food and beverage one, and in the supply of services of resources (i.e. electricity, sewer system, water supply and so on..). So, the needs of tourism enhance the development in the destination area and consequently the standards of living, but, on the other hand, the cost of living can more likely raise: housing, land, goods and services, and so on…. Moreover, if it is true that tourism brings jobs opportunity, it is also true that it creates low wage jobs, often seasonal, causing under-employment or unemployment during off-seasons, and sometimes foreign people are hired instead of locals.

Tourism has also impact on the social-cultural-ethic life of the local community. The interaction between the local community and the tourist has many positive effects (i.e. "*Experiencing different cultural practices enriches experiences, broadens horizons, and increases insight and appreciation for different approaches to living*". Kreag, 2001), but it can lead to negative effects: introduction of new restrictions, push to a different moral conduct such some illegal activities (bribery and corruption, prostitutions, underage drinking, smuggling, illegal markets…).

Recently tensions between residents and tourists are arising (e.g. Barcelona inhabitants protested about the too many tourists), due for example to overcrowding, causing stress, annoyance, anger…

On the other extreme, it has been also verified an over amplification of cultural traits that wants to fully satisfy tourist expectations (phony culture).

Different groups and researches are often concerned about different tourism impacts, having different direct or indirect interests: one group cares about the economic impact, while another group experiences social and cultural impacts, and another is affected by environmental impacts.

Having broad community involvement and embracing different perspectives during planning activities and during the process of tourism development, helps to identify and resolve current and future concerns (Kreag 2001); by integrating and reconciling needs and concerns from the several stakeholders, tourism industry can bring great contributions: for the community and its standard of living, for tourists with satisfactory experiences, for a sustainable use of the environment, and for positive and fair economic impacts. Plans and actions should be weighted in order to increase these benefits or decrease the gravity of negative impacts.

It is clear how delicate and strategic is reaching the balance among the three economic, environmental and social factors, considering also the range of different groups

interest. This balance is not a fixed state of harmony, but it is a dynamic process, determined by changes in resources, features and capitals. The challenge is to reach and maintain this equilibrium point.

A balanced interaction among economy, society and environment is the key of sustainable development, albeit initially the term was used limited to environmental issues. For instance, the term officially appeared in the "World Conservation Strategy" presented by IUCN in the 1980. "*The overall aim of achieving sustainable development through the conservation of living resources*" highlighted the need to maintain the biological diversity, meant like genetic diversity, habitats, ecological processes.

The auspice of IUCN was unable to deal adequately with other sensitive and controversial issues, as poverty alleviation, policy corruptions, climate change…. Thus, implementations were necessary and the World Commission on Environment and Development, at the Brundtland Convention 1987, eventually described the sustainable development as "*a process to meet the needs of the present without compromising the ability of future generations to meet their own needs."* ("Our common future", WCDE, 1987).

However this definition leaves open a debate about the interactions of current and future capitals intended as human, social, natural, economic assets, and many critiques raised from the polymorphous role of economic growth, from the blurred concept of participation (Lele, 1991) and from the role and consistency of global social development in e.g., poverty and environmental degradation (UN 1996, World Summit for Social Development 1995).

For this necessity of more precise indications, further directives had been given through more detailed programmes like Agenda 21, developed five years after Brundtland Convention during the Rio Earth Summit 1992, the Millennium Goals 2000-2015, established during the Johannesburg Conference in 2002 and the following 17 Sustainable Development Goals 2015-2030 set in Paris during the Conference of Parties in 2015. The latter represents and illustrates goals and actions addressed to major global challenges and it helps to lead countries, institutions, entrepreneurs, in the accomplishment and improvement of sustainable development.

It is important to notice that neither Brundtland Report nor Agenda 21 mentioned tourism, although even at the time it represented a global growing market with positive and negative impacts on societies, economies and environment. For instance, tourism intensified pollution, interferences to ecological integrity and biodiversity disturbances. It contributed to cultural heritage disruption, moral deviation, it brought overcrowding and conflicts between local community and visitors, etc…

Hence, the request for a sustainable development also in the tourism industry was and is compulsory.

Sustainability and sustainable development in tourism sector immediately had a big and wide impact confirmed by the multitude of definitions of it (Butler, 1999, ex Stabler & Goodall, 1996; Fennel, 2001). A possible motivation of such confused terminology can be found in the multiple-disciplinary aspect that tourism has, as well as in the broad range of groups of interest involved in tourism industry. Therefore, sustainability in tourism could be seen by politicians as a campaign flag, by the environmentalist as a justification for preservation, by the tourism industry as a tourism with appropriate development, by the conservationist as an unchanged past principle (Butler, 1999).

The first World Conference on Sustainable Tourism was strongly wanted by UNESCO and WTO realising the worldwide impacts and huge potentials of tourism industry in the contribution to Agenda 21 and the importance of its delineation and management. The first World Charter for sustainable tourism recommends a list of principles and objectives which are *"ecologically bearable, economically viable, socially equitable for local communities, and sustainable for the future"* (WTO, 1995).

Later, UNEP and WTO (2005) proposed the definition of sustainable tourism as the "*Tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities*".

A parallel debate concerns which segment of tourism is considered sustainable tourism. Many authors saw in the sustainable tourism the alternative to the mass tourism, which during the last century shaped industries and destinations. Some typologies of this sustainable tourism as alternatives are called: e.g. alternative tourism, appropriate tourism, soft tourism, responsible tourism, low-impact tourism, and eco-tourism. These can be considered *a micro solution to what is essentially a macro problem* as Liu in his Critique Sustainable Tourism Development (2010), points out talking about ecotourism, or alternative tourism, which is usually the main proposed alternative segment. Indeed, the author states, the goal is not to create or find new segments in tourism and address them to sustainable tourism definition, rather to *develop conventional mass tourism sustainably and supplement it with all sorts of alternative forms of tourism where and when appropriate.* This concept was already strongly supported by R. Butler, who, yet in 1999, highlighted that sustainability in tourism is not about to give an alternative to mass tourism but rather that every type of tourism must contribute to sustainable development.

As further support, the World Charter of Sustainable Tourism +20 (UNWTO, 2015) states that nowadays the question is not anymore if sustainable tourism is the answer and how to design it, but it straightforwardly asks to individuate how to realize the full potential of all types of tourism in order to *benefit to local communities, support green growth and economies, foster innovation, safeguard cultural and natural heritage, and protect the environment(World Summit on Sustainable Tourism, 2015)(World Summit on Sustainable Tourism, 2015)*.

2.3. Partnership tourism and protected areas

Jones et al. (2018), illustrate that one third of protected areas is under intense human pressure. Clearly, this strongly influences their primary goal of biodiversity conservation with the health maintenance of ecosystems. The threat to these objectives increases if we consider the tourism and its massive growth flows predicted for the next years (WTTC 2019), its wider availability to travel geographically and economically, and the innate attraction to naturally and culturally distinguished sites, which is boosted especially in this era of biodiversity loss since *the extreme, the rarest, the unique and the different will always attract the visitor* (R. Butler, 2015).

At the same time, tourism has great potential in supporting sustainable development in destinations, and also in supporting the mandates of protected areas. As WTO declares in the Charter of Sustainable Tourism 2015, tourism must take wide positive actions in the major global challenges and thus it must be a peace promoter, natural and cultural heritage conservation supporter, climate change actor, poverty fighter, green circular and low carbon economy supporter and stimulus, good habits pilot (i.e. through "*implementation of sustainable consumption and production pattern along the entire chain of service and activities*", World Summit on Sustainable Tourism, 2015), innovative solutions stimulus and driving force for creative industries.

While tourism is globally called to support sustainability and be sustainable, also protected areas are called to contributes to a sustainable development. Their role in conservation of biodiversity must be followed and integrated by a role in supporting local people, by improving social welfare and economic well-being, and by being a pilot in the increasing awareness and improving knowledge about environmental topics.

Tourists have long been attracted to nature as a destination, because of remote isolated places of outstanding beauty and natural character, or because they were searching for scenic landscapes, or for self-challenging experience in extreme and inspiring place such were the Alps or caves, or because they wanted escape from ordinary life in rural or seaside areas. It was the time when the human presence was not so intense, either because of number of individuals, either because lifestyle.

Later, the 20th century concentrated the attention on the relationship between tourism and environment.

Ecotourism became the definition of that segment of tourists attracted to the discovery of natural, isolated places and which like to take activities environmentally friendly such as hiking, bird watching, nature photography, wildlife safaris, camping, mountain climbing, fishing, river rafting/canoeing/kayaking, and botanical study (Whelan, 1991).

Although it has been designated potentially ecologically benign and as win-win approach catalyst for developing and rural economy, ecotourism has the potential to

be environmental disruptive (Kumble, 2006, in Brebbia &Pineda, 2006; Wall, 1997). Four are the main reasons: 1. visitors are attracted to very special places that may have limited ability to withstand use pressure; 2. visitations can occur at critical times such as mating or breeding season; 3. the relationship between the visitation volume and the environment is not linear, but step-like; the point of carrying capacity is largely discussed and investigated (Liu, 2010) 4. off-site and en-route impacts may be substantial.

Nevertheless, the International Ecotourism Society described ecotourism as "responsible travel to natural areas that conserves the environment, sustains the well-being of the local people, and involves interpretation and education" (TIES 2015). But a sound management is fundamental because, as stated by Leung et al. (2018), inappropriate poorly managed tourism affects negatively biodiversity, landscape and resources. Benefits from the overall tourism can concern the economic, social and environmental sphere, but they do not arise automatically. They need a sound and careful management.

Tourism management is a vital component in protected areas programme and it requires appropriate policies and a wise planning with long-term perspectives and with balanced costs and benefits (Wall 1997). These are often indirect and their individuation and calculation is difficult. It is therefore crucial to involve several stakeholders during the planning activity. Also, as Wall et al. affirm, it is important to include *education, training and enhanced access to capital for local residents to facilitate their involvement.*

With appropriate management, in protected areas tourism can enhance economic opportunities, protect natural and cultural heritage and advance the quality of life of all concerned (Bushell & Bricker, 2017; Candrea & Ispas, 2009; Eagles et al., 2002; Leung et al., 2018).

More in details, tourists can:

- Be a source of revenue ticketing**.**
- Be a sector of alternative jobs for locals (instead of e.g. disruptive activities).
- Sponsor conservation proposals.
- Interact with local community, favouring also possibilities of revenue.
- Strengthen the value of the destination, inspiring awareness and proudness in residents which in turn start or foster heritage conservation activities.
- Be an incentive for the locals in the involvement in conservation, touristic or educational activities.

- Act as motivation for education or training programmes both for visitors and for operators, encouraging environmentally responsible behaviour also in a long-term perspective.
- Act as motivation for public or private funds.
- Be a catalyst for innovation and development in the destination and surrounding area; it involves infrastructures, facilities and technological sectors, policies and management (e.g. in monitoring activities), and the social sphere too.
- Spur operators of tourism industry to aim at certifications or labels which act as a competitive tool and in turn, improve the tourist experience.
- Promote the establishment of new cooperation, networks among different entities (i.e. local community, NGOs, government, private companies…).
- Foster social development in values such gender equity, safety, participation processes and citizen engagement….
- Summon the interest of researches about natural or cultural features (i.e. habitats, species, traditions…).

Protected areas and tourism can be natural partners, mutually benefiting from each other: for instance, parks rely on visitors and tourism for support, and tourists search for experiences in pleasant areas with healthy wildlife and nature, and authentic cultures. Tourism's economic benefits and advocacy from the general public for conservation are crucial to maintain political support and funding for protected areas.

Hence, studies on socioeconomic impacts, meant as benefits (Glossary of Tourism Terms UNWTO, 2019; IUCN & WCPA, 2017), are imperative for demonstration of such partnership and for supporting conservation. From the last decades, studies were carried out in developing countries where the debate about conservation activities (i.e. protection of ecological integrity and regulation on human activities) versus alternative management (i.e. alternative support to local community) of area is strongly present.

The partnership between protected areas and tourism is not of course a new concept, and but recently it has been strengthened and regulated in name of sustainable development (Dudley, et al., 2017): efficient, functional and sustainable plans are reached when all stakeholders are involved in planning activities. A success indeed occurs when the parties can prioritize the same objectives and a frequent communication among them is established (Bushell & Bricker, 2017). The primary goal of protected areas, defined as "geographically defined area which is designated or regulated and managed to achieve specific conservation objectives" (CBD, 1992), is the well-being of the site. Research and monitoring are essential, either for socio economic aspects either for environmental and conservation features.

Under these circumstances there are some global initiatives that aim at conservation and furtherance of sustainable approaches. These gather together and label sites and

realities that meet and maintain specific standards and perform proper management plan:

- UNESCO World Heritage: from 1972 UNESCO World Heritage List registers sites of natural and/or cultural outstanding value. The Convention requires that States Parties develop programmes that protect integrity and features of sites laid on their territory guaranteeing them to be heritage for the future and a resource for the present through functions in the day-to-day life of the community. For instance, it is suggested to set activities of education, information, scientific research and community building. Sites can also be attractions for tourist activities bringing important funds to the area and to the local economy. However, UNESCO requires that tourism activities are well planned and organized respecting Sustainable Tourism Principles. In the last years UNESCO developed a specific programme named World Heritage and Sustainable Tourism Programme (WH+ST Programme) based on stakeholder cooperation and coordination at local, regional and international level for the achievement of safeguard heritage and of sustainable economic development.

- UNESCO Biosphere Reserves: These are designated areas situated in any type of ecosystem that have been promoting *s*olutions that reconcile biodiversity conservation with its sustainable use. The list originates from in the Man and Biosphere Programme of UNESCO and supports the human role as an integrative part of the biosphere. Biosphere Reserves are often pointed as pilot areas testing interdisciplinary approaches for understanding and managing changes and interactions between social and ecological systems, including prevention of conflicts and management of biodiversity. For instance, the World Summit on Sustainable Tourism (2015) calls for new models of excellence and reference,and indicates Biosphere Reserves (and Natura 2000 network) as realities that "*are capable of inspiring an effective link between biodiversity and tourism*".

- IUCN Green List: it is the first development in assessing the effectiveness of protected areas which entails a nomination as best practice for area-based conservation to an international roster; selection is based on the effective management for sustaining multiple benefits. In this framework, tourism management can cover an important role as integral part of the conservation strategy (Bushell & Bricker, 2017 in UNEP) guaranteeing conservation objectives, quality in the tourism experiences, and a fairer distribution of tourism resources for local communities. It is a relatively new initiative: from 2016 it counts 46 areas in 14 countries. (www.iucn.org/theme/protected-areas/our-work/iucn-green-list-protected-and-conserved-areas consulted on 02.10.2019)

- Global Sustainable Tourism Criteria Certifications (GSTC): these are high and specific standards for sustainability in travel and tourism, that serve as a baseline for the achievement of a specific certification with extreme high social and environmental standards promoting education, understanding,

environmental conservation. The GSTC Criteria are the "*result of a worldwide effort to develop a common language about sustainability in tourism*" (GSTC 2019). Destination and services can undertake the certification process with the support of these criteria.

The achievement of an effective sustainability, of any certification, or of a constructive partnership between tourism and protected sites, requires clear framework and standards as well as precise roles and responsibilities. Indeed, as Bushell and Bricker (2017) state, the credibility of the certification relies on rigorous process in order to be credible, efficient and competitive. Standards serve to guide development and ensure that benefits for community and conservation, are tangible and measurable.

2.3.1. Importance of monitoring

A sound management plan is the key for a successful partnership among protected areas and tourism. During the planning activity it is crucial to think long-term while setting realistic short and mid-term goals with the support of indicators and standards (Candrea & Ispas, 2009). Monitoring helps in the progress assessment of short and long terms goals, and it allows to plan and take management actions ensuring that standards of quality are maintained (Manning, 2002). Monitoring is essential:

- for maintaining environmental standards: a protected area, a cultural or natural site, as well as a tourism destination, must keep healthy environment as it is the primary source for local community and tourism. Moreover, it is ordered by international programmes to support and protect the integrity of ecosystems and its biodiversity. Hence, particular attention is paid to monitoring sensitive sites and species through specific indicators (as water quality, the Minimum Population Viability of target species, level of CO_2 in caves, soil quality and so on…). Furthermore, also thanks to this kind of monitoring, impacts from other activities can be detected.

- for tourism offer: monitoring visitors helps to understand how many they are, who they are, what they might expect, which are the current trends and risks, which and where possible innovations can be. It should also help to determine and manage a carrying capacity of the site (though it is of hard assessment, Butler, 1999) which contributes to the maintenance of a health environment and to the landscape integrity, to the quality of visitors experience, as well as to a peaceful contact with the local community. Monitoring tourism activities would allow a development of tourism products that benefit all the stakeholders, integrating, diversifying, coordinating the tourism offer. In this process, a market analysis of tourism trends would help in the enhancement and innovation of products. Monitoring of tourism activities is realized through surveys, through counting of number of visitors, through socio-economic analysis of tourists and assessment of current activities.

- for the socio-economic aspect of the local community: a wealth local community represent a key factor for the success for the site conservation and for the development of tourism sector. Local communities greatly impact the

ecosystem integrity and the tourism experience quality. It is repeatedly proved that involving and motivating local people and stakeholders in protected areas or in the surrounding, contributes to the conservation goals and to the sustainable development of the area (Liu et al., 2012). Last but not the least, protected areas, according to SDGs and to Aichi targets, must take action in the poverty alleviation of their community, aiming to be part of socio-economic sustainability. As matter of the fact, Aichi Target 11 asks to protected areas to individuate *who the stakeholders are, including indigenous and local communities, that may be affected, how they can be involved, how address their needs and what trade-offs are to consider;* while SDGs ask to protected areas to be fully supportive and active at local and global scale.

Overall monitoring activities is a complex system that involves each sector, it should be systematic and periodic (EUROPARC FEDERATION, 2012). It depends on the site and the stage of development which kind of monitoring activities carry on. Defining clear indicators and being able to know how to change them, is important for a successful monitoring plan.

Also, labels and certification require periodic assessment. Regarding international standards for example a UNESCO World Heritage site must prepare reports about the state of conservation regularly assessing the criteria of inscription and the overall condition.

While certification assessment is upon external bodies of the site management, an internal monitoring system can help in the maintenance of the site quality, in order also to accomplish international goals and to support an efficient management plan.

2.4. Socio economic impacts of tourism activities

It has been explained that tourism has the potential to both enhance biodiversity conservation efforts and give alternative options of income for local community. Protected areas are expected to present leading stories in the realization of this kind of tourism potentials.

Particularly in the developing countries, the partnership between ecotourism and protected areas should primarily act as a possibility for poverty alleviation in local community. Indeed, tourism indeed has significant potential to (Liu et al., 2012):

- alleviate poverty conditions and improve biodiversity more than other economic activities in a protected area and around it.
- create more jobs per unit of investment than most other industries.
- provide employment opportunities for traditionally marginalized groups.
- be created inexpensively since it relies on existing resources (for instance natural and cultural heritage).
- attract outside investments.

Initially, the studies on ecotourism were carried out mainly in the countries of Africa, Asia, and South America where the limited financial resources and the more likely opposition attitude of local communities, made extremely necessary the research of valid motivations of establishment of protected areas, meant as beneficial impacts, and the research of efficient mechanisms of conservation activities. Thus, it is being essential to demonstrate, to promote and to communicate positive co-operations between people and protected areas.

At the beginning, priority was given to economic impacts. We can mention some studies (Eagles et al., 2002) from Costa Rica, which in 1994 reported a revenue over US $600 million from visitors of local national parks, wildlife refuges and biological reserves (tot 630.000 ha); or from the Great Barrier Reef World Heritage, which in 1991 spent about $543 million. Also, a precious long term study in Rwanda, showed how in 12 years the profit from gorilla reserves in the Parc National des Volcans, became five times greater than parallel costs.

Recently, the studies involving also a social dimension, have been claimed.

For example, an eight-years monitoring (Liu et al., 2012) of the relationship between local community and Biosphere reserve Wolong Nature Reserve (China) showed a shifting in occupation activities and an increasing awareness of tourism impacts. Positive impacts are individuated in the abandonment of deleterious activities (i.e. resources extraction activities) and in a development of a greater awareness of anthropic impacts. Furthermore, the appreciation of local culture and natural landscape by visitors, should stimulate and motivate conservation and protection actions by local community itself. Tourism also may act as a way to deepen for local identity.

Whereas in developing countries there is a wide range of studies which justify and promote biodiversity conservation actions with the demonstration, promotion and communication of socio-economic impacts, analogous specific studies in developed countries are still few. Such studies would be important for securing local support, enhancing the protection quality of the sites (Heagney et al., 2015).. Generally, these studies would enrich scarce global literature, and would inspire and support the development of proper management plans of many developed or developing areas.

In Europe, most of socioeconomic studies concerning protected areas were carried by northern countries which were focused on tourism in protected areas (Job, 2008; Mayer et al., 2010, Tičar et. al, 2018), or more generally, on natural heritage (Bryden et al., 2010; Gisselman et al., 2017). Specifically Germany in the last two decades developed studies on National Parks and, more recently, also on UNESCO Biosphere Reserves. For example, the research carried out in six national parks (Mayer et al., 2010) presented basic economic results such as the daily expenditure and also showed how some local features may affect some results:

- Accessibility: parks, close to major urban agglomerates, are often visited and thus, they can represent very important place for regional tourism marketing;

- Year of the institution: parks that have been recently established can show a small tourism development; nevertheless, their visitors show high affinity for national parks, and locally there is cooperation between tourism organisations and the parks;

- Scope of the park's establishment: proposal of tourism development as stimulus for the local economy showed successful results;

- Support from community: a lack of acceptance and identification, and consequently, a lack of promotion and of support by local stakeholders, are detrimental for the development of tourism and the park partnership.

Of course, in turn, features of the protected area and socioeconomic conditions of tourism affect the development of the local community.

Generally, studies about tourism aspects in protected areas are carried out through assessment processes collecting information with tools like surveys, counters, video, data from public and private agencies (Leung et al., 2018; Moore and Polley, 2007; Muhar et al., 2002).

These features must be monitored in order to enhance potentials and develop new tools for the protection of nature, its assets and its sustainable use. Also, systematic research of socioeconomic impacts of tourism would assess achievements in the protected areas mandates: biodiversity conservation and sustainable development.

For instance, the handbook recently published by Central Europe Eco-Tourism (CEETO, 2018) provides tools and successful examples of sustainable tourism practices in protected areas in Europe. The partners (Austria, Croatia, Hungary, Italy, Germany, Slovenia) shared some of their realities, presenting their own characteristics, goals, methods and results. The aim is to *"be able to both inspire and to provide users of the handbook with practical contextualization of the methods analysed"*.

However, CEETO highlights how it would be important to develop a uniformed, consistently applied monitoring scheme which implies the measurability of eco-touristic, sustainability and conservatory-biological indicators. From this point of view, the choice of the study in a European country, can enrich the research of possible methodologies and practices of monitoring activity in protected areas.

The thesis analyses the touristic dimension in a protected area of Slovenia considering the three main targets (visitors, managers, and local community). It aims to give possible insight into current trends in this reality, and to be a source of inspiration for innovation providing data, opinions, and experiences. Certainly, the conservation requirement remains the primary feature.

Slovenia was selected as case study because of its policy on tourism and of biodiversity conservation system. This county is a positive example concerning the development of ecotourism, since, as declared by CEETO, it is expected to be a top European Ecotourism destination nation due to its policy of tourism management. The set of international standards (for instance, the European Tourism Indicators System and the Green Destination Standards) became the base for the development of the national certification programme of green destinations, services, and parks. Since 2016 the

programme “the Green Scheme of Slovenia Tourism”, awarded 48 destinations, 37 accommodation providers, 4 natural parks and 2 agencies with the GREEN SLOVENIA label (the Figure 1 shows the several recognised sites). Under this system, the term sustainable tourism becomes “green tourism” because it combines the concept of green quality and green management.

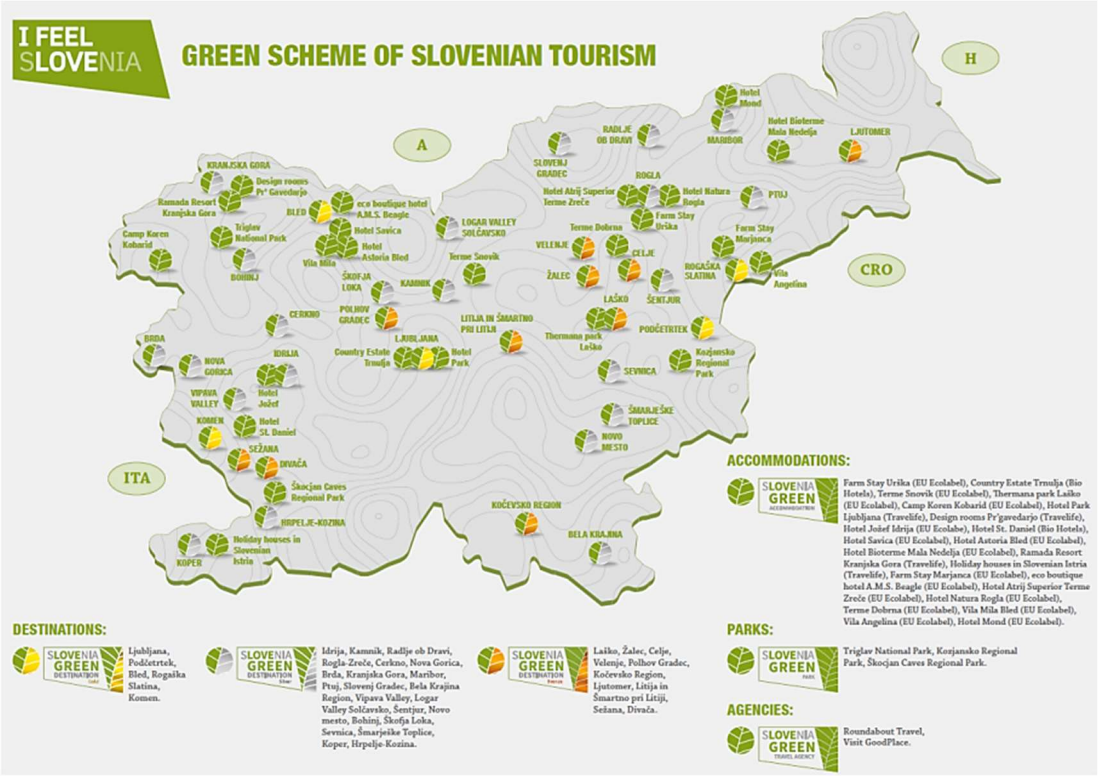

Figure 1. The map of Slovenian Green Label sites. Retrieved on 15.06.2019 from: www.slovenia.info/en/business/green-scheme-of-slovenian-tourism

From biodiversity perspective, the CDB country profile based on National Reports and on National Biodiversity Strategies and Actions Plans, declare a good grade of biodiversity protection, although conservation in situ is restricted to small areas (CBD 2019). Essentially, most biodiversity conservation goals are achieved through sustainable land use.

It might be a logical consequence of the relatively low population density, 103 people per km^2 (Republic of Slovenia Statistical Office, 2019) in 20.273 km of the total surface. Nevertheless, such result is achievable only thanks to good policy and management which guide planning activities and work for increasing awareness of healthy environment values. Overall, almost 50% of the country is under a specific protection regime, and a third of the surface is under Natura 2000 network (CBD 2019). These data correspond to the to the requirement of Aichi target 11.

The Slovenian policy recognizes the positive impact of ecosystem services on society and economy. Therefore, biodiversity issues have been integrated in numerous sectoral and cross-sectoral areas (Ministry of the Environment and Spatial Planning, 2015). Strategies, plans and programmes in agriculture, fisheries, forestry, industry and

energy, transport, tourism, and so on, present a solid attention to the biodiversity conservation. These actions are in perfect accord with Aichi target 2: *By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems*.

2.4.1. The study case of Škocjan Caves Park and aims of the thesis

The several national and international designations of Škocjan Caves Park (Slovenia) evidences the authority's willingness to maintain green and sustainable development. For instance, it is a Natural Monument (1980), a UNESCO World Heritage (1986), a regional park (1996), and a Ramsar site (1999). Additionally, in the new millennium, Škocjan Caves Park became partner of the ecological network of Natura 2000, part of the Man and Biosphere programme of UNESCO with the establishment of the Karst Biosphere Reserve (2004), and finally it has been recognised as a Green Slovenian Park. I personally had the opportunity to know the Park and to get involved with its activities throughout the years (personal experience is briefly presented in the Appendix I).

Certainly, conservation of biological diversity is required and likewise, the above-mentioned titles demand the integrity of selected criteria with appropriate management plan that can guarantee their maintenance. The good conservation conditions in Škocjan Caves Park are compulsory.

Simultaneously, for the accomplishment of the double mandate of (i) conservation and (ii) sustainable development, social and economic sphere must be considered. Hence, studies about the interaction between the human activities and the socioeconomic dimension are strategic steps towards sustainability. In this context, tourism management inserted in a sound management plan assumes a unique role for the enhancement of the two mandates.

Specifically, the thesis follows two research questions:

1. As a protected area, is the Park Škocjan Caves pursuing appropriately the mandates for biodiversity conservation and sustainability?
2. Is the management of tourism in the Park efficient for these two objectives? Are there any specific problems or opportunities arising from tourism?

Due to the numerous designations it has been awarded, it is expected that the Škocjan Caves Park accomplish these mandates. Through the analysis of the Park management plans and the reports of monitoring of international labels (particularly UNESCO World Heritage) it is possible to identify the important features of the Park and the conditions of conservation.

This part of the research strongly contributes for the delineation of the primary tourism product, which is composed by the features of the Park and by the stakeholders. Thus, the other part of the research explores needs and perceptions of visitors, managers and local people of the Park. Surveys and interviews had been personally carried out

between the summers 2018-2019 in order to obtain a general picture of the contribution of tourism in the sustainability objective.

Socio economic data will be extrapolated by the analysis of surveys. Understanding the main characteristics of visitors allows the evaluation of the efficiency of tourism management. Similarly, an overview on the awareness level and on the Park commitment on education, allows the evaluation of the sustainability contribution. Threats and future possibilities will be individuated for the accomplishment or enhancement of the double mandate of biological conservation and sustainable development.

Finally, contributions are expected to the Škocjan Caves Park management, to further academic studies, to the wider international community, and lastly, to my personal education.

Locally, the results of the thesis implement the data collection in the monitoring activities of Park (i.e. it gives the first socioeconomic study of tourism aspects) and can suggest new aspects and methodologies for future monitoring activities.

Globally, looking at the scientific and political community, the thesis contributes to the research and collection of study cases for good management aspects as well as for the research of delineation of standards and indicators, as requested by international treaties.

Last, this study fosters my personal knowledge in the protected area system and management. It is a compound reality of interrelated potentials that require monitoring and appropriate management for the success of (i) conservation of heritages, and of (ii) sustainable development with its several aspects such: the involvement of local community, the production of knowledge and the education task meant as raising awareness, the promotion of local and international networks, the regional welfare expressed in functional infrastructures and facilities, as well as new occupancy opportunities.

3. METHODOLOGY: STUDY AREA, DATA COLLECTION and ANALYSIS

In this chapter I will introduce and present the selected study area of Škocjan Caves Park, the methods of data collection and their analysis. For this thesis, surveys and interviews of visitors, local people, Biosphere Reserve ambassadors and Park managers were carried out. Additionally, the last two management plans of the Park have been analysed in order to have (i) a good scale for comparison and integration purposes and (ii) a suitable framework for evaluation of the Park management activities.

In the first section, I describe the study area by illustrating the natural and cultural main features, the brief history of the establishment of the protected area, and the contemporary management activity.

In the second section, I present the tools used for the data collection. In the third section, methodologies of the analyses are presented for each single source of data.

3.1. Study area: the Škocjan Caves Park

3.1.1. Geographical features and the Karst

Škocjan Caves, an exceptional limestone caves system, is situated on the South West part of Slovenia, close to the Italian border, where the Mediterranean and continental climates meet.

Figure 2. The map of the entire area of the Park. On South-Est it is located the Snežnik mountain and the Reka River crosses the entire Park's area. Explanation of the three zones (core, buffer and transitional) follows in paragraph 3.4.1. "Conventional recognitions". Map kindly provided by B. Peric, geographer of the Park (19.01.2020).

In this region, typical strong wind, Bora, blows during the winter season reaching a speed up to 200 km/h. Precipitation is an important element of the entire area and is

concentrated in short periods, mainly in autumn as heavy showers (1.392 mm per year). Rainfall volume is largest in the south-east area of Snežnik (>2.500 mm). The mountain, which is located on border between Slovenia and Croatia, represents the highest non-Alpine Slovenian mountain (1.976 m). From here, the Reka river starts to flow for 55 km, until it reaches the Škocjan Caves where it sinks underground and appears on the surface in Italy, 33 km further. The system is thus one of the world's largest known underground river canyons (Debevec et al., 2018) and the river is considered the largest disappearing river in Slovenia and one of the largest in the world, when, after heavy rainfall, the flow rate exceed 300 m^3/s. The highest/lowest water level fluctuations ratio equals to 1:3000. The largest flooding area is in the Ilirska Bistrica valley where the floods can cover an area from 6 km^2 to 7 km^2. These extreme fluctuations are typical for karst areas with river basins. According to the definition, karst area is *an area of land formed of rock such as limestone that is worn away by water to make caves and other formations* (Cambridge Dictionary, 2019).
For instance, the Reka river drainage basin is a crucial part of the Park and represents its zone of influence. The basin is composed by North East region with karstic surface and by the South West region with waterproof soil, a mix of marl-sandstone rocks, called Flysch (Figure 3). Here, the plateau of Brkini lays and forms a famous fruitful rural landscape. In the proximity of the villages of Matavun, Škocjan and Betanja (green area of Figure 2), Reka River disappears underground creating canyon, holes, caves and crevasses, natural bridges and sinkholes.

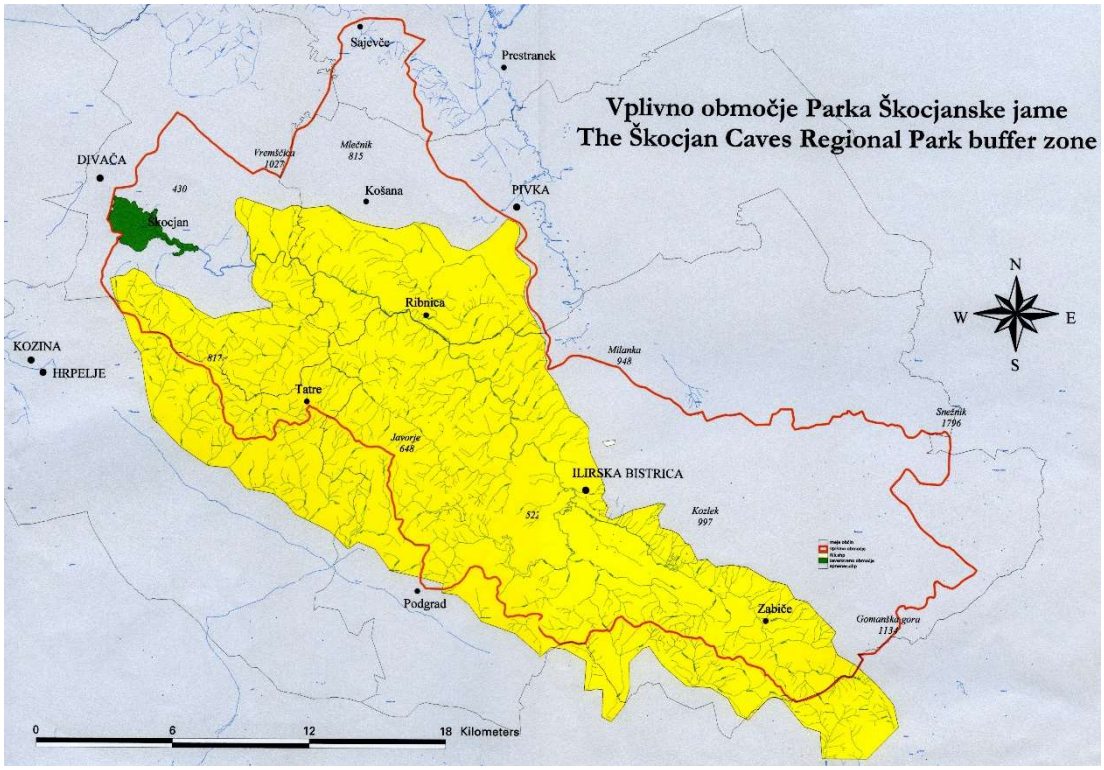

Figure 3. Geological map of the Park: the yellow area represents Flysh plateau where the Reka River flows. Grey area is karst area. Red line represents the Park's border, the green area is the core zone of the Park, where the Caves are located. Map kindly provided by B. Peric, geographer of the Park (19.01.2020).

This area is an important part of the small region known as the Classical Karst, the cradle of geological and speleological studies of karstic phenomena: dissolution processes and their forms. Particularly the research played a pioneering role in naming karst phenomena and structures (Cucchi et al., 2012). Karstology discipline finds its roots in the word "Karst" which indicates this area hinterland of the Trieste Bay in the northwest Dinaric area. The meaning of this name can be found in paleo-European word "Kar" or "Krs", which means "rock" (Simms, 2014). Also, another worldwide scientific term finds here its origin: "*doline*", that indicates a different size "*funnel-shaped depression of the ground surface formed by solution in limestone regions*" (Collins English Dictionary, 2020), is the Slovenian expression that means "valley".

Although explorations in Škocjan Caves started centuries ago (i.e. maps from 1561 and 1637; description of 1689 by Valvasor and speleological systematic exploration from the 19th century), the research is still on-going, since such a complex cave system and such a dynamic river regime makes it hard and risky to conduct. The overall system of known and explored underground caves and tunnels counts 6 kilometers.

3.1.2. Biodiversity

Slovenia is known to host one of the richest terrestrial and aquatic troglobitic fauna in the world with more than 400 species (Programme for the Protection and Development of the Škocjan Caves Park from 2013–2017 period) presenting also the only European cave-dweller, the olm (*Proteus anguinus*), which is listed in IUCN Red List due to its very limited distribution.

Škocjan caves belong to a group of caves with rich underground fauna since they support many species of Oligocheate (worms), Copepoda (Crustacea), Mollusca, Insecta such as flies, butterflies, beetles, spiders, grasshoppers, acars. The olm also can find here a suitable habitat. Furthermore, the Škocjan caves fauna represents an outstanding biodiversity value since 23 different species of bats live and spend maternity and hibernation period. The Park and its surroundings provide sufficient areas with woods, hedges, mowed grasslands and bushes, which are vital for the preservation of bats.

The whole protected area is also included in Natura 2000, as a Karst special Protection Area and a Karst Special Conservation Area as habitat to endangered European fauna and flora species, as well as a migratory corridor for birds of prey and large mammals. The ornithological value is confirmed by the inventory of 2010-2013 which recorded 81 species, 49 of them are nesting birds and among which, many are of international importance.

Generally, the fauna in the entire area of the Park ranges from sub-Mediterranean and subalpine fauna. Transitional species are the lynx, bear, wolf, and occasionally the jackal are recorded, as well as a permanent herbivore fauna is recorded (e.g. roe deer, red deer, wild boar, rabbits, squirrels….) and also smaller predators (foxes, badgers, white-breasted martens, weasels…).

From a floristic point of view, Škocjan Caves Park hosts an extraordinary biodiversity. For instance, in collapsed dolines, it is possible to observe some glacial relicts at the bottom (like *Primula auricula*, *Viola biflora, Saxifraga crustata Campanella*

Justiniana, a dinaric endemic species) and some thermophilic species 40 meters higher (*Asparagus acutifolius, Adianthum capillus-veneris, Sempervivum tectorum, Juniperus oxycedrus*). During winter, warm air arises from the cave while the bottom remains at low temperatures. This mechanism creates specific microclimatic conditions that allow the interesting and unique coexistence of thermophilic and glacial species (Zorman in Peric et al., 2003).

The vegetation in the protected area is composed of thermophilic forests of mixed deciduous trees (for instance, the community of hop hornbeam, oak and autumn moor grass *Ostryo-Quercetum pubescentis*). Significant presence of the non-native species of black pine units is due to the past afforestation (Gajšek et al., 2015). The three small settlements are surrounded mainly by forest spotted by some agricultural and pasture fields, with old orchards (plum and apple trees).

In the Park's zone of influence, five municipalities are immersed in a rural landscape. Cultivated lands (particularly, it is famous the Brkini area because of old apples cultivation and the production of *slivovica*, the typical plum spirit), are interrupted by ponds, wetlands and rivulets. The surrounded forests host an important biocenosis of *Fagus sylvatica* and *Abies alba* (European beech and silver fir): these are forests that are mostly well preserved and represent one of the largest uninhabited areas in Europe. In several typical karstic depressions, thermic inversion occurs and gives habitats for other phytocenosis (Lonicero caeruleae – Piceetum, and Hacquetio- Piceetum).

In this environmental complexity, the avifauna consists of some valuable species as they are bioindicators, umbrella, or threatened species, i.e. *Crex crex, Ixobrychus minutus, Coturnix coturnix, Alcedo atthis, Merops apiaster*. It is also worth mentioning that Lepidoptera taxa represent a great biodiversity value: it presents 90 different species (the 50% of butterfly species in Slovenia) among which 18 species are declared endangered at the European and national levels and most of these live in dry karst grassland, a vulnerable habitat of the region (Management plan).

Finally, the overall evaluation of natural heritage of the Park does not lie in quantitative data, but rather in the diversity of present species (Zorman in Peric et al, 2003).

3.1.3. Cultural heritage

Certainly, valuable cultural heritage arises from such a complex environment with amazing morphologies. Abiotic features (soil composition, water regime, wind, climate) gave life to some of the most characteristic architectural features of the region.

Because of the Bora wind, many buildings have stones on their roofs to prevent the tiles from being blown off and have no windows on the façade of the wind side. Additionally, the old railway was protected by a long stone wall which stopped accumulations of snow brought by the wind (they can reach up to 70 cm).

Moreover, in the past the provision of water was not easy in such a karstic area. Therefore, in natural depressions, layers of clay were affixed in order to create an impermeable surface for the ponds to be used for cattle (called "*kal*"). Karstic processes removed many rocks from slopes and from other surfaces. These have been used as building material for houses and for dry stone walls which delimitated agricultural or pasture lands. Since 2018 these have been included in the UNESCO list

of intangible cultural heritage of humanity as they are a great example of the harmonious relationship between human beings and nature, tradition and biodiversity.

The Park cultural landscape is recognised to present characteristic features of national importance. It is defined by agricultural terrain, the common (called "*gmajna*": uncultivated land, sometimes in common ownership of the village) and the forest. Many sinkholes were used to host agricultural areas.

The magnificent natural landscape of Škocjan Caves, made them an extraordinary witness of ancient history. More than 30 archaeological sites have been recorded here. The area is known to be inhabited since the Early Stone age, Bronze and Iron ages. Throughout the centuries, this area covered an important role as a sacred site which attracted people from near and far (stretching all the way to Greece, Transylvania and the Italian Peninsula). As a burial ground, a sacrificial site, a Cristian sanctuary, and as a crossroad of various trade routes, this place brought to light innumerable objects from different ages and cultures. More than 3000 items are recorded in the Škocjan Caves collection.

3.1.4. Conventional recognitions

The first legal protection form dates back to the 1980 when the Šezana District Council (which at that time managed the cave) approved the protection of the Škocjan Caves in order to preserve the karst environment and to prevent any inappropriate tourism development (Duval, 2006, ex Zorman, 2004). From there half of the current Park became a Natural Monument (200 hectares).

The role in the pioneering karstic research, the remarkable canyon and geological features, the rich archaeological heritage, the great biodiversity and the traditional cultural heritage, motivated local people to recommend the site for a UNESCO World Heritage designation. The first attempt in 1982 failed because of the pollution level of Reka river. In 1986, after the requested improvements, the Škocjan Caves were entered on the list of cultural and natural World Heritage as an exceptional natural karst phenomenon (criterion vii) as on-going geological karst processes (criterion viii).

The dedication of locals brought about the establishment of the Regional park of Škocjan Caves Park (Official Gazette of the Republic of Slovenia, No 57/96) in 1996. The Park has been delineated as follows (Figure 4):

- A central area that includes the area of World Heritage and the three villages of Škocjan, Betanja and Matavun (402 ha). It hosts 74 residents.
- A buffer zone or zone of influence, that is the drainage basin of Reka river (45.000 ha): this area has direct influence on the status of the core area since the Reka river flow regime and its water quality affect the Škocjan Caves ecosystem.

A few years later, in 1999, Škocjan Caves with the underground stream of the Reka River were added to the Rasmar List of Wetlands of International Importance becoming thus the first European underground wetland site and one of the largest (Briggs, 2013).

Afterwards, in 2004 the entire area became a Biosphere Reserve of UNESCO "Karst Biosphere Reserve" that confirms the past efforts and permanent willingness of conserving, valorising and using natural and cultural heritage in the path of

sustainability. An additional area of 15.000 ha has been added as a transitional zone that comprises the Divača municipality (Figure 4). It is the area of communication since activities related to agricultural activities, housing and other land use require cooperation between local communities, scientist, experts, NGOs, cultural organizations and other stakeholders.

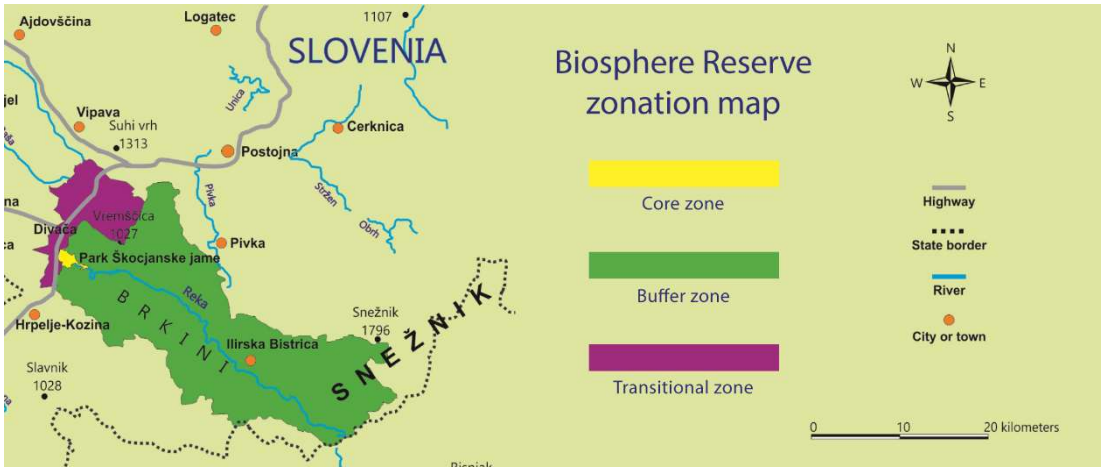

Figure 4. The Škocjan Caves Park and the three management zones: the central, the transitional and the zone of influence. Map kindly provided by B. Peric, geographer of the Park (19.01.2020).

The Park is also part of Natura 2000 network: three Sites of Community Importance overlap almost the entire surface of the Park. Karst Special Area of Conservation and Reka river Special Protection Area originate from the Habitats Directive, and the Karst Special Protection Area originates from the Birds Directive.

3.1.5. The Škocjan Caves Park management

The managing authority the Škocjan Caves Park Public Service Agency was established in 1997 by decision of the Government of the Republic of Slovenia. It is obliged to prepare programmes and development plans for the Park, including them in the "Programme for Protection and Development of the Škocjan Caves Park". Adopted pursuant to Article 60 of Nature Conservation Act (Official Gazette of the Republic of Slovenia, Nos. 96/04-official consolidated text, 61/06-Zdru-1, 32/08-Const. Court Decree and 8/10-ZSKZ-B) and to the Article 13 of Škocjan Caves Regional Park Act (Official Gazette of the Republic of Slovenia, Nos. 57/96, 7/99-ZVKD and 110/02-ZGO-1) the Programme represents the management plan: a quinquennial plan which provides the guidelines for the protection and development of the Park in the national and international context. A protected area must take in account international Conventions, European treaties and national decrees. For instance the Agency must consider the above mentioned Convention of World Heritage, the Ramsar Convention, Conventions of Natura 2000, other European treaties (i.e. Convention on the protection of the Alps, Agreement on the Conservation of African-Eurasian Migratory Waterbirds) and the national legislation (e.g. Cave Protection Act, Cultural Heritage Protection Act, etcetera…and guidelines related to agriculture, forestry, hunting and so on…).

The development orientations, the manner of protection, the use and management of the protected area are laid down taking the utmost account of the nature protection goals and possibilities for the development of local communities (Programme for

Protection and Development of the Škocjan Caves Park). The management plan is drawn up on the basis of analyses of the Park state (natural, cultural, economic and social features). It reports strengths, weaknesses, opportunities and threats, and lists objectives and specific tasks as well as the financial plan.

So far, the Agency elaborated three management plans, suitable for the current and future conditions based on SWOT analysis and coordinated within a legal context. In the periods without a quinquennial plan, an annual plan is adopted in alignment with the guidelines of Slovenian Ministry.

Since the establishment of the Agency, the permanent working body doubled, counting today 24 permanently employees paid mainly by the Republic of Slovenia and partially by the Agency. The Agency is composed of the six service departments: Nature Protection and Surveillance Service; Research and Development Service; Service for the Organisation of Visits and Marketing the Park's Activities; Spatial Planning Service; Technical Maintenance and Real Estate Management Service; Accounting and General Affairs Service. The Agency also recruits staff on fixed-term contracts, paid from the Agency owned revenues or from project funds. These are for seasonal work and for international and national projects and for traineeships. Currently there are four people working for projects, twenty-one for Nature Protection Supervisory Service and Guiding and two as trainee posts (Programme for protection and development of the Škocjan Caves Park for the 2019 – 2023 period).

The role of the Agency is very wide, it supervises and monitors cultural and natural heritage, coordinates research studies and organizes research and educational work, participates in international projects, ensures the promotion, cooperates with local people and agencies, maintains visitor infrastructures and accessibility of the Park and performs guiding services.

Since its establishment, the Agency has devoted particular attention to educational programmes tailored to different target groups: employees, part-time guides, voluntary rangers, members of the Karst Biosphere Reserve committees and stakeholders, primary and secondary school pupils, their teachers, students, and the local population. It has been organising expert meetings on several important aspects of a protected area activities (e.g. on ecosystem services, on World Heritage monitoring, on Biosphere Reserve activities...).

3.1.6. Development of tourism

For centuries the Škocjan Caves have been visited by people. The oldest official proof of tourism presence is given by the paintings of French painter Luis-Francois Cassas (1802) which illustrates people visiting the bottom of Velika dolina.

Systematic exploration began in the 19th century and trails had been slowly built. According to some sources, the first visitor book was printed in 1819 (now lost or destroyed) and in the 1823 the first physical arrangement for tourist in the Velika dolina was completed probably ordered by the county's councillor Matej Tominc. From that time, it has been reported by one of the official explorers, the Czech-born Austrian Adolf Schmidl, that only 150 visitors per year arrived in Škocjan Caves (Shaw, 2018).

Certainly, explorations and improvements of accessibility (bridges, trails, steps, fences) of the caves paved the way for the current tourism. Škocjan caves belongs to the national category caves that is open for public with restrictions (Debevec et al., 2018; Duval, 2006). The visit, indeed, requires the purchase of entrance ticket and visitors are led by a trained and entitled guide. The visit outside caves system is first-hand experience and does not require a ticket. However, designed and planned paths conduct visitors along the Educational Trail (opened in 2002) and to the ethnological and natural museums. The map of trails is below reported (Figure 54).

Figure 5. The map of the Park's trails: the different colours represent different trails. Although not written here, there are represented the three villages Map retrieved on 02.24.2020 from: www.park-skocjanske-jame.si/en/read/tourist-information/skocjan-caves-guided-tours

3.2. Data collection.

Interviews and surveys were conducted during autumn 2018. From these it has been extrapolated (i) a socio-economic analysis of visitors and (ii) an evaluation of tourism and management aspects within the local community and the managers perspective.

The review of the Park management plans offers important information and data that allow to assess the status and the development of the Park.

3.2.1. Visitor surveys.

The development of this survey was based upon previous local surveys (i.e. surveys developed for Monitoring of World Heritage Sites Project, 2013 and for assessing the carrying capacity) and took inspiration from the survey research conducted in Mountain Pine Ridge Forest Reserve, Belize (Kumble, 2009).

The visitor survey is anonymous and composed of 3-pages of closed-ended questions and rating scale questions. The survey starts investigating socio demographic aspects, such as age, gender, provenience, education. It then shifts to information about the visit: times of visit, reasons and perceptions, and company. Questions that determine time and money spent, collect information on economic aspects. The survey continues with a rating section on the satisfaction of features about Park management. It concludes investigating the interest, by the visitor, for future visits to the area and surrounding territory. Visitors are also queried regarding their knowledge on the protection designations of the Park.

Since Škocjan Caves Park is an internationally known destination, the survey was offered in the same four languages of the guided tours:

- Slovenian as mother tongue of the regional tourism;
- Italian because the proximity of Italy makes the Park a popular destination for Italians; furthermore, after the First World War, the area became part of the Italian dominion.
- German due the proximity of Austria; also, the region was a part of the Austro-Hungarian empire up to 1918;
- English as the international language;

The English version of the survey is given in Appendix II.

I administrated, distributed, and collected the surveys, always at the same location in the Park, where nearly all visitors in the Park go through (Figure 6). The advantage of survey on site lies in that it *enables respondents to focus on their current experience* (Moore & Polley, 2007). The selected position (the yellow point in Figure 6) was the Visitor Center area where a visitor can purchase tickets for the guided tour in the caves and can obtain information about the survey. Also, most visitors after the guided tour are here reaching the parking area or looking for restaurants.

Figure 6. On the map is marked the selected location for the distribution and collection of surveys. It is clear that it is located on the three trails starting point. Map retrieved on 02.24.2020 from: www.park-skocjanske-jame.si/en/read/tourist-information/skocjan-caves-guided-tours

The survey was administered during autumn 2018, from September to November; specifically, on weekends and holidays in order to contact a greater number of visitors.

3.2.2. Locals surveys.

Local people were surveyed in autumn 2018. I delivered and collected the questionnaires by hand in the three villages of Škocjan, Matavun and Betanja. For some inhabitants, it had been possible to send the questionnaire via email. The used language was Slovenian; English version is attached in the Appendix III.
The help of a local person for the delivery door to door and for the translation was fundamental.

As for visitor surveys, this document was based on previous surveys: one from 2006 for the research of calculation of carrying capacity, specifically about the impact of visitors on residents; the other survey had been administered in 2013 (Debevec 2013a) and developed for Monitoring of World Heritage Sites Project (Debevec 2013b).
This latter document investigated aspects of a local community situated within a UNESCO site.

The survey for locals is composed of two pages with two sections of checkbox questions, one section of rating scale questions and with five open-ended questions.

The first part requires basic data on socio-demographic aspects such: age, gender, education, residency, employment and economic revenue, etc. Investigation about the knowledge of Park recognitions has been proposed in checkbox questions. Options "*Yes I know perfectly*", "*I heard about it, but I don't know exactly what it is*" and "*Not familiar with*" were used to investigate separately the knowledge on Park's treaties of

UNESCO World Heritage, Rasmar designation, UNESCO Bioshere Reserve and Natura 2000.

A rating scale section asked to respondents to agree or disagree to eleven statements. The scale has 5 level coded with numbers: “1” Strongly disagree, “2” Disagree, “3” Neither agree nor disagree, “4” Agree, “5” Strongly agree. The statements and have been formulated on the base of relevant aspects for a person who lives in a protected area (environmental conditions and relationships with operators and visitors). Consequently, they concern to the overall management of the Park.

A concluding section allowed residents to express themselves with their point of view, their perceptions, concerns and desires for the future life, their relationship with the Park operators and their feeling about visitors presence.

3.2.3. Karst Biosphere Reserve Ambassadors surveys.

In order to include the local community living in the area of influence, during the winter semester AY 2018-2019, the Karst Biosphere Reserve Ambassadors had been contacted by email to complete a survey. The title of Ambassador is granted to individuals who with their past work have contributed to quality promotion, development and operation of the Karst Biosphere Reserve. The title expresses the commitment to actively continue that work, becoming an aware connection between the Biosphere Reserve and the Park. Group members will give suggestions for the regular annual plan of Škocjan Caves Park and Karst Biosphere Reserve. Since the 2012, Karst Biosphere Reserve Ambassadors amount to approximately fifty people.

The survey content is similar to that of the survey of Park resident community. However, socioeconomic data are not required. Perceptions and opinions are probed through:

- fourteen rating scale statements (from 1 “strongly disagree” to 5 “strongly agree”) which expresses the opinion on: the Park management, the personal involvement, the current conditions of the Biosphere Reserve. Three of these statements require further specification.
- four open-ended questions which explore perceptions about the Biosphere Reserve: current and future threats, investment priorities, connection with the Park and the local community participation.

Survey has been translated to Slovenian language and sent to them via email (in Appendix IV the English version).

Due to the low number of compiled surveys (tot.6), the contribution of Karst Biosphere Reserve local community has not been considered in this study.

3.2.4. Interviews for managers.

Based also on the separation of departments, six interviews had been prepared:

- For tourism and marketing
- For cultural heritage and ethnologist

- For natural heritage
- For Karst Biosphere Reserve
- For education activities
- For UNESCO values

Sent via email, the interviews present from 4 to 7 opened-end questions.

The interviews have been conducted in order to better understand and evaluate (i) the current Park condition and (ii) the results from surveys, helping in drawing conclusions.

3.2.5. Management Plans

A management plan is a requirement that designations such UNESCO, demand to guarantee the integrity of the site.

An accurate and updated knowledge about the natural and cultural heritage of the site allows the formulation of a suitable management plan which can thus properly delineates objectives, priorities and methods.

The Škocjan Caves Park management plan is an excellent tool for determination of the current management context and perspectives. Therefore, for this thesis the last two plans (the Programme for Protection and Development of the Škocjan Caves Park for the 2013-2017 period; the Programme for Protection and Development of the Škocjan Caves Park for the 2019 – 2023 period. Hereinafter: MP 2013-2017 and MP 2019-2013) have been reviewed and evaluated. These documents and their comparison allowed me to obtain guidelines tools and data for further analyses of surveys results.

3.3. Data analysis

3.3.1. Visitor Surveys.

For the analysis of collected surveys, a database has been created using a suitable language for statistical analyses with R Programme (https://www.r-project.org/). All questionnaires have been inserted, and empty answers coded with NA (Not Applicable). In Appendix V it is reported the list of the selected questions with the proper codification for statistical analysis. The database is available for further research analysis.

All details are described in the followings.

First, I explored:

- basic socio demographic aspects (age, gender, education, nationality, company).
- economic aspects: the spending in catering, in accommodation and in retail shopping; the possible association between the age or education and the spending, as well as between times of visit and nationality.
- visit elements concerning the times, the reasons, the most attractive feature, the evaluation of technical features of the Park, the proposals and interest for visiting the Karst Biosphere Reserve.

By investigating the results of these points, a classification was created for the tourists visiting the Park. Further analyses from visitors' survey allowed to explore the efficiency of some features of the Park and to investigate the visitor interest for future visits. For instance, I analysed:

- the value of the visitor knowledge of the Park protection regime in relation to the spending, the overnight and the times of visit, as well as the interest in discovering the surrounding areas.
- the interest in visiting the surrounding (the Karst Biosphere Reserve) in relation to some demographic aspects, as well as in relation to the perception of friendly local people, rather than the perception of money spent, the easy accessibility and the interest in local culture; also, the interest of visit the area has been analysed through the rates of some Parks features.

It follows a list of the used methods based on the data type rather than on the content of questions.

a. I assembled graphs and tables in Excel illustrating single questions related to basic socio demographic aspects (i.e. age classes, education levels, company, zone of proveniences and gender)

b. I analysed rating questions and multiple answers questions with contingency tables. These are displayed in graphs (i.e. reasons of visits, visited places, appealing features of the surrounding, possible motivations for visiting the Karst Biosphere Reserve). I merged some selected questions in contingency tables. Histograms visualise the distribution of frequencies of given answers. Specifically, there are presented only the rank of interest in visit of the surrounding in relation to some chosen appealing features.

c. Expenditures for catering, accommodation and retails were analysed in R with descriptive statistical summary and displayed then in boxplots. I detected outliers and presented a more reliable means of the categories.

d. Application of Pearson Chi-Squared Test and Fisher's Exact Test allowed me to investigate the association of some answers frequencies.
Generally, the null hypothesis states that the two variables are independent, with the assumption of no association. In order to check the strength of our results I also checked the value of residuals.
The following table shows the combined questions (the question number is in parenthesis) whose association I have investigated. Tests are formulated combining questions that involve socio and economic aspects.

Table 1. List of investigated aspects and the chosen tests in R programme. The association of variables on the same row have been tested. For the choice of the test, the type of variable is determiner. Thus, the Pearson's Chi Squared Test has been chosen for testing the association between dichotomous variable (with 2 levels) and a categorical variable (with >2 levels). The Fisher's Exact Test has been chosen in testing two dichotomous variables.

Variable	**Type of variable**	**Levels**	**Variable**	**Type of variable**	**Levels**	**TEST**
Spending (13)	dichotomous	2	Age (1)	categorical	5	Pearson's Chi Squared Test
Spending (13)	dichotomous	2	Education (3)	categorical	5	Pearson's Chi Squared Test
Times of Visit (5)	dichotomous	2	Origin (4)	categorical	7	Pearson's Chi Squared Test
Knowledge (10)	categorical	4	Spending (13)	dichotomous	2	Pearson's Chi Squared Test
Knowledge (9)	dichotomous	2	Overnight (12)	dichotomous	2	Fisher's Exact Test
Knowledge (10)	Ordinal categorical	4	Times of visits (5)	dichotomous	2	Pearson's Chi Squared Test
Interest in visiting KBR (20)	Ordinal categorical	5	Knowledge (2)	dichotomous	2	Pearson's Chi Squared Test

For rating scale, it was possible to apply the method of recursive partitioning (Classification and Regression Tree). For instance, I prepared a Regression Tree, of two ordinal categorical variables (rating scale from 1 to 5 "very poor- very good": question n.17, which rates the satisfaction level of some features of the Park, and in question n.20 which requires to express the interest of visiting the surrounding). The obtained decision tree explores the interest in visiting the surrounding area based on all the values of each of the Park's features creating the best homogeneous sets of variables and values illustrating finally which are the most influential.

3.3.2. Locals surveys.

The questionnaire has been analysed creating different sections based upon the information and the type of question: i.e. socio-demographic section, knowledge section, rating scale section and open-questions section. Most of the data were analysed using descriptive statistics:

- Socio-demographic section. I present the average age, the proportion of genders, the mode of the education level, the civil status and the average family size. Numbers of employees and unemployed, and activities carried out in the core area are illustrated also in this section.
- Knowledge section. The answers "not familiar" and "I have heard about it" have been bound together in order to have two categories: one positive ("Yes I know") and one negative (bounding the two above options). Then, the simple count of responses will be graphically presented.
- Rating scale section. Eleven statements have been grouped in three categories based on the required information: about quality (blue colour), about involvement (yellow colour) and about visitor relationships (red colour).

A. Presence of the Park: The quality of my life has been improved because of PŠJ.
B. Presence of Park: I live in a better environment; no pollution from traffic; clean water and air.
C. Involvement: I have the opportunities to participate in the management of Park.
D. The communication with managers and rangers is easy.
E. Visitors do not affect my privacy.
F. Visitors strongly affect the quality of my life.
G. The management of visitors is good and does not have any deficiency.
H. The natural environment in the Park is well protected and managed.
I. I want to be more involved in the Park activities.
J. I would like to have more contact with visitors, and I may participate in some forms of tourism activity.
K. I would like to see some improved facilities and/or services in the area of the Park.

Results will be presented with this subdivision. However, each statement has been analysed individually by counting the frequency of the given rates and by calculating mode and average.

- Open questions section. The type of required information determined to the adoption of a homogeneous terminology connected with the previous section.

The colour of number represents the category: about quality (blue colour), about involvement (yellow colour) and about visitor relationships (red colour). The five questions are the following:

1. *Regarding local natural environment and culture (human) elements: at the present, do you think there are some threats to their preservation?*
2. *How would you like to see improved the quality of your life?*
3. *How would you like improve the connection with the managers and Park?*
4. *What type of contact or involvement do you have with visitors? Do they affect you positively or negatively?*
5. *Is there something specific that you would like to see implemented or you wish to see avoided?*

3.3.3 Management plans

The comparison of the two management plans was conducted in 2019. Data have been selected and re-elaborated in order to visualise them through graphs and tables. Changes in the legal framework, in the administrative structure, in the natural and cultural status assessments, in the socio economic conditions of the Park, in protection and developments objectives, in the financial plan, and in the planned activities and tasks have been detected and reported.
The comparison is presented with the following sections:

- changes in administrative and geographical features: the structure of the Agency and the number of employees; the core zone surface and its use.
- financial overlook: revenues and expenditures compared to the two previous five years programmes (data about the 2008-2012 period are presented in MP 2013- 2018; data about the 2013-2017 period are presented in MP 2019-2023); foreseen financial activity for the period 2019-2023 will be presented too.
- natural heritage assessment: status of nature conservation and environmental issues.
- cultural heritage assessment: status of cultural heritage and related issues.
- socio-economic aspects of locals: demographic changes and a small economic overview.
- Park visibility: developments in cooperation and affluence. The developments observed in the period 2013-2017 and the trend of visits.
- Guidelines and objectives: overlook of objectives, indicators and tasks.

The comparison of management plans will provide an overview of the study area, it helps contextualising the discussion of the (i) survey analyses and of the (ii) Park's conservation status assessment.

4. RESULTS

In this chapter the results from the statistical analyses of visitors' and locals' surveys collected in 2018 are presented. The comparison of the two management plans the Programme for Protection and Development of the Škocjan Caves Park for the 2013-2017 period and the Programme for Protection and Development of the Škocjan Caves Park for the 2019-2024 period, are rather discursive.

4.1. Visitor surveys

In total I collected 522 questionnaires from visitors during the autumn of 2018. They represent 0.2% of the 2018 visitors. Results are divided into these three sections:

A. Basic data: socio-demographic aspects as well as basic information about visitors including why they visited the Park, what was the most appealing features, which other places they visited, what are the possible motivations for visiting the Karst Biosphere Reserve, and lastly their opinions of the Park's features;

B. Economic aspects: analysis on spending and the association with some socio-demographic aspects;

C. Influential elements: a list of combined questions to (i) better understand some impacts of management activities on tourism and to (ii) query opportunities for future visits. In two different subsections there is a summary of the value of knowledge of protection regimes and results on the future interest in visiting the surrounding area.

Graphs, tables and scripts are attached in Appendix VI. Selected results are presented in the text.

A. Basic data

Socio-demographic data are presented below in Table 1. Results on the motivations of visit, on the most additional visited places and on the rates of Park's features are given in Table 2. The question number from the questionnaire is reported in parentheses.

Table 2. Main results from questions n. 1, 2, 3, 4 and 6 of the visitor survey..

Aspect	Appendix	General outcome
Age (1)	VI.a	The main age category of respondents is 31-50 years (42%).
Gender (2)	VI.a	57% of surveyed visitors are female.
Education (3)	VI.a	33% is undergraduate, 38% is graduate degree or PhD title, while 29% have diploma from high schools or primary school.
Company (6)	VI.a	Mainly visitors came with their families (52%), friends (38%) and the rest as organised group or singles.
Country (4)	VI.a	A total of 43 different nationalities were recorded. European countries represent the majority (77%), Slovenia represents approximately 26% of visitors from Europe.

Other information about the visitor:

Table 3. Summary of the answers given the questions number 7, 15 and 17 of the visitor survey.

Aspect	Appendix	General outcome
Motivation of visit (7) (multiple answer)	VI.b (a)	Visitors chose to come to the Park caves to experience the "natural beauty" (79.9%). Other motivations: UNESCO site (29.1%) and recommendation of friends (14.9%).
Other visited places (15) (multiple answer)	VI.b (b)	The 75% of surveyed visitors explored the surrounding natural landscape practising sport activities (walking, cycling, riding), whereas Divaska caves and the Educational Trail have been visited by the 23%. And 25% of the surveyed did not respond.
Rates in Park's features (17)	VI.b (c)	Overall, features like: the accessibility to the Park, the condition of natural trails, the access to information, the boards in the Park and surroundings; all present a relevant high rate of satisfaction. There is no specific feature rated low. Nevertheless, the promotion in media, the catering services, and the souvenirs shopping resulted in medium to moderate grade.

Graphs of Figures 7 and 8 summarise the appealing Park's features observed by visitors (question n.16) and the possible motivations for discovering surrounding area (question n.18).

Clearly, the most appealing feature reported by visitors (Figure 7) is the scenic beauty and its nature coded as "*Landscape*". Another relevant feature is the "*Friendliness of people"* appreciated by almost half of the respondents (202 individuals).

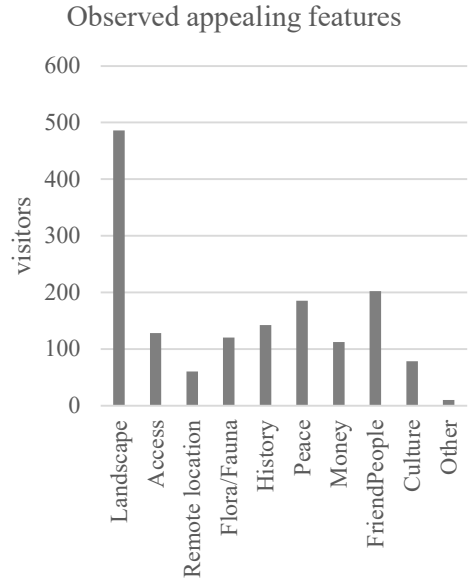

Figure 7. Graphic representation of question n.16. The appealing Park features observed by visitors. In Appendix VI.b (d) the descriptive table.

The possible motivations for a future visit to the Karst Biosphere Reserve are grouped in the pie chart of Figure 8. Of the total of respondents, motivation related to sports (e.g. trekking, cycling, riding, climbing, etc.) and related to cultural offers (e.g. festival, museums, historical monuments, music and art) represent the main possible reasons for future visits to the Karst Biosphere Reserve (respectively the 54% and the 49%).

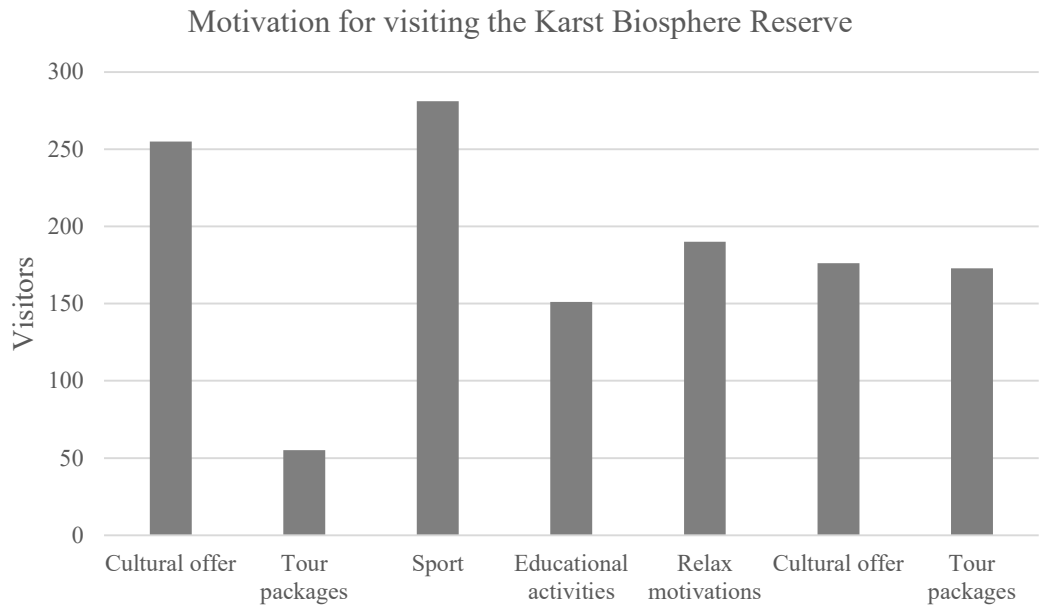

Figure 8. The graph illustrates the preferred motivation for the possible visit in the Karst Biosphere Reserve. (question n.18). In Appendix VI.b (e) the descriptive table.

B. Economic aspects

The entire dataset was analysed regarding the spending in accommodation, catering and retail shopping. The box plot in Figure 9, displays these three categories, described by the Table 4. Results for respondents: 111 reported the expenditures in accommodation (data confirmed also by the answer of question n.12 about "Overnight", with 114 positive), 107 reported the expenditures in retail shopping, and 242 expenditures in catering services. All numbers refer to EUR. Scripts are reported in Appendix VI.c.

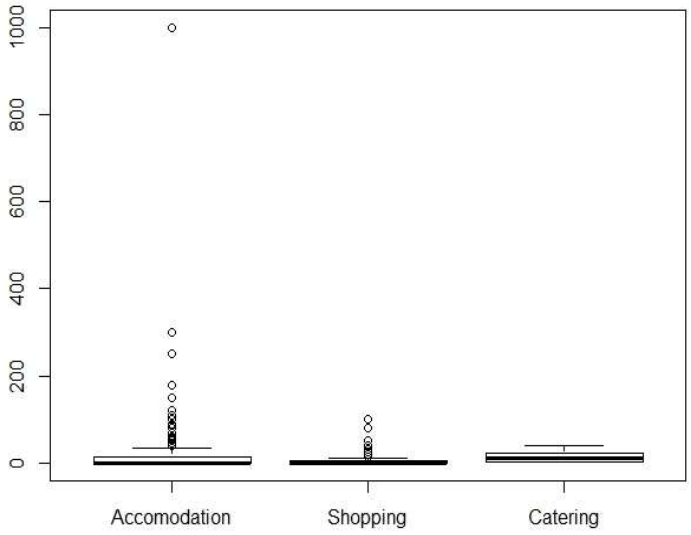

Figure 9.The Boxplots illustrate the dataset of the three categories (Accommodation, Shopping and Catering). The wide range of the dataset of Accommodation category and its outliers, penalised the clear visualisation of boxplots.

Table 4. Descriptive statistic of the visitors' expenditures. Shopping and Accommodation categories have minimum values, 1st quartile and median equal to 0, whereas maximum values are extremely high, thus data range is wide (from 0 to 1000 and from 0 to 100). Catering categories present a dataset with a smaller data range (from 1 to 39). NA frequency is also illustrated for each category.

	Accomodation	**Shopping**	**Catering**
Min.	0.0	0.0	1.00
1st qu	0.0	0.0	2.0
Median	0.0	0.0	11.00
Mean	**18.2**	**4.0**	**12.85**
3rd qu	15.0	5.0	22.00
Max	1000	100.00	39.00
NA	149	153	149

The graphical representation of Figure 9 allows us to individuate outliers. Thus, for Figure 10, all outliers were removed, and data range greatly decreased. The mean for the three categories thus changed to: 20 EUR for accommodation, 7.75 EUR for retail shopping and 13.6 EUR for catering services.

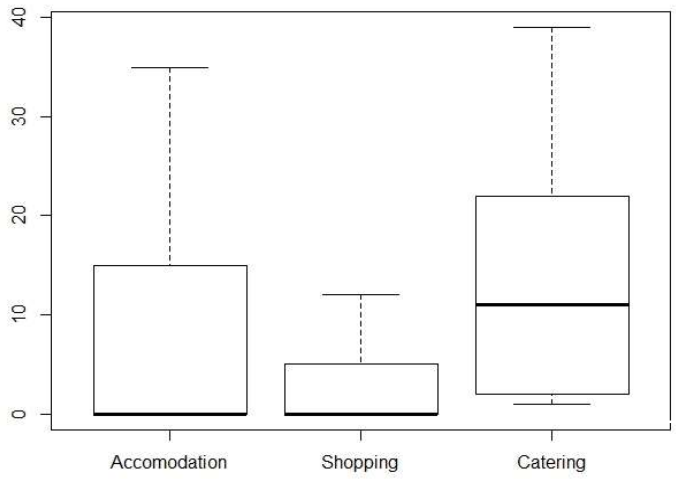

Figure 10. The boxplot of the dataset of visitors expenditures without outliers. Median, 3rd quartile, upper whisker and maximum value are visible for each category. As expected from the Table 4, the minimum value, lower whisker and 1st quartile, are visible only for Catering categories whereas the other two categories present for these parts, values equal to 0.

Spending, education and age.

It is interesting to analyse if there was independence between (i) the age and the education of visitors and (ii) whether they spent money or not. Significant value results from the Pearson's Chi squared test applied for the variable Age and variable Spending (p-value= 0.02749) that makes possible to reject the NULL hypothesis of independence, indicating thus a possible association between the two variables. Scripts in Appendix VI.d.

Times of visit and Nationality.

The test of the independence between the times of visit and the nationality of visitors (i.e. Slovenia, other EU countries, South America, North America, Australia, Africa and Asia) showed a possible strong association since the p-value is remarkably below the alpha value 0.05 (p-value: 0.0004998: thus rejecting the NULL hypothesis). Scripts in Appendix VI.e.

C. Influential elements

Results of the role of knowledge of Park protection regime

Scripts in Appendix VI.f

Knowledge and spending: the level of association between the spending and the level of knowledge was tested. The test of independence did not show any significant value

(p-value = 0.1694) and therefore the NULL hypothesis that the two variables are independent is not rejected.

Knowledge and overnight: the visitors who spent the night in the Park seem more likely to be aware of the Park's special protection zone status than visitors who did not stop for the night (Pearson's p-value=0.0004998; Fisher p-value < 2.2e-16).

Knowledge and times of visit: I obtained a similar result for individuals who visited more than once the Park and the level of knowledge. Pearson's Chi-Squared Test shows a p-value equal to 0.04648, indicating a possible association between the two variables.

Results on interest in future visit to the area

Interest in future visit in Karst Biosphere Reserve and knowledge.

The NULL hypothesis cannot be rejected since obtained p-value is 0.2744 was obtained by applying the Pearson's Chi-Squared Test. Scripts are in Appendix VI.f.

Interest in future visits of the surrounding and some appealing features:

The histogram in Figure 11 shows the frequency of grade of interest in visiting the surrounding. All visitors seem to be very interested (score 5) in visiting the surrounding area.

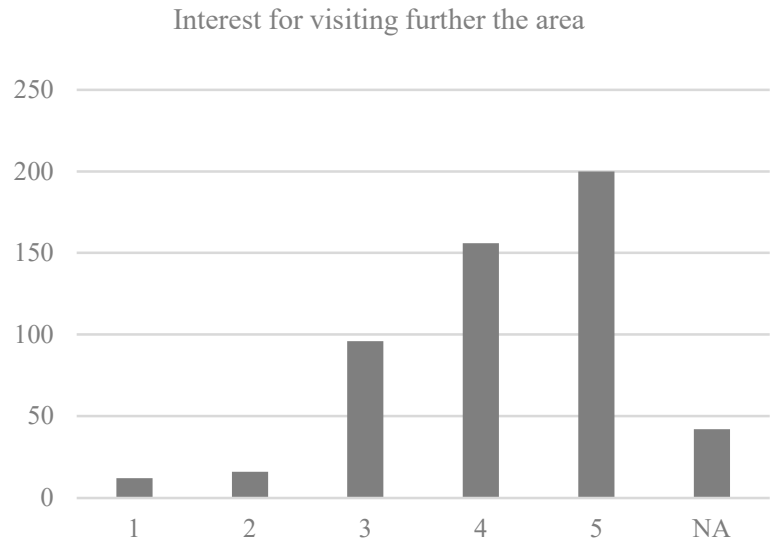

Figure 11. The histogram shows the answers of question n.20 concerning to the interest of visiting the surrounding area. On the x-axis the values 1 to 5 represents the level of interest. The y-axis is the number of respondents. Appendix VI.b (f).

The histogram in the next Figure 12 combines the interest in visiting the area with the frequency of some Park's appealing features. Generally, all the features appear to increase with the increasing interest in visiting the surrounding area. Among the four

features, the local culture and customs (yellow bar) is the prevalent in each interest rate.

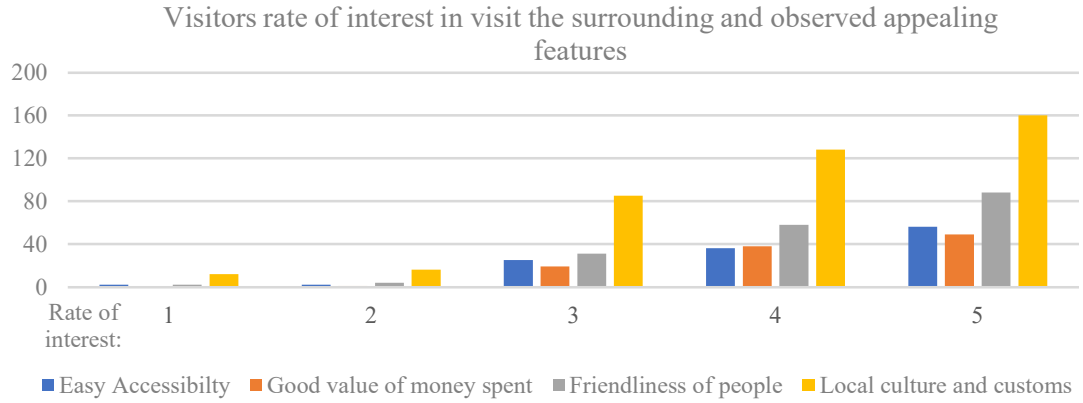

Figure 12. The graph combine the level of interest of visiting the Karst Biosphere Reserve (from 1 to 5), with some appealing features (question n.16): "easy accessibility", "good value of money", "the friendliness of people", "local culture and customs". On the y-axis is the number of respondents. Appendix VI.g

The Pearson's Chi-Squared Test was used to verify the independence between the interest and the feature of friendliness of people: obtained p-value is 0.1089, we cannot reject the NULL hypothesis. Appendix VI.g.

The rated interest in future visit of Karst Biosphere Reserve and the rated features of the Park.

The decision tree below illustrates how the visitors satisfaction in Park's features (question number 17) influences their level of interest in visiting the surrounding (question number 20).

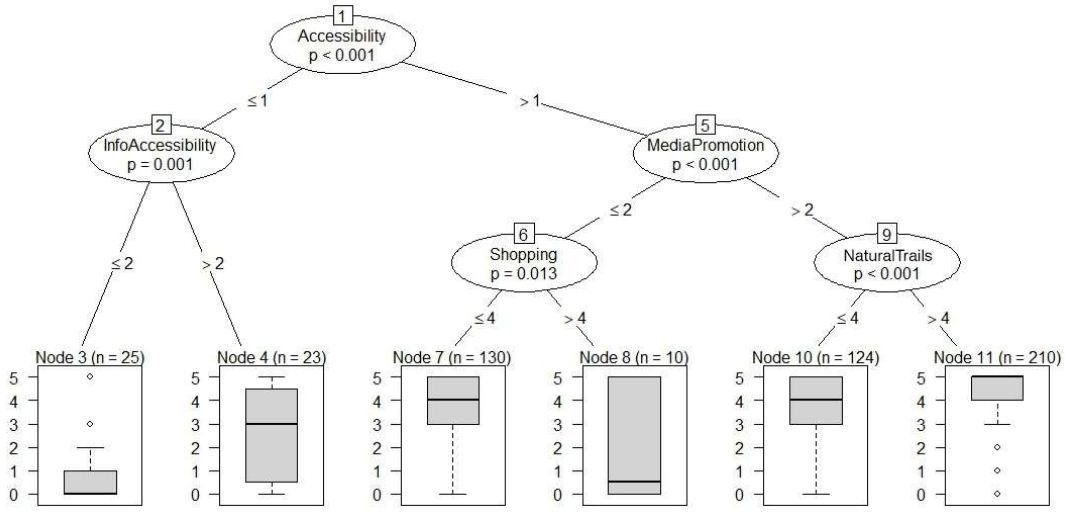

Figure 13. The classification of the level of interest of visiting the surrounding is inspected through the rating of Park features.

4.2. Local surveys

The distribution of questionnaires tried to encompass all the inhabited buildings: of 20 distributed questionnaires 13 were returned completed. Since the number of the official residents is 73, the questionnaires represent a 17.8% of the entire population. Here, results are expressed in percentage considering the 13 respondents as the 100%.

Results in the following sections illustrate:

A. Sociodemographic data
B. Knowledge level of Park designations
C. Rating scale statements about the three categories (i) quality (ii) involvement, (ii) visitors relationships
D. Open-ended questions about three above mentioned categories (i, ii, iii)

A. Sociodemographic data.

Table 5. Resident's socio demographic data 2018.

Aspect	**Result (Individuals)**
Average Age	54
Gender %	23% male – 77% female
Mode Education Level	5
Civil Status	3 single; 6 married; 4 NA * (23%; 46%; 31%)
Average Nucleus of Family	3.6 people

Regarding the residents' activities, surveys show the following situation:

Table 6. It reports the activities of the surveyed residents.

	N. individuals	**Percentage**
Employee	7	54%
Not employee	6	46%
Employee in core zone	1	8%
Activities in core area:		
Agriculture	3	23%
Craft services:	1	8%
Tourism:	2	15%
No activities:	3	23%
NA:	5	38%

The two individuals employed in tourism indicate to host 200-250 people per year, while no information was obtained on the annual income.

B. Knowledge of Park's designations

The histogram of Figure 14 shows the number of respondents with knowledge on Park's designations and number of respondents without this knowledge or with uncertainty. Eight individuals (61% of respondents) know what a UNESCO World Heritage and Nature 2000 site is. On the other hand, considering Ramsar site and the UNESCO Biosphere Reserve, a relevant percentage (54% of respondents) are not aware of the meaning.

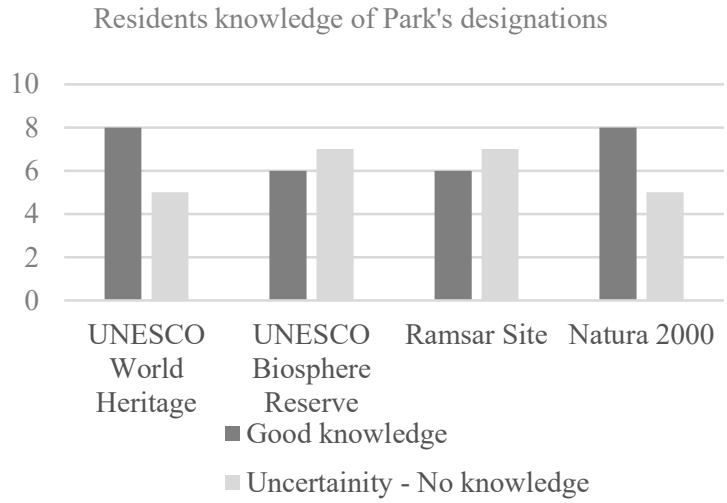

Figure 14. Graphical representation of answer of the question n.2 concerning the residents knowledge on international recognitions.

C. Rating scale section: statements on quality, on involvement and on visitor relationship.

In the eleven rating statements, the most frequent value was 4, "Agree", while the least indicated was 5 "Strongly agree". The histogram Figure 15 shows the total frequency of the five values. Then, categories of quality, involvement and visitors relationship, are presented individually.

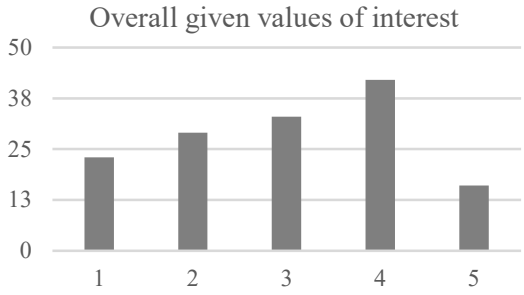

Figure 15. The graph shows the frequency of the given by respondents rating the Park

The table in Appendix VII shows in detail the degree of agreement for each statement.

c.(i) Rating the quality.
All four statements have the mode of the 4 and the mean of 3.

Table 7. Summary of rated quality. Disagree column represents the frequency of the value 1 and 2 (Disagree and Strongly disagree). Agree column represents the frequency of the value 4 and 5 (Agree and Strongly agree). The frequency is expressed in percentage, while the corresponding number of individuals is given in parenthesis.

Statement	Mode	Mean	Disagree	Agree
A. Quality of the life has improved	4	3,2	30,8% (4)	**53,9% (7)**
B. Quality of environment has improved	4	3	30,8% (4)	46,2% (6)
H. Environment is well protected and managed	4	3,5	15,4% (2)	**53,9% (7)**
K. Desire for facilities and service improvement	4	3,7	7,7% (1)	61,6% (8)

c.(ii) Rating the involvement.

Three statements show different modes and means. Participation and communication statements have opposite modes, respectively 2 and 5, whereas the desire of involvement presents the neutral value 3 ("Neither agree nor disagree").

Table 8. Summary of rated involvement. Disagree column represents the frequency of the value 1 and 2 (Disagree and Strongly disagree). Agree column represents the frequency of the value 4 and 5 (Agree and Strongly agree). The frequency is expressed in percentage, while the corresponding number of individuals is given in parenthesis.

Statement	Mode	Mean	Agree	Disagree
C. Good opportunities of participation	2	2,1	**77% (10)**	7,7% (1)
D. Communication is easy	5	4,2	7,7% (1)	**84,7% (11)**
I. Desire of more involvement	3	3,2	15,4% (2)	30,8% (4)

c.(iii) Rating the visitor relationship

All four statements present a similar low rate mean as well as a low rate mode.
Three quarters of respondents absolutely do not wish to have additional contacts with visitors and do not consider the Park's visitors management without deficiencies. Approximately two thirds of the respondents believe that visitors affect their quality of life and privacy. In Table 9 the summary is presented.

Table 9. Summary of rated visitors relationship. Disagree column represents the frequency of the value 1 and 2 (Disagree and Strongly disagree). Agree column represents the frequency of the value 4 and 5 (Agree and Strongly agree). The frequency is expressed in percentage, while the corresponding number of individuals is given in parenthesis.

Statement	Mode	Mean	Disagree	Agree
E. No impact on privacy	3	2,8	46,2% (6)	30,8% (4)
F. Visitors affect the quality of life	1	2,5	46,2% (6)	30,8% (4)
G. Visitor management is good	2	2,4	**61,6% (8)**	23,1% (3)
J. Desire for more contact with visitors	**1**	2,3	**61,6% (8)**	23,1% (1)

D. Open-ended questions: on quality, on involvement and on visitor relationship.

d.(i) Opinions about quality.

The three open-ended questions investigating the resident opinions about the condition of cultural and natural heritage and about their own quality of life, revealed some common traits.

- As for the cultural and natural heritage, except 2 individuals that didn't respond or answer ("NA" value), 9 individuals (69%) do not think that the nature in the Park is currently under threats; only 2 individuals stated that they are concerned about current global climate trends. On the other hand, cultural heritage is believed to be under more pressure compared to natural features. Almost half of respondents stated that they are concerned about the decadency of buildings and overgrowth of vegetation. Interestingly, many respondents mentioned the awareness of natural and cultural features heritage as a key factor for the conservation of both.
- Regarding the quality life, 9 respondents confirmed that they would like to see improvements. Specifically, it seems that there is the desire for improvements of infrastructures, such as roads, better connections, better pavement, more sidewalks; also, the desire for improvements of the sewage system and public transport has often been stated. Other desired improvements cited just once, are: more privacy, more possibilities for employments inside the Park, more attention for natural environment and more possibilities of involvement in visitor activities.

A more detailed vision on quality life about social, environmental aspects and visitor relationship, is given through the following Table 10.

Table 10. Opinions and desires of residents about the (i) visitors presence, (ii) environmental aspects and (iii) social aspects. The ratio at the end of every point represent the frequency of the given answers over the 13 respondents.

	Visitors topic	**Environmental aspects**	**Social aspects**
Avoid:	Mass tourism 3/13;	Pollution 1/13; Planned destruction of cultural heritage 1/13;	Too many restrictions from state Agency 1/13;
Provide:	New tourism opportunities/destinations 4/13; Opportunities for locals for selling their own products 1/13;	Support to Park in protecting natural environment 1/13;	More employments opportunities for locals 1/13; more cultural events 1/13; Historical promises from Ministry 1/13;
Improve:	The touristic offers 4/13; Control on visitor behaviour 1/13; Catering services (e.g. opening hours) 1/13;	Sewage system 1/13; Mortuary 1/13; The cultural heritage management 1/13;	Legislative equity between residents and operators 1/13; The participatory process 1/13;

d.(ii) Opinion on the involvement.

Four individuals (31%) did not respond, while slightly more than half of surveyed (7 individuals) would like to improve the connection with the Park, aiming for more possibilities of meetings.

d.(iii) Opinion on relationship with visitors.

Respondents were asked to evaluate their contact with visitors. Below a summary is presented (Table 11):

Table 11. The different grades of quality of the relationship with visitors and the number of respondents.

NA	**Negative**	**Neutral**	**Positive**	**Alternately positive and negative**
2	2	1	7	1

Overall, residents agree that there is a big difference between the winter season and summer season (the peak), when visitors can be a little annoying. No further specification of this perception had been given (e.g. due to the increased traffic, or noise, ect.). Yet, one of the main reasons of contact between visitors and residents is the request of information.

4.3. COMPARISON OF MANAGEMENT PLANS

4.3.1. Administrative and geographical features:

A general re-organization of the internal structure of the six Services of the Agency is envisioned for the period 2019-2023. Concerning the employments in the Agency, Table 12 illustrates the situation of 2018 (MP 2019-2023) compared to the situation in 2013 (MP 2013-2017). In five years, the number of seasonal guides almost doubled (more than 80%).

Table 12. The number of individuals working for the Park reported in MP 2019-2023. The difference indicates an overall growth compared to the data extrapolated from MP 2013-2017. Some data have been integrated thanks to manager interviews.

	Total 2018	**Difference from previous period.**
Permanent workers	24	+1
Seasonal guides	24	**+11**
Employees for projects	7	+3
Trainees	5	0

Geographically, comparing the two management plans, a loss of one hectare (402 ha to 401 ha) has been detected over the total surface of the Park core zone. The land use comparison shows a different terminology adopted in the two management plans. Nevertheless, both describe land cover based on agricultural land use in the Park. The Table 13 shows the two scenarios:

Table 13. Comparison of the land use in the two periods: for instance, data for the 2013 have been extrapolated from MP 2013-2017 and data for the 2018 have been extrapolated from MP 2019-2023.

Land use 2013	**Hectares**	**Land use 2018**	**Hectares**
Forest	278,13	Forest	277,08
Built up land	13,116	Built up area	12,58
Overgrown land	12,283	Bushes and gradually overgrown areas	16,62
Trees and bushes	12,283	High stem plants	0,40

Permanent meadows and pastures	10,04	Cultivated meadows And Cultivated areas	23,51
Fields and gardens	3,69		
Extensive orchards	2,365		
Vineyards	0,081		
Other	75,139	Bare areas (walls, screes, sands)	15,89
		Dry and semi-dry grasslands	49,56
Water	5,86	Running, standing and intermittently standing waters with or without vegetation	5,29
Total	402 ha		401,01 ha

Cultivated meadows and cultivated areas register an increasing surface (+ 8,5 ha), similarly to bushes and gradually overgrown areas (+4,4 ha), while high stem plants, forest and overgrown areas diminished (11,8 ha, 1 ha and 0,5 ha respectively).

4.3.2. Financial overlook:

In the two management plans, average revenues and received funds are distributed as following in Table 14:

Table 14. Comparison of the sources of funds from the two MP periods. They report the source of funds from the previous MP period. A remarkable increasing of revenue from the Park activities is highlighted.

Source of funds	**MP 2013-2017: Assessment from period 2008-2012**		**MP 2019-2023: Assessment from period 2013-2017**		**Delta**
State budget	26%	2.990.000	19%	2.394.000	- 20%
Revenue from Škocjan Caves Park own activities (entrance fee, retails and rents)	48%	5.5200.000	63%	7.938.000	+ **30,5%**

Funds received from the Farmland and Forest Fund of the Republic of Slovenia	2%	230.000	1%	126.000	- 45,3%
Programmes and projects (mostly from the structural funds – European Regional Development Fund; ERDF)	24%	2.760.000	17%	2.142.000	- 32,4%
Total	100%	11.500.000	100%	12.600.000	+ 8,8%

Average expenditures are below presented in Table 15:

Table 15. Comparison of expenditures in the two management plans.

Expenditures	**MP 2013-2017: Assessment from period 2008-2012**		**MP 2019-2023: Assessment from period 2013-2017**	
	Percentage	EUR	Percentage	EUR
Labour	36%	4.140.000	35%	4.410.000
Costs of material and services and other costs	23%	2.645.000	32%	4.032.000
Investments	15%	1.725.000	12%	1.512.000
Subsidies (decree on the distribution of funds)*	1%	115.000	1%	126.000
Programmes and projects	25% *(the 87% project funds earmarked for investments)*	2.875.000	20% *(the 79% project funds allocated for investments)*	2.520.000
Total	100%	11.500.000	100%	12.600.000
***Pursuant to the decree on the distribution of a Part of Funds of the Škocjan Caves Park Public Service Agency (Official Gazette of the Republic of Slovenia, No 84/99), 1% of all income was allocated to natural persons.*				

The next table, Table 16, shows planned and verified funds and expenditures with their subdivision, for the period 2013-2017. The actual total budget is bigger than that planned, given by an increased in the funds from the Park own sources.

Table 16. Planned and verified financial activities. Planned funds and expenditures are reported in MP 2013-2017. Actual funds and expenditures are reported in MP 2019-2023.

Funds	**Planned**	**Actual**	**Expenditures**	**Planned**	**Actual**
State budget	28%	19%	Labour	39,5%	35%
Own sources	48%	**63%**	Material and Services	38%	37.2%
Other sources	24%	18%	Investments	23%	27.8%
Total EUR	11.536.778	12.600.000	**Total EUR**	11.536.778	12.600.000

For the next management plan period, 2019-2023, a further increase is also foreseen: from the 12.6 mil of revenue in 2013-2017 period, to the foreseen 18.9 mil of revenue for 2019-2023 period. Table 17 shows the planned subdivision.

Table 17. Financial plan of the Agency for the period 2019-2023 (MP 2019-2023).

Funds	**Planned**	**Expenditures**	**Planned**
State budget	13%	Labour	38%
Own sources	80%	Material and Services	16%
Other sources	7%	Investments	46%
Total	18.963.624	**Total**	18.963.624

4.3.3. Natural Heritage:

In management plans, assessments on the status of surface and ground water, on habitat types and on biotic and abiotic features are presented for the core area and for the wider zone of influence. Overall, as described by Table 18, the natural heritage in Škocjan Caves Park has been in good conditions for both periods.

Table 18. Summary of natural heritage conditions reported in the two MP periods. The assessment refers thus to the previous MP period of each.

	MP 2013-2017: assessment from period 2008-2012	**MP 2019-2023: assessment from period 2013-2017**
Evaluation of the Surface Water Status in Slovenia: the chemical and ecological status.	Good status (assessed for the period 2006-2008 by Slovenian Environmental Agency)	Good status (assessed for the period 2009-2014 by Slovenian Environmental Agency)
Assessment of the chemical status of groundwater in Slovenia	Good status (Slovenian Environmental Agency 2012)	Good status with a good/high confidence level (Slovenian Environmental Agency 2015)
Volume status of Coast and Karst with the Brkini water body	Good (Slovenian Environmental Agency 2012)	Good (Slovenian Environmental Agency 2015)
Škocjan Caves Park Habitat type	Good nature conservation status (carried out by Centre for Cartography of Fauna and Flora in 2004)	Good nature conservation status (carried out by Centre for Cartography of Fauna and Flora in 2014). Decrease in non-forest habitat types area
Flora and Fauna	Favourable conservation status	Favourable conservation status. Some concerns about troglobites and bats due to pressure from tourist visits

Environmental problems are very similar for the two management plans. They are summarised by Table 19 below:

Table 19. Summary of environmental problems detected in the two MPs. The assessment refers thus to the previous MP period of each.

	MP 2013-2017: assessment from period 2008-2012	**MP 2019-2023: Assessment from period 2013-2017**
Forest status	40% of the forest area is covered with non-native species (i.e. black pine);	Spreading of disease such as the hornbeam cancer and charcoal disease on oak;

Invasive species in the Park	they do not represent a substantial threat to native flora population;	they do not represent a substantial threat to native flora population; the spreading of A*ilanthus altissima* has been successfully prevented and limited;
Lampenflora (an association of algae, mosses and ferns in proximity of artificial lights in the cave system)	Present;	Present;
Disturbances in caves that affect bat populations especially in hibernation and maternity periods	Present; noises, lighting and microclimate changes;	Present but improved with new lighting and tourism routes in hibernation period;
Plastic waste floating on the water or in the last part of underground canyon when Reka river floods	Present;	Present;
Occasional presence of foam in the Reka river (the origin is still unknown and it can be an indicator of temporary pollution)	Present;	Present; Hypothesis of partial organic origin;
Shrinkage of the habitat type karst grassland, a vivid point of biodiversity	Present;	Present;
Occasional illegal cases of waste dumps	Present; Slowly but persistently eliminated with annual clean up actions by Agency and locals;	Present; Slowly but persistently eliminated with annual clean up actions by Agency and locals;
Lack in an organised system of municipal wastewater collection and treatment	Present;	Present;
Pollution caused by agriculture in the case of irregular or excessive use of plant protection products and soil fertilisation, improperly managed manure storage and liquid manure leakage	Present threat;	Present threat;

Planned spatial arrangements in the vicinity of the Park	Present threats. Specifically: - motorway section - transportable gas pipeline - second railway line; *	Present threats. Specifically: -motorway section - transportable gas pipeline - wind farms; * the national spatial plan for the second railway has been adopted

4.3.4. Cultural heritage assessment:

A loss of 3 cultural heritage units have been detected between the two mandates of management plans, totalling eventually 44 units.
Both periods confirm that the architectural heritage is generally well preserved with the exception of two cases of being neglected corresponding to two homesteads in the central area.
As specified in the MP 2013-2017, activities for conservation of dry-stone walls are being developed in conformity with the establishment of the Karst Dry-Stone Walling Partnership in 2015.

Finally, problems and threats for cultural heritage are seen to be essentially the same for the two periods. Table 20 below, outlines these problems and threats.

Table 20. Problems and threats to cultural heritage detected in the two management plans.

	MP 2013-2017: Assessment from period 2008-2012	**MP 2019-2023: Assessment from period 2013-2017**
Large number of disruptive construction activities and works has been noticed	Present; (investors should apply for approvals but they do not: construction of garden sheds, boundary walls, roofing, painting of facades…)	Present; (investors should apply for approvals but they do not: construction of garden sheds, boundary walls, roofing, painting of facades…)
Archaeological sites	Constantly endangered due to new construction works	Constantly endangered due to new construction works
Loss of typical landscape units	Present; the cessation of agricultural activities causes overgrowing of grassland with bushes and trees or forest in abandoned agricultural field in sinkholes	Present; the cessation of agricultural activities causes overgrowing of grassland with bushes and trees or forest in abandoned agricultural field in sinkholes

Lack of interest in traditional activities (such mowing and pasture)	Present. It sharpens the loss of important cultural landscape elements (i.e. karst grasslands, "*gmajna*", "*latniks*", the traditional vineyard trellis)	Present. It sharpens the loss of important cultural landscape elements (i.e. karst grasslands, "*gmajna*", "*latniks*", the traditional vineyard trellis)

4.3.5. Socioeconomic aspects:

The comparison of the two management plans indicates the reduction of 6 people in the permanent community of the three settlements of Škocjan, Matavun and Betanja. Thus, the total population decreased from 79 to 73 residents. In the histogram, Figure 17, on the left, the largest bar is the "over 60" class, representing almost a third of the population for both periods (23 and 20 individuals respectively).
Consequently, the number of retired individuals is relatively high for both periods (Figure 18, on the right). The change during the two periods seems to be mainly due to the retirement of 3 individuals (employed decreased by 3 and retired increased by 2).

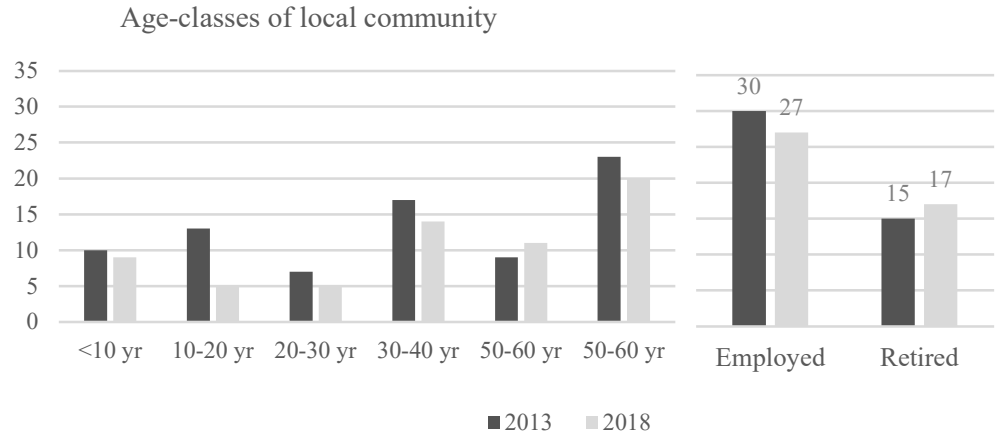

Figure 18. On left side, the bar-chart illustrates the comparison among age-classes of the inhabitants of core zone for the year 2013 (MP 2013-2017) and the year 2018 (2019-2023).

Figure 19. On the right side, the bar-chart, shows employed and retired inhabitants in the two years 2013 and 2018.

However, this investigation of the resident occupations does not show any relevant changes. The two managements plans report that some inhabitants operate their own business, two are employed of the Park, five and their families run tourism activities, one of them has a guest farm with accommodation facilities.

Generally, local population is engaged in forestry and agriculture activities, as well as the processing of their agricultural products. Two persons have the status of farmers, engaged in livestock farming as their primary activity. One of them also ensures the

mowing of meadows throughout the Park's area. The hay is intended as fodder for their own livestock and for sale to a close stud farm (MP 2013-2017).

4.3.6. Park visibility: developments in the cooperation.

MP 2019-2023 reports developments occurred during the period 2013-2017:

- Establishment of Park Faculty Network which includes the University in Nova Gorica, the University in Ljubljana and University of Primorska,
- Obtaining the license for the education of tourist guides in tourist caves throughout Slovenia.
- Establishment of new cooperation with the nearby prominent Lipica Stud Farm, with the Museum of Military History and establishment of a non-institutionalised coordination body for tourism promotion of Karst and Brkini.
- Establishment of Karst Dry-Stone Partnership (2015): this paved the way for workshops, lectures and activities aimed for raising awareness about this cultural heritage.

4.3.7. Visits to the Škocjan Caves:

Data from the two management plans and from other sources (Debevec et al., 2018; Duval, 2006; Ramsar, 2012), indicate a clear increase in the flux of visitors throughout the years. The graph extracted from the paper "Škocjan Caves, Slovenia: An integrative approach to the management of a World Heritage Site" (Debevec et al., 2018) illustrates the annual influx from 1999 to 2015 (Figure 20). The timeline continues with the data of the second bar-chart (Figure 21).

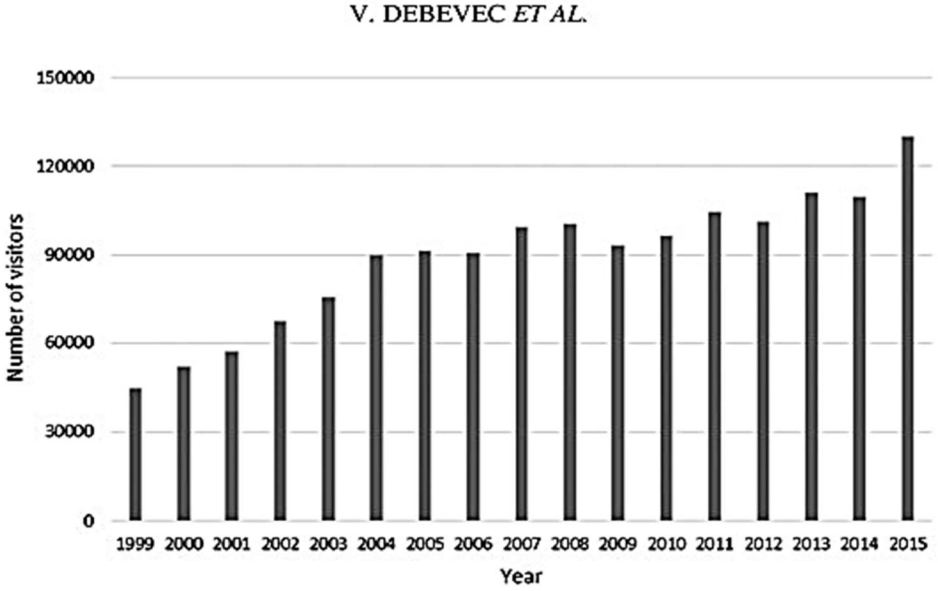

Figure 20. Number of visitors in Škocjan Caves Park from 1999 to 2015 (Debevec et al., 2018)

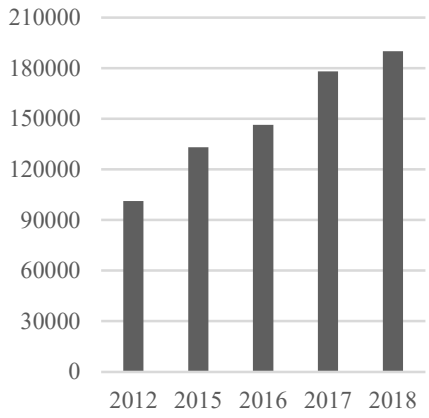

Figure 21. Number of visitors in Škocjan Caves Park in 2012 and from 2015-2018 (MP 2019-2023)

Notably, when comparing the visitors prior to the MP 2013-2017 to after (year 2012 and year 2018) the number increased by 87.8% (101.147, 190.000).

4.3.8. Guidelines and objectives.

In the management plan, the Public Service Agency establishes guidelines regarding various activities such as agriculture, fishing, mining, forestry, hunting, economic development. The main guidelines remain the same for the two management plans, which are also regulated by national laws.

Long-term management objectives have been determined on the basis of requirements and provisions of Škocjan Caves Park Regional Park Act. The purpose is to implement the goals from international conventions and programmes (especially the World Heritage Convention, the Ramsar Convention and Man and the Biosphere Programme). Thus, the six objectives have remained constant in the two management plans:

1. Conservation of Škocjan caves and other underground environments.
2. Maintaining a favourable conservation status of valuable natural features, animal and plant species and habitats.
3. Co-operation in the protection of cultural heritage.
4. Development of environmentally friendly visits and raising awareness about the Park.
5. Promotion of the inclusion of local population in the development of activities in the Park.
6. Strengthening of the role of the Park's managing authority in the area of influence and transitional area.

Progress in goals and tasks is being assessed through established indicators. These, in the two management plans changed minimally (Table 21)

Table 21. The comparison of the indicators for each objective (first column). In the last two columns the different indicators has been specified.

	Comparison of indicators	**Indicators in MP 2013-2017**	**Indicators in MP 2019-2024**
1.	Indicators regard the same targets.	Conservation of bat populations; Reduction lampenflora;	Conservation of bat populations; Adoption of measures against lampenflora;
2.	Indicators are mainly the same.	Monitoring fauna and trends;	Preservation of Natura2000 qualification species that are present (observed) in the Park;
3.	Indicators point out an attention on renovation operations.	At least two renovated cultural monuments;	At least 150m of renovated dry walls; At least 100m^2 of arranged areas of public use in the areas of settlement heritage;
4.	Indicators point out attention on visitors affluence and distribution. In the second period attention is given also to the employment body.	Number of visitors and trends measured against optimal numbers as well as the timing and spatial distribution of visitors in line with the cave capacity;	Number of visitors and trends measured against optimal numbers as well as the timing and spatial distribution of visitors; Suitable number of employees measured against the changes in the number of visitors;
5.	Indicators show the willingness for (i) the involvement of local community in Park's activities and for (ii) the development of products with the Park's trademark. Indicators regard the same targets.	At least 30% of local inhabitants taking part in the Agency's activities;	At least 30% of local inhabitants taking part in the Agency's activities; At least five new products with the Park's trademark;
6.	Indicators are the same.	Goal better specified as "Prevention of negative impacts in the Park's wider area (area of influence and transitional)": Reduction of numbers of illegal waste dumps;	Goal better specified "Strengthening the role of the Park's managing authority in the area of influence and in the transitional area": Reduction of numbers of illegal waste dumps;

5. DISCUSSION

The chapter is divided in two sections: first one (5.1) concerns the survey analysis and implications for the management, while the second one (5.2) concerns the Park's conservation conditions and some implications for management.

5.1. Survey Analysis, Trends in Visitor's Preferences, and Implications for Management

After the presentation of the average demographic characterization of Škocjan Caves Park visitors, implications from tourism on the Park's management has been discussed. Locals' perspective will be considered with regard to the tourism presence and the Park management.

5.1.1 Who Is Coming?

Any query that intends to understand the importance of a tourism management in a protected area, should identify who the visitors are, where they come from, their age, gender, education, and what they experienced or learned while visiting the site. A brief review of the survey results shows that:

- Respondents, who were almost in an equivalent proportion of males and females, are older than 30 years (62%), have a bachelor degree or higher (70%).
- Half of them visited the Škocjan Caves Park with family. Mostly respondents come from European countries. They visited the caves because of natural beauty (37%) and because it is a UNESCO designation or because recommended by friends (equally 13%).
- More than half of respondents indicated that they have already visited the site and seem to be aware of the protection regime, particularly relative to the UNESCO designation.
- The majority of visitors did not stay overnight: only 20% of respondents stated that they spent the night.
- Beyond the cost of the ticket necessary to visit the caves, 55% of respondents indicated that they spent some money for: food/meals (46% with an average of 13.6 EUR), accommodation (21% with an average of 20 EUR) and retail shopping (21% with an average 7.75 EUR).
- Almost all visitors said that the most appealing feature is the scenic beauty and its nature (the "Landscape" from Figure 6). Nearly half of respondents noted the friendliness of people as an appealing feature, as well as the sense of peace.
- Investigation on the possible interest to visit the surrounding area (Figure 8) showed that sportive activities (54%) and cultural experiences (49%) would be the main motivations for the visit.

The high percentage of surveyed visitors was older than 30 years could partially explain that significant percentage of the high level of education. According to many studies reported in Katsoni & Marival (2019), protected areas are often a chosen

destinations by individuals of high education level. Hence, the survey results reported in this thesis appear to support such conclusions, since they indicate very strong association between the individuals educational and cultural background with their choice of visiting a protected area.

5.1.2 Local, Regional and International Presence.

As described earlier in this thesis, the Park is known at the international level: historically and currently Škocjan Caves attracts people from around the world.
In 14 days of distribution and collection of surveys, 43 countries have been recorded. Not surprisingly European visitors are the major section. Beside the predominant domestic tourism, Italy and Germany present the most flux. This result is consistent with the national trend of tourism (SURS 2018): overall, the 25,41% represents domestic tourism, whereas, Italy and Germany are the bigger presence among the rest of tourists . The domestic percentage seems unvaried since 2012 (Ramsar, 2012).
These results can confirm the correct choice of four languages for the guided tour offers: Slovenian, German, Italian and English.

From a geographical point of view, these countries are the among the closest. Thus, not surprisingly the Pearson's test pointed out a very probable dependence between the times of visit and the country of origin. Particularly, the Slovenian community is the most inclined to visit the caves more than once.

5.1.3 Significance of Marketing and Promotion.

If in the past the caves were thought of as a sacred hub attracting people from near and far, nowadays the Park is visited mainly because of its outstanding natural beauty. The multiple-choice question about the reasons of visit reveals that more than three quarters of respondents came because of natural beauty. Almost a third of respondents also stated that the Park was suggested by friends: compared to "*suggested to media*" (14.9% of visitors indicated it), the communication through word of mouth looks more efficient. For instance, in the ranting of Park features, the entry "*Promotion in media*" presents an intermediate level of satisfaction. Reporting what was stated in chapter 2, *"*a specialized destination gains more possibilities when the guests revisit and advertise it among their like-minded friends, compared to destination less specialized and more generalised". For instance, the annual visits to the Park are constantly increasing.

As stated by Dolnicar (2009), the process of segmentation and specialization brings several competitive advantages. Therefore, the quality of visit offer must cater to the individuals who are more likely to visit the location; from this study the target appears to be educated individuals with their family attracted by natural beauty. Additionally, most of visitors are day-trippers who do not stay overnight (371 vs 114). It is difficult to detect if this proportion indicates an increasing number of overnight visitors. The annual monitoring of overnight stays could be a strategic research: possibilities of new products and improvements can arise from the detection of existent demand and of a suitable target.

Some individuals who did stay overnight, indicated that they used places outside the Park area (i.e. Postojna, Izola, Trieste…). It could be conceived that in this way they do not properly contribute to sponsoring the protected area system. However this

finding, since the management plans indicate that the Park is developing partnerships with the surrounding areas and realities, could be evaluated as a partial success. No respondents mentioned staying overnight in the hinterland where Karst Biosphere Reserve is situated.

5.1.4 The knowledge of protection regime and the Park's efficiency in its communication.

The raising awareness among visitors of the regime of protection and about features of critical resources is one of the objectives of the Agency of Škocjan Caves Park**.** By reviewing the visitor surveys, it is possible to (i) give an evaluation of the efficiency of the communication of the Park's regime protection and to (ii) check if this affects visitor expenditures. In this regard, the study carried out in Germany (Mayer et al., 2010) analysed the influence that the designation of "National Park" has on attracting visitors (called "*Park-affinity*"). The study of six German national parks shows that the visitors *Park-affinity* ranges from 11% to 46% of total visitors. Although most of visitors marked the natural beauty as their prime motivation for visiting, this study does not state that the reason for the visit lays in the fact that the caves site is a natural park. Yet, the 28% of visitors came because it is a UNESCO site.

Results on the visitor' knowledge show that the 89% of surveyed are aware that Škocjan Caves Park has some special protection regime. An explanation of this important percentage can be found in the accessibility of the area: the visit to the caves is allowed only with the possession of a ticket, along a planned and fenced route with the guide of an expert. As such, the importance for providing appropriate educational material and site interpretation is critical to maintain and improve the awareness on protection regime.

On the other hand, the knowledge of some protection regime does not influence the visitors' extra ticket expenditures (Pearson's Test, p-value: 0.1694).

5.1.5 Education of the visitor regarding international levels of site protection.

A protected area must also be successful in increasing the visitor knowledge about international designations and conventions. The 86% of visitors know that Škocjan Caves Park is at least one of these: a UNESCO site, Ramsar and a Regional Park; the most known designation by visitors is UNESCO designation.

These results indicate that the Park is conducting an effective information service and an appropriate management of site accessibility. Features somehow related to these two aspects (i.e. "*boards and signal*", "*information accessibility*", "*condition of natural trails*" and "*accessibility*") present a high rate of satisfaction given by visitors (Table 3).

Although not here investigated, it is more likely that also the guiding service contributes to the raising awareness.
Furthermore, the awareness of protection regimes is positively influenced by the fact that the visitor has already been once or more times in the Park or that they spent the night there or in the surrounding region, as it is confirmed by the Pearson's Chi-squared test and Fishers test.

5.1.6 Economic Benefits of Protected Area.

A natural park has the potential to be a catalyst for local economic development (Mayer et al., 2010, ex Bushell & Eagles 2007, Wall Reinius & Fredman 2007; Liu et al., 2012; Eagles et al., 2002). Although, as discussed previously, it seems that visitors' expenditures are not associated with the knowledge of the Park's protection regimes. Natural beauty as main motivation for visiting the Park seems to confirm the theory of natural park as economic catalyst. For instance, such attraction to natural beauty led visitors to purchase the ticket for the visit of the caves.

Additionally, by only declaring to have already visited the Park previously or to stay overnight, implicates that the visitors made additional expenditures. However, no specific data on the economic benefit and revenue generation of the Park was available to review.

An evaluation of the extra sources of expenditures (catering, accommodation, and retails shopping) and a comparison with other studies related to national parks in Germany, Finland, and Sweden, shows that the daily expenses are lower compared to these. This result can be explained by two facts: (i) these Nordic countries have another cost of living (NUMBEO, 2018) and there, (ii) the access to parks is without purchasing a ticket so that visitors might feel more willing to spend money for shopping or catering.

Expenditures beyond the entry fee at the Park, affect the local community. As listed in management plans, the possibility that local people can profit from the presence of visitors is a permanent objective (long term objective n.5). Also, from the point of view of international conventions, protected areas must support local community.

In the core zone there are four types of accommodations: apartments Žnidarčič, rooms in tourist farm Pr' Betanci, rooms at Pr'Vncki, and an Airbnb-awarded renovated apartment. Catering is provided in two places: in the tourist farm and in the Visitor Center. Furthermore, some residents have recently started their own vendor-stands to sell their products; a specific investigation for these activities has not been made yet.

Promoting similar actions like these is one of the key objectives of the Park. However, the local surveys results indicates that there is not adequate interest of local people to be involved in activities with visitors; maybe because many residents are retired, and many have already their own job (Table 6 and Figure 18). However, the surveyed inhabitants represent only the 17.8% of the entire community and do not necessarily reflect the desire of the whole. Moreover, there can exist interest within the nearby villages, which have not been involved in this thesis research.

5.1.7 Connection with the Local Community.

The establishment of the Park might have created some conflicts with the local community. Historically, local inhabitants personally guided and managed the caves. They led and helped the first explorers (Debevec et al., 2018). They were the managers of the elder visitor office from the beginning of the 20th century until approximately 1980 (manager interview). In1993 they founded the Turistično društvo Škocjan (Škocjan Tourist Association) in order to encourage development and to protect their interests (MP 2013-2017). The establishment of the Park deprived them of their direct

participation in the management of the site and created some conflicts, but a legislative, integrative plan of protection of such outstanding site was necessary.

The Agency commits itself to supporting and involving local communities: (i) collaboration with the Škocjan Tourist Association is active, (ii) some residents are hired as fixed term employees such seasonal guides, and from administrative point of view, (iii) a representative in the Council of Škocjan Caves Park Committee is involved for the planning activity. Attention to seasonality should be mentioned since it can cause under-employment or unemployment during off-seasons (Kreag & University of Minnesota, 2001). This is a further motivation for the Agency' effort in creating an even tourism flow throughout the entire year (Table 21, objective n.4).

Concerning the connection and involvement of locals in Park's activities, the overall residents' opinion seems to state they are not fully satisfied (Table 8). Some of them require the following: more contact opportunities through events or meetings; better time choices for meetings; and more cooperation between locals and operators.

Nevertheless, majority of residents recognized that the Škocjan Caves Park contributed to an improvement of the quality of life (Table 7). As literature reports, the development of a tourism destination can bring benefits for the local community fostering local development. In my study case, the Škocjan Caves Park contributions in the core zone are numerous: renovation of public buildings, financial support for private buildings (under specific indications for the preservation of cultural heritage), inter-regional visibility, attraction for public funds and investments in several projects (Table 14 and 15; e.g. related to landscape, accessibility, cultural events, research...), maintenance of a healthy natural environment (confirmed also from the perception of the surveyed residents) and last but not least, a flow of visitors which in turn brings opportunities of profitable or sociable contacts.

Due to the Škocjan Caves Park tourism purpose, a proper itinerary across the three villages, was planned in order to preserve the privacy of the Park inhabitants and simultaneously to allow an easy accessibility towards tourist places like museums, educational trails, accommodations, and restaurants. The relationship of inhabitants with visitors appears neutral; some are annoyed especially during the busy summer season, due to the request of information by lost visitors. In spite of that, the Park provides each visitor with a detailed map of the area, and paths are equipped with signposts and panels. In turn, by visitor's surveys, the already mentioned Park's features ("*accessibility*", "*condition of natural trails*" and "*boards and signposts*") are ranted with the highest grade of satisfaction. Nevertheless, the "*boards and signpost*" presents many Not Applicable values, which can possibly indicate some gaps about their function. Furthermore, this could be a partial explanation for the small percentage of visitors that visited other attractions in the core are, like museums (18,4%) and the Educational Trail (23%) (Table 21, point 4).

Investments of the Agency for the efficiency of visitor management resulted in the recent renovation of the Visitor Centre and other enclosed structures. In this area, where I distributed and collected surveys (Figure 6), there are located new and renovated structures, such as: the museum of Škocjan Caves exploration, the cash desk, the souvenir shop, a restaurant, the Information Centre, guides and workers offices and parking lots for visitors, for buses, and for employees. In 2015 the parking

area was doubled: if on one hand it helped to manage the increasing traffic of visitors, on the other one, it implicated the loss of habitats. An additional parking lot has been built outside the core zone with a shuttle service or a nature track as connection to the Visitor Centre. A survey about the use and the efficiency of this latter parking area system has not been done yet.

5.1.8 Management and monitoring of possible negative impacts from visitors presence

The historical increasing trend of visits in Škocjan Caves Park has recently strengthened. Particularly, from the beginning to the end of the last management plan 2013-2017 period, the total number of visitors almost doubled (Figure 21).
This can be considered a marketing success, as well as the result of the continued growth of tourism and its global spreading (WTTC, 2019). As reviewed, beyond benefits, tourism can bring several negative impacts and with such increasing trend the management plan results strategic.

Tourism management in protected areas must first address the conservation goals. Additionally, since the Škocjan Caves Park is recognised by several levels, the planning of tourism activities must be strictly regulated and monitored.

Since Škocjan Caves Park boasts tourism presence from the end of the 19th century, the site has been prepared with a proper accessibility, safety and later, with biodiversity conservation purposes. As reported by Duval, 2006, the Škocjan Caves Park tourist flow management and protection measures have progressively been implemented. It follows a better insight into these conservation activities addressed to limit negative impacts from visitor's presence:

Table 22. The Park's management activities for preventing and limiting negative impacts of tourism presence. Source: MP 2013-2017, MP 2019-2023, managers interviews 2019.

Main conservation area:	**Objective:**	**Measure:**	**Status:**
Caves ecosystem integrity	Preserving microclimatic conditions	Constant monitoring in loco and determination of carrying capacity	On process
	Preserving bat populations	A different guided path during crucial periods of the bats life cycle; Change the direction of lights in caves;	On process
	Limiting lampenflora growth	New lighting innovative system (remote control, change in frequency and time lapse and direction);	Carried out in 2015

Ecosystem integrity of outside caves	Regulating visitors traffic	Disposition of capacious parking lots in- and out-side the core area with shuttle services;	Carried out
	Protecting endemic flora and preventing nesting birds from disturbances	Fenced paths direct the visitor flow on planned itinerary;	Carried out
	Protecting karst substrate	Disposition of the bed of parking lots preventing leakages in the subsoil;	Carried out in 2015
Local community integrity	Preserving the privacy of local people	Functional tracks that avoid walking too close to residential buildings;	Carried out

Many authors, as well as Park managers, stress that constant monitoring activities represent the best instrument to detect a change in quality of any of these aspects. If changes occur, then necessary consecutive measures can be taken, for remediation or improvement (Moore & Polley, 2007).

For this process, the monitoring of indicators (Table 21) can be a readable tool, similarly, an investigation on perception of residents and visitors can help in the assessment of natural and cultural heritage conditions and in the evaluation of the Park management activities. Finally, surveying and monitoring activities can help in the identification of possible innovations.

5.1.9 Investigation of possibilities and the role of awareness and education.

Aichi target n.11 requires efficiency and equity in the management of protected areas.

In the case that the development of tourism management and activities in a circumscribed area should not be planned in a zoning system strategy, it would certainly be evaluated as an inequitable condition. And it is worth noting that the potential of benefits arising from tourism presence would fall only in a likewise circumscribed local community, whereas on the contrary the Strategic Plan for Biodiversity (UNEP, 2010), requires that "*cost and benefits of the areas are fairly shared*".

The considerable increasing flux of visitors of Škocjan Caves could represent an interesting opportunity for the promotion and development of the rest of the Park that

is the influential zone in the hinterland, which also is the bigger part of the Karst Biosphere Reserve.

Investigation of the possibilities for addressing visitors in the hinterland could help the Park objective n.6 “Strengthening the role of the Park’s managing authority in the area of influence and in the transitional area”. Furthermore, it could enhance the accomplishment of Aichi requirement of equity in the management of the protected area.

It is evident (Figure 13) that visitors who manifested a high interest for visiting the Biosphere evaluated very satisfying the current condition of natural trails in the Park. On the other side a scarce access to information led visitors to be no interested at all. The bar chart of Figure 8 shows the possible motivations for visits. Motivations related to open-air activities prevail over the others. It follows motivations related to cultural aspects. It is worth to note how these two are directly connected to natural and cultural heritage which in turn, their wise and sustainable use are the foundations of a UNESCO Biosphere Reserve (Man and Biosphere programme).

Analysing in greater detail the visitor’s interest in discovering the area, the feature “*friendliness of people*”, one of the most chosen appealing features by visitors (Table 3), doesn’t seem to influence the interest for future visits (Pearson’s p-value=0.1). However, the obtained p-value is slightly higher than the alpha value, which allows one to hypothesize a possible association.

It would be worthwhile to collect more data on this topic for further studies to test the probable influence, and then to sensitise the local community that may host future tourism activities.

However, before to launch activities like tourism, it is fundamental establish a sound plan for nature and culture conservation in the area, with and through the local community awareness and knowledge. Such point is struggled by several current and past Park mangers. Škocjan Caves Park has been investing in the involvement of the broad Biosphere Reserve community in several ways: network of schools, committees, and ambassadors. Monitoring perceptions from these realities can be a helpful tool for (i) the objective n.6, for (ii) the identification of possibilities of development and for (iii) a better plan of resources allocation.

Education activity is one of the major activities of Škocjan Caves Park. These aim to optimize and enforce the preservation of natural and cultural heritage, through the creation of responsible and aware individuals.

The Park has been investing substantially in education and raising awareness via various channels:

- Training of guides and guiding services: in turn they provide important information about cultural and natural heritage, as well as behavioural rules to visitors.

- Involvement of the residents in cultural events and participation in planning processes: to maintain the community awareness and sensitivity concerning

their heritage. The same surveyed inhabitants say that it is important that the local population is aware of its own heritage.

- Equipping the Educational Trail: the Park's trail along the sinkholes provides on-site information about natural and cultural landscape.
- Promotion in media: especially at national level, Škocjan Caves Park publishes articles and reportages, release interviews and creates short movies and documentaries.
- Collaboration with schools: beside to host visits of school groups, Škocjan Caves Park in 2003 founded the Network of schools. The participants are schools from the Parks area and outside. The Network with the support and guide of the Park has been developing the research projects related to the environment, the culture and the sustainability. In 2013 Škocjan Caves Park has been awarded for the activities with schools (UNESCO, 2013). As stated in MP 2019-2023, the Park is developing a similar network with surrounding universities.
- Establishment of an active community of the entire Park areas: participatory process is expressed through the (i) designations of the Biosphere Reserve ambassadors and the (ii) establishment of the committees that involve experts and residents (i.e. Committee for Cultural Protection and the Committee for Nature Conservation. Committee for providers, sustainable tourism and entrepreneurs). In addition, the Park organises and supports research activities, workshops and excursions for the Karst Biosphere Reserve community.

The importance of well informed local population is stressed by the interviewed managers. A sound management plan, responsible visitors, educated experts and aware inhabitants are the key for a sustainable development of a protect area.

5.2 The Conservation outlook.

As a protected area and a touristic destination implicates and demands a good conservation of the environmental quality, the existence of several national and international designations should guarantee an appropriate level of conservation of the features that allowed the above-mentioned designations. For instance, Škocjan Caves Park presents several designations: it is a UNESCO World Heritage Property (1986), Ramsar Site (1999), Natura 2000 site and UNESCO Biosphere Reserve (2004). The maintenance of the criteria of each individual label helps the mandates of protected areas with an appropriate management and monitoring.

The synergy that arises from the monitoring activities of Park experts, from legislative compulsory measures, and from the assessments and research projects with external institutions (i.e. assessment of UNESCO World Heritage Site or studies in collaboration with Park partners), is extremely useful for the improvement of the management efficiency.

For instance, Ramsar, UNESCO and IUCN criteria assessments are carried out with consistency, and several research projects have been developed within and with i.e. Natura 2000 network, Interreg programmes, Erasmus programmes (Comenius Regio and Erasmus internships), European Regional Development Funds, the Karst Research Institute, the World Wide Fund for Nature, Slovenian Universities, the Slovenian Research Agency, the Network of Schools, and many others.

Each project contributes to reveal aspects of natural and cultural integrity and hence could help in the management planning activity. Such as, investments for collaborations and projects are listed in the MP 2019-2023.

In the Park management plans it is possible to individuate the detailed current condition of the Park in its complexity (natural, cultural, socio economic conditions). However, an official and overall evaluation of conservation status is offered by IUCN, the worldwide-recognised organization for conservation of nature. From 2014 it offers the assessment of natural World Heritage Sites with the goal to recognise conservation successes.

The structure of the IUCN evaluation expresses the current state of values and their threats. It also analyses the effectiveness of protection and management of the site. This outlook is further enriched by additional information on benefits and possible projects.

The conservation status of Škocjan Caves Park has been indicated as “good but some concern” (IUCN, 2017). The UNESCO values**,** karst and natural physical phenomena, have been defined very resilient and thus, they do not need special measures for their conservation. However, it has been pointed out that they are threaten by the current encroaching development around the site (visual and noise intrusion). Additionally, global climate changes will likely have an impact upon the water regime. The past water quality of Reka River prevented the first attempt for the designation of Škocjan Caves to the World Heritage List. Thus, further efforts and commitment of the local community developed a proper regulation of the watershed which nowadays is covered

by different designations and protection regime (Ramsar, 2012). There, monitoring activities are carried out by the Park staff and by ARSO, the Environmental Agency of the Republic of Slovenia. Pollution is under control: activities that in the past were identified to directly affect the water quality, have been regulated (i.e. the introduction of purifying station). However, the report expresses concerns for further developments in the area of influence (gas pipeline, motorway) which may also affect the water quality.

IUCN evaluated the conditions of biodiversity of the flora and the underground fauna. Although the current conditions and management are good, these will be affected by global climate change. Specifically, the increased temperature of water and air and the hydrological regime can threaten endemic species. Theoretically, it will be a gradual change, allowing management to adapt as needed, however to what degree these impacts will be felt are speculative right now.

From interviews with managers and from the analysis of management plans, monitoring activity and related remediation and conservation measures are being carried out concerning some specific biodiversity values:

- Population of bats: nesting and wintering spots in caves are protected from visitor disturbances during these crucial periods thanks to a modified guided route and thanks to a new lighting system.
- Threaten flora species: natural sites are mostly not accessible to visitors, so there is no risk of their degradation; experts and volunteer rangers monitor the conservation status.
- Non-native species of flora and fauna are monitored and controlled with gradual replacement or immediate or planned removal; particularly a plan of restricting the growth of lampenflora is active using a new LED lighting system.
- A favourable status of Nature 2000 species is required by the management plan. The Agency is committed to ensure and monitor a good state of Habitats and Birds Directives species, as well as a good status of their habitats.

Proceeding from the IUCN evaluation, the tourism pressure is declared to be under control and a good management system with a highly qualified staff is active in site. However, the conservation outlook expresses concern due to the Park's limited ability to influence what occurs in the surrounding area, which is intensified by the very narrow buffer zone on western side. Urbanisation, infrastructure development (additional and uncontrolled development of roads, railroads, damns and water reservoirs, planned wind farms, and industrial areas), and the habitat shifts (as it is confirmed by the Table 13) and alterations, represent current and potential threats in the entire area of Škocjan Caves Park.

The IUCN outlook also reports a brief but important evaluation about some complementary aspects of conservation management, such as the legal framework and enforcement, the relationship with local people, the Park boundaries, the staff training, the financial sustainability of the Park, the monitoring system, and education and

research. Overall positive prospect is being reported and no urgent concerns would seem to arise from these the above-mentioned aspects.

To conclude, it is possible to state that for the successful conservation activity in a natural park, it is extremely helpful to

(i) to arrange an appropriate spatial plan, such as a strategy for land use zoning
(ii) to follow a reliable legal context (i.e. national legislation and international recognitions).
(iii) to adopt and to plan proper monitoring activities (several values must be considered: from the mere count of species, to the feeling of local people since they can point out aspects ignored by park managers).
(iv) to have an effective financial plan (with long and short-term objectives).
(v) to develop and promote an appropriate educational plan.

6. CONCLUSIONS

Protected areas are fundamental locations for global biodiversity conservation. Nowadays they must also aim to contribute and promote a strategy for resilient and sustainable development, locally and globally.

The research activities, the good practices arose from the collection of case studies and the consequent improvement of knowledge, result in extremely helpful tools for the accomplishment of important and urgent global treaties, such are the Convention on Biological Diversity and the Strategic Plan for Biodiversity, the Sustainable Development Goals and the World Charter for Sustainable Tourism.

The thesis presents the study case of Škocjan Caves Park which has been awarded by numerous international recognitions (i.e. UNESCO World Heritage, Ramsar and Nature 2000 site, a Biosphere Reserve, and National natural monument). Škocjan Caves Park offered a great opportunity to carry out such research since the site is relatively small and frequently visited by people from many countries of World.

Hence, the study includes the monitoring of the conservation status and the importance of the careful management of tourism**.**

Due to the increasing associated impacts from humans upon the sensitive and critical resources in the Park, and due to ethical implications from adjacent land use, biodiversity conservation measures in the Park must be balanced against local development and the tourism presence.

Nowadays tourism, important factor for the successful sustainability of any protected area, is globally a growing trend. Thus, even more now than in the past, tourism can contribute to development of positive or negative impacts, influencing thus the local development of the protected area and the surrounding.

Impacts and implications of visitor presence in the management of Škocjan Caves Park have been investigated. This research also included aspects about nature and culture conservation, about involvement and support of local communities, and about awareness of heritage and education.

This study employs several available sources of information: the two recent management plans of the Park, interviews of five managers of different services, 522 questionnaires of visitors, 13 of local inhabitants, and 4 of Karst Biosphere Reserve ambassadors. The broad availability of literature arose from the Park's visibility at national and international scale and personal presence on the site was useful for the organisation of interviews and the collection of relevant data.

Official assessment regarding the integrity of the designation of World Heritage UNESCO and of the overall conservation conditions of the Park, express the main concerns (I) about the quality of the river and its hydrological regime and (II) and about the further urban development in the surrounding landscape (IUCN, 2017).

Additional concerns emerge from the analysis of management plans and from managers interview. Specific measures are addressed to manage and control threats to

biodiversity and to habitat integrity: to reduce lampenflora and protect bat populations, to preserve indigenous flora and the traditional landscape.

Although the IUCN Outlook states tourism pressure to be under control and with a good management, concerns arise from interviews with managers and from management plans. For instance, precautionary measures have been taken for limiting negative impacts on biodiversity. Thus, in the cave system the Park allows only guided visited, and trails are equipped with fences and with LED lighting system; furthermore during the periods of hibernation and maternity of bats population, visitors are conducting through the cave system using different trails. Nevertheless, a careful monitoring system on visitors and on the sensitive resources must be active in the Park.

Additionally, the global growing tourism trend, verified in the Park with a boost in the annual visitors' presence which doubled during the last management plan period, makes crucial the investigation of tourism management aspects in the Park. This would help to limit and address visitors' impacts on biodiversity conservation and would contribute to the sustainable development of the Park assessing the efficiency its management.

Although the sample of 522 visitors corresponds to the about 0.2% of the total visitors of 2018, this work is a pilot research in the tourism management monitoring: a multi targets integrated investigation helped a complex analysis of the management.
The identification of whom the visitors are, is a critical first step for understanding the management activities effectiveness and its monitoring . For example, among the 43 visitors' nationalities recorded, the main presence of Slovenian, Italian and German speakers, confirm the proper choice of guided tours in these languages.
Other key aspects resulted in the following features:

1) **Marketing and Promotion**: interestingly enough, it seems that word-of-mouth works better for promotion than official media. Thus, the theory of the communication effectiveness among like-minded friends (Dolnicar, 2009) can be confirmed to be effective: the attractiveness of natural beauty is absolutely the main reason for visits to the Park. Moreover, many people returned, visiting thus the site at least twice.

2) **Communication and Education**: 9 out of 10 visitors are aware of the protection regime. Accessibility to the site for the visitor seems to play a relevant role in the communication of the Park as a protected area. Both visitors and residents are now more aware about the UNESCO Convention, and less about Ramsar and Nature 2000. The knowledge about the protection regime does not seem to influence the fact that visitors spent money in addition to the entrance fee.

3) **Economic benefits**: souvenir stands, three accommodation possibilities and two catering services are offered by local community. Hence, extra ticket expenditures have a direct impact on residents: 46% of surveyed visitors spent money on food, 21% for accommodation and 20% in souvenirs. Being one of the objectives of the Park to promote local business with its trademark, the registered increasing trend of visits can foster these impacts if well addressed and managed.

4) **Connection with the local community**: almost half of surveyed visitors were impressed by the friendliness of local people (tour guides are included). However, this feature does not seem to affect the desire for further exploration of the area. On the other hand, surveyed residents does not seem to be annoyed by visitors, probably indicating a good visitors management (confirmed also by IUCN report 2017). However further research could be carried out due to the small number of surveyed residents (13 surveyed over 73 residents).

5) **Conservation measures against tourism impacts**: the maintenance of intact and outstanding natural resources requires proper management measures against human impacts arising in the buffer zone or in the core area. Tourism activities are well monitored and managed inside the core area.

6) **Future opportunities**: the individuation of determining features that gather together visitors interested in visiting the surrounding area, points out the condition of natural trails as the most important feature. Secondly, the good accessibility to information. Also, the preference of outdoor activities as motivation for visiting the surrounding area confirms that nature and accessibility represent key factors for the development of efficient_future proposals for the Karst Biosphere Reserve.

7) **Contribution for Park development**: a considerable increase in visitors has occurred during the last decades. Throughout the years the total increasing income from the tickets helped the Park in fostering the development of projects and in the enlargement of the Agency. Thus, Škocjan Caves Park is being able to improve its sustainability goals of the provision of jobs, of local development in terms of projects and facilities, offering financial support for local community and pursuing quality conservation of natural and cultural heritage.

This overlook of tourism management aspects had been possible thanks to the used approach of multi-target integrated investigation. Indeed, in agreement with the literature (Manning, 2002; Moore & Polley, 2007; Liu et al. 2012, and many others), results show how surveying the perception of residents, visitors, and managers, actually represents a strategic tool. The evaluation of these perceptions within the context of management plans, and consequently in the context of legislation and international treaties, has the potential to bring important benefits for the enhancement and accomplishment of the protected area mandates. For instance, it can lead to:

- the detection of possible negative impacts: perceptions can unveil aspects that cannot be discovered from the standard monitoring system of the protected area (i.e. sometimes Škocjan Caves Park visitors get lost in the core zone and disturb the privacy of local people: it could indicate e.g. a lack in proper instruction or a lack in trails mapping);
- a processes of innovation: ideas of new products or new trails, of new methods of promotion, of tour guiding, of monitoring, or proposals for projects of involvement of local people, can enrich future activities of Škocjan Caves Park Agency (i.e. the inquiry of the possible target and motivations for the promotion of the Karst Biosphere Reserve).

It is important to remind that this thesis research covers only part of the actual collected data: further studies can be proposed with the investigation of these un-analysed aspects and data (i.e. interviews of the Karst Biosphere Reserve Ambassadors, or how visitors would like to explore the surrounding area). Future research on tourism management activities should integrate the obtained overlook from this first general socioeconomic study, and could further explore aspects such as:

- Quality of the visit. A specific survey could be realised about the quality of guiding service. Thus, the objectives of increasing awareness among visitors and guides, and of offering a proper satisfying experience (related to carrying capacity per tour and to the quality of given information) can be explored and possibly implemented.
- The local offer inside the core zone. The determination of the overnight stay trend in the core zone could help in the investigation of potentials for further development, and simultaneously could help in the monitoring of the carrying capacity of the Park. Additionally, investigation on offered and desired products or services could help in the delineation of new proposals. Also, it could be an interesting prosecution of the present thesis, being the visitors desire for local products part of the not analysed data.
- Pressure on the environment and traffic pollution. Future research about the mobility of visitors should contribute to a green-mobility plan of the Park (e.g. a survey on which vehicle visitors used, which they wish, which parking lot they used, etc….). Also, based on the analysed data, a careful study of the carrying capacity is necessary in order to guarantee the ecological integrity of of the caves system and the surrounding.

In the view of the next Management Plan publication (2024), maintaining a similar study with same aspects would allow a comparison over quinquennial periods, detecting possible changes and progresses in Park's objectives, results and conditions.

On the other hand, assuring the regular monitoring for the assessment of UNESCO site conditions, is fundamental for guaranteeing the protected areas maintenance with all the relative aspects involved.
For instance, the recent report of IUCN 2017 outlook, evaluates "efficient" the visitors and the conservation activities management of Škocjan Caves Park.

Nevertheless, I express concern about the considerable increasing trend of visits which is likely to negatively affect the accomplishment of biodiversity conservation and of sustainable development, as well as, the quality conservation status for national and international designations. An equitable management plan of a protected area must carefully consider and monitor the balance between conservation and local development.

Additionally, if the IUCN outlook evaluation of "efficient management" can positively meet the requirements of "efficiency**"** in Aichi target n.11, "equity**"** requirement remains an open debate.
Hence, the investigation on the possibilities for addressing visitors to the Karst Biosphere Reserve, can contribute to the accomplishment of equity requirement in the

view of spreading visitors presence and its benefits, to more remoted locations as it is the buffer zone.
Although many data still need to be considered, the result from this first investigation (Interest for natural places and outdoor activities are the main motivations for visiting the hinterland), confirm and foster the potential of natural parks as possible engines of development in areas traditionally located in remote places *by attracting spending and funds from outside the regio*n (Mayer et al., 2010).

For the development of future activities, a prudent planning is always necessary. Thus, it is in the interest of the Park to involve and create awareness among different stakeholders, to investigate and monitor resources, in order to not carry out harmful or risky activities and to aim at the regional development. As it has been stressed by many (either in literature, either by Park managers and residents), awareness is the basis for the wise use of resources, and also, it implicates *the idea of an intergenerational duty of care and responsibility* (Duval, 2006). Hence, the Park is committed for raising awareness and promoting educational activities particularly focused on the importance of healthy underground water and on the vulnerability of karst land (Ščuka et al. 2014).

This study clearly shows how the Škocjan Caves Park aims first for the maintenance of healthy ecosystems, promoting the conservation of nature and cultural heritage. It is evident also how it aims for a sustainable development with a full and aware involvement of local community. Participatory process is shown to be a fundamental factor for the sustainable development process and for conservation efficiency, as well as for the efficiency of tourism activities.

Additionally, the expected quality by international designations in Škocjan Caves Park (i.e. Ramsar, UNESCO World Heritage, Natura 2000, UNESCO Biosphere Reserve) brought the Park Agency to promote and to invest a lot in educational activities. The investment in research and projects in these fields strongly contributes not only to raise awareness, but also to reinforce the cultural heritage and the academic scholarship. Simultaneously, it enhances the Park management in the collection of data and in the individuation of opportunities or threats.

The Škocjan Caves Park development of network and cooperation with specialized organizations and agencies should in future allow more studies like this thesis research to be conducted, attracting thus more funds, increasing awareness for a wider target through different channels, and last, fostering the visibility.

The national strategy of Green tourism in Slovenia, the rapid growth in nature-based tourism and the several international treaties, must encourage protected areas to be excellent pilot cases for the management of resources and for the regional development. Thus, they can be looked at as good practices of sustainable development, where the balance between conservation and development is controlled by an efficient monitoring system and management plan.

To summarise the Škocjan Caves Park case study presents:

- conservation measures, monitoring system, and overall, its management, officially assessed as “good with some concern” by IUCN report in 2017.

- A clear commitment for the local sustainable development, expressed in several ways: in the involvement of local community in Park activities and management, in the strong dedication to educational projects for the research and for raising awareness, in the support and coordination of sustainable activities and projects, and last, in the development of an appropriate and satisfying recreational offer.

However, considering the significant local and global trend of tourism growth with its related risks and opportunities, it is fundamental to permanently maintain a wise balance between biodiversity conservation and local development. At this purpose, the results of a consistent monitoring programme are fundamental for decision-making of resources allocation: innovation or restoration? conservation or development? traditional perspective or re-orientation? And furthermore, is there a minimum visitors number to ensure the support of conservation activities? And more important, what is the critical maximum number of visitors in order to avoid serious risks for the ecological integrity of this protected area?

These are the fundamental questions of the sustainable development concepts that need cases study and good practices.

It can be concluded that constant monitoring and further studies, in Škocjan Caves Park and in its surrounding area, as well as in other protected areas, will help to respect the double mandate, biodiversity conservation and sustainable development, and to improve the background for sound management plans of protected areas.

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8. APPENDIX

Appendix I. Personal experience

My experience at Škocjan Caves Park started in 2013 when I spent a three months internship at the Office Research and Development Service of the Park. There, I developed the final project for the completion of the course Master World Natural Heritage Management (promoted by tsm- Trentino School Management). The final project "The tenth Anniversary of the Network of Schools of Škocjan Caves Park" had been possible with the super vision and support of mag. Vanja Debevec, the Head of the Service.

In 2018 attending the Master course Nature Conservation at CULS -Prague, I spent the Erasmus internship at the Park where I planned the idea of this Master thesis and in agreement with my supervisor I started the research. Additionally, the Erasmus study programme supported me for spending the winter semester 2018-2019 at Ljubljana University - Slovenia. During that period it was also possible to maintain the contacts with the Park and to continue the cooperation.

Appendix II. Visitor surveys

QUESTIONNAIRE
FOR ŠKOCJAN CAVES PARK VISITORS

Park Škocjanske jame, Slovenija

Dear Visitor,
Welcome to the Škocjan Caves Park! Thank you for your visit. We kindly ask you to respond to the following questions. The survey is anonymous and the results will be used for research project. Your help is highly appreciated!

---

1. **Age.** ***Please mark:*** □ under 15 □ 16-25 □ 26-30 □ 31-50 □ over 50
2. **Gender.*:*** □ male □ female
3. **Education.** ***Please mark:*** □ primary school □ high school □ undergraduate degree (associate or bachelors) □ graduate degree □ PhD, M.D., J.D. or equivalent
4. **Which country do you come from?**
   ……..……..……..……..……..……..……..……..
5. **How many times have you visited the Škocjan Caves?** ***Please mark:***
   □ never □ once □ more than once (how many? …….)
6. **You are here:** ***Please mark:*** □ alone □ with family □ with friends (number:…….)
   □ with an organized group (number:……)
7. **Why did you decide to visit the Škocjan caves?** ***You can mark more than 1 answer***
   □ The natural beauty □ Adrenaline experience □ Scientific value
   □ Because suggested by friends
   □ It is included in the package tour □ Because suggested from media
   □ Bad weather (occasional visit) □ Curiosity □ It is a Unesco site
   □ Other: ……..
8. **You describe the visit to the caves as:** ***You can mark more than 1 answer***
   □ a visit to the world famous karst wonder □ a relaxing stroll
   □ enjoying natural beauties □ an adrenaline experience
   □ the tranquillity of the underground □ a form of mass tourism
   □ "a race" through the cave □ other: …….……..…….
9. **Do you know if this area is a special protection zone?**
   Please mark: □ yes □ no

10. Please, circle. This area is a: Natural regional Park, Unesco site, Ramsar site.
You can select more than 1 answer

11. Do you know if this area is a part of the Karst Biosphere Reserve UNESCO?
Please mark: □ yes □ no

12. How many nights do you spend in the Park or surrounding area?
Please specify: …….

If you do not stay overnight, how many hours did you spend in the Park?
Please specify: …….

13. During your day, how much do you spend approximately €: *Please specify:*

Typology	How much do you spend individually? **€**	In which locality?
Catering		
Lodging		
Retail sales		
Other		

14. Regard to your spending, did you search for (or would like) local/typical products/services? *Please mark:* You can make some examples.

Typology	yes	no	I do not know	I would	Examples
Catering					
Lodging					
Retail sales					
Other					

15.Which places did you visit? Y*ou can select more than 1 answer*

□ Museums (□ PSJ □ Divača)
□ Divaska cave
□ stud farm Lipica
□ Educational trail
□ trail in the nature (□walking □cycling □riding)
□ Others: …….…….…….

16. What features did you find most appealing in the park or surrounding?
You can mark more than 1 answer:

□ scenic beauty; nature
□ easy accessibility
□ the remote location
□ the feeling of peace and safety of the place
□ good value for money spent
□ friendliness of people

□ plant and animal life □ local culture and customs

□ the history □ other. Please describe:…….……..…….

17. Please describe the following on a scale of 1 to 5 (1 very poor – 5 very good). *Please mark:*

• access to information	1	2	3	4	5	• boards in the park and surrounding	1	2	3	4	5
• promotion in media	1	2	3	4	5	• condition of trails in the nature	1	2	3	4	5
• catering services	1	2	3	4	5	• accessibility	1	2	3	4	5
• lodging services	1	2	3	4	5	• selection of souvenirs shopping	1	2	3	4	5

18. What would encourage you to visit the closer Brkini region and Reka river basin (Karst Biosphere Reserve)? *You can mark one or more option and specify the details.*

Options:	**Details:**
□ **cultural offer:**	□ festival □ museums □ historical monuments/places □ music □ art
□ **tour packages**	
□ **sport:**	□ trekking □ cycling □ riding □ climbing □ other: …….……
□ **educational activity:**	□ educational trail □ activities for children □ didactic farms
□ **spiritual attraction:**	(e.g. visit to places of worship)
□ **relax motivation:**	□ spa □ meditation center □ farms holidays
□ **enogastronomic offer**	
□ **other:**	***Please specify:*** …….…….…….…….……

19. How would you like to visit the Brkini region and Reka river basin (Karst Biosphere Reserve)?

□ by myself □ with app □ guide book □ guided visits □ other:

20. Please rank how interested you are in returning on a scale of 1 to 5 (1 very poor – 5 very good). *Please mark:*

- In returning to the Škocjan Caves Park **1 2 3 4 5**
- In visiting the surrounding area (Karst Biosphere Reserve) **1 2 3 4 5**

Appendix III.Local survey

QUESTIONNAIRE
FOR ŠKOCJAN CAVES PARK RESIDENTS

Park Škocjanske jame, Slovenija

1. General personal data:

<table>
<tr><td colspan="3">Age: Sex: F M Civil status: Level of education:</td></tr>
<tr><td colspan="2">Are you a resident in core zone: YES NO

Did you move in?</td><td>How many members in your nuclear family:</td></tr>
<tr><td>Are you employed?

□ no

□ I am retired

□ yes, in the core zone

□ yes, in the buffer zone

□ yes, outside the boundaries of Karst Biosphere Reserve.</td><td>Do you have any kind of the following activities in the core zone?

□ agriculture

□ pasture

□ forestry

□ tourism (accommodation, tour guide, etc.)

□ craft services

□ other, please list:</td><td>Is it a source of revenue?

□ it is my primary job

□ yes

□ no</td></tr>
<tr><td colspan="3">If you work in the tourism sector, can you tell us what is your primary role, activity, etc.? (accommodation, catering, retail sell, services, tour guide, maintenance, activities…)</td></tr>
<tr><td colspan="3">If you are employed in the tourism sector, can you tell us the approximative income and average number of clients in a year from your activity in PŠJ?</td></tr>
</table>

2. Are you aware about the following designations of PŠJ?

	Yes I know it perfectly.	I heard about it, but I don't know exactly what it is.	Not familiar with it.
UNESCO World Heritage	□	□	□
Ramsar Site	□	□	□
UNESCO Biosphere Reserve	□	□	□
Natura 2000 site	□	□	□

3. **Please express your level of agreement based on the scale 1 to 5 (1: strongly disagree; 2: disagree; 3: neither agree nor disagree; 4: agree; 5: strongly agree).**

A. Presence of PŠJ: The quality of my life has improved because of PŠJ.	1 2 3 4 5
B. Presence of PŠJ: I live in a better environment; no pollution from traffic; clean water and air.	1 2 3 4 5
C. Involvement by PŠJ: I have the opportunity to participate in the management of PŠJ.	1 2 3 4 5
D. The communication with managers and rangers is easy.	1 2 3 4 5
E. Visitors do not affect my privacy.	1 2 3 4 5
F. Visitors strongly affect the quality of my life.	1 2 3 4 5
G. The management of visitors is good and it does not have any deficiencies.	1 2 3 4 5
H. The natural environment in the PŠJ is well protected and managed.	1 2 3 4 5
I. I want to be more involved in the Park activities.	1 2 3 4 5
J. I would like to have more contact with visitors to the Park, and maybe participate in some form of tourism activity.	1 2 3 4 5
K. I would like to see some improved facilities and/or services in the area of the Park.	1 2 3 4 5

If you wish you can tell us some notes about these points:

4. **Please briefly tell us your opinion about the following 5 questions:**

1. Regarding local natural environment and culture (human) elements: at the present, do you think there are some threats to their preservation?

2. How would you like to see improved the quality of **your** life?

3. How would you like to improve the connection with the managers and Park?

4. What type of contact or involvement do you have with visitors? Do they affect you positively or negatively?

5. Is there something specifically that you would like to see implemented or you wish to see avoided?

Appendix IV. KBR ambassadors

QUESTIONNAIRE
FOR KARST BIOSPHERE RESERVE AMBASSADORS

Park Škocjanske jame, Slovenija

The following survey is being conducted as an integral part of a research project of the master thesis titled "Socioeconomic aspects of tourism activities management in PŠJ" by graduate student B.Sc. Letizia Fambri, of Czech University of Life Sciences Prague and developed through Erasmus programmes.
The goal is to explore and identify the current state of tourism activities and management at the Škocjan Caves Park.
*We believe that it is also important to listen to the voice of the **Karst Biosphere Reserve (KBR**) Ambassadors to better craft future management strategies. The survey is not necessarily connected with tourism activities but rather aims to understand, from Karst Biosphere Reserve Ambassadors, their opinions about the current state of the physical and cultural conditions and to better craft future needs for the Biosphere Reserve and its inhabitants*
Therefore, your participation is very important and we really appreciate it!
Results of this work will be available to you at your request.

Thank you for your collaboration!

1. **Please express your level of agreement based on the scale 1 to 5 (1 strongly disagree; 2 somewhat disagree; 3 indifferent or neutral; 4 somewhat agree; 5 strongly agree).**

A. Presence of PŠJ: The quality of my life has improved because of its presence as Protected Area.	1 2 3 4 5
B. PŠJ manages adequately KBR.	1 2 3 4 5
C. KBR brought new opportunities of actions for locals (either nature and cultural protection, either economic opportunities and social revitalization)	1 2 3 4 5
D. Your involvement in KBR is good * (please, then specify how you would like to be involved or more involved in the management and activities of KBR).	1 2 3 4 5
E. Connection with managers is good.	1 2 3 4 5
F. Nature features protection and management in KBR is good.	1 2 3 4 5
G. Cultural heritage protection and management in KBR is good.	1 2 3 4 5
H. Residents' social life in KBR is lively.	1 2 3 4 5

I. Inhabitants are aware that they live in a UNESCO Biosphere Reserve.	1 2 3 4 5
J. Inhabitants are aware that they live in a part of a regional Park with international designations.	1 2 3 4 5
K. Karst Biosphere must invest more in local involvement and participatory processes *(if yes, please, then specify how).	1 2 3 4 5
L. Inhabitants should have more changes in the activities for sustainable goals of a Biosphere reserve * (if yes, please, then specify how).	1 2 3 4 5
M. The tourism in KBR is well managed.	1 2 3 4 5
N. KBR has many sustainable development opportunities not expressed * (please, then specify which can be these opportunities).	1 2 3 4 5

If you wish, use the space below to provide more detailed explanation about points:
(point D, K, L, J and N are requested after).

*Point D. Please specify: In which way would you like to be involved or more involved, in the management and/or activities of KBR?

*Point K and L. Please express your idea on how inhabitants can be more involved in participatory processes and in the development of sustainable goals of their KBR.

*Point N: Please specify: Which are the not expressed sustainable opportunities of the Karst Biosphere Reserve?

2. Please tell us your opinion about the following 4 questions:

A. What are the current risks for your area as a Biosphere Reserve?

B. What do you think need to be implemented in KBR? Social life/involvement? Nature protection? Economic opportunities?

C. How do you think must be enhanced the connection between KBR and core zone?

D. How do you assess the participatory process of local population in KBR?

Appendix V. Database visitor

Question number	Content	DATA		EXAMPLE
I.D.	participant	code		10.13.40
1	Age	categorical data		31-50
2	Gender	categorical data - binary		f
3	Education	categorical data		mag
4	Country	categorical data		Spain
4	Zone	categorical data		Europe_EU
5	PreviousVisitSkocjanCaves	categorical data	continuos	0
6	Company	categorical data		family
7	ReasonNature	categorical data		yes
7	ReasonScientificValue	categorical data		no
7	ReasonPackage	categorical data		no
7	ReasonOccasionalVisit	categorical data		no
7	ReasonUNESCOsite	categorical data		no
7	ReasonFriend	categorical data		no
7	ReasonMedia	categorical data		no
7	ReasonOthers	categorical data		yes
9	KnowledgeSPZ	categorical data - binary		yes
10	KnowledgeCategorical dataegory	Numeric data	continuos	1-4
11	KnowledgeUNESCO	categorical data - binary		yes
12	OvernightNum	numeric	continuos	1
12	Overnight	categorical data - binary		yes
13	SpendCategorical dataering	numeric		5
13	SpendAccomodation	numeric		<NA>
13	SpendingShopping	numeric		0
13	SpendingOther	numeric		0
13	SpendingTotal	numeric		10
14	Local restoration	categorical data - binary		yes
14	Local lodging	categorical data - binary		no
14	Local products	categorical data - binary		no
14	local others	categorical data - binary		<NA>
15	VisitMuseum	categorical data - binary		yes
15	VisitDivaskaCave	categorical data - binary		no
15	VisitStudFarmLipica	categorical data - binary		no

15	VisitEducategorical dataionalTrail	categorical data - binary		no
15	VisitSport	categorical data - binary		no
15	VisitOthers	categorical data - binary		no
15	VisitNumber	Numeric data	continuos	1
16	FeatLandscape	categorical data - binary		yes
16	FeatEasyAccessibility	categorical data - binary		no
16	FeatRemoteLocation	categorical data - binary		no
16	FeatFloraFauna	categorical data - binary		no
16	FeatHistoryes	categorical data - binary		yes
16	FeatPeace	categorical data - binary		no
16	FeatMoney	categorical data - binary		no
16	FeatPeople	categorical data - binary		no
16	FeatLocalCulture	categorical data - binary		no
16	FeatOthers	categorical data - binary		no
17	InfoAccessibility	Numeric data	continuos	2
17	MediaPromotion	Numeric data	continuos	2
17	CateringServices	Numeric data	continuos	2
17	Accomodation	Numeric data	continuos	3
17	Boards	Numeric data	continuos	3
17	NaturalTrails	Numeric data	continuos	4
17	Accessibility	Numeric data	continuos	4
17	Shopping	Numeric data	continuos	3
18	MotivCult	categorical data - binary		yes
18	MotivPackages	categorical data - binary		no
18	MotivSPort	categorical data - binary		yes
18	MotivEd	categorical data - binary		no
18	MotivRelax	categorical data - binary		yes
18	MotivOther	categorical data - binary		no
20	FutINtSurr	numeric	continuos	4
20	SCPInt	numeric	continuos	3
19	Myself	categorical data - binary		no

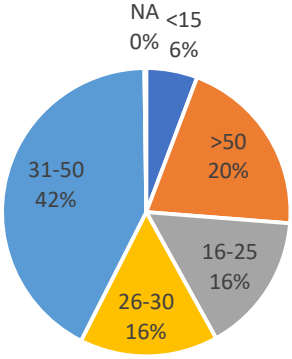
19	Tool	categorical data - binary		yes
19	GuidedVisits	categorical data - binary		no
19	Other	categorical data - binary		no

Appendix VI. Visitor Survey Results

Appendix VI.a

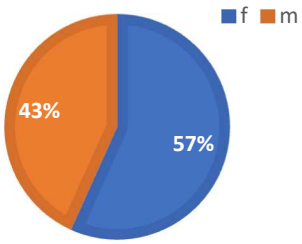
Age

Class age	Individuals	Percentage
<15	30	6%
>50	107	20%
16-25	82	16%
26-30	81	16%
31-50	221	42%
NA	1	



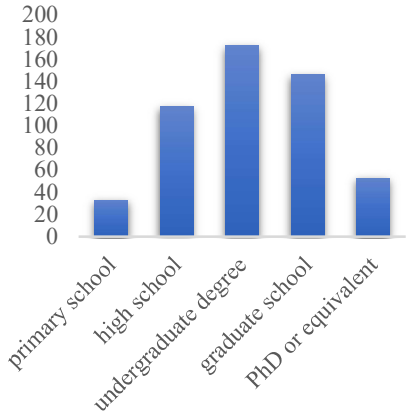
Gender

Gender	Individuals	Percentage
female	291	57%
male	222	43%
NA	9	1.7%



Educategorical dataion

	Series 1	Percentage
primary school	33	6.3%
high school	117	22.4%
undergraduate degree	172	32.9%
graduate school	146	27.9%
PhD or equivalent	53	10%

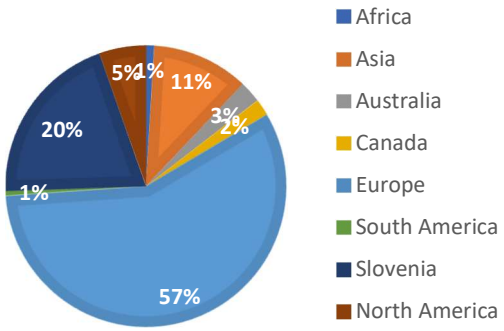


Company

	Count of Company	Percentage
alone	19	3,6%
family	271	51,9%
friends	203	38,9%
group	28	5,4%
NA	1	0,2%
Total	**522**	**100%**

Country

Africa	5
Asia	58
Australia	13
Canada	10
Rest of Europe	299
South America	3
Slovenia	105
North America	28



Australia	15	France	18	Poland	9
New ZelaND	1	Greece	1	Spain and Portogal	21
Austria	7	Netherlans	18	Russia	1
Swizterland	4	Honk Kong	8	Ukraine	1
Belgium	11	Hungary	22	Singapore	5
Balcan States (Albania, Croatia, Serbia, Bosnia)	18	India	6	Slovenia	105
South America (Argentina, mexico, Uruguay)	3	UK	6	South Africa	5
Bulgaria	2	Israel	20	Switzerland	5
Canada	10	Italy	81	Taiwan	4
Czech	3	Japan	9	USA	28
Slovakia	2	Lituania	1	Vietnam	1
Germany	62	malaysia	3		
scandinavian (Finland and Sweden)	5	Philippine	1		

Appendix VI.b

(a) Motivation of visits

	Observed	Percentages (tot 522)
Natural beauty	417	80%
Scientific value	73	14%
It is included in the package tour	13	2%
Occasional visit (bad weather)	25	5%
It is a UNESCO Site	152	29%
Because suggested by friends	150	29%
Because suggested by media	78	15%
Other (Other, Adrenaline experience, curiosity)	225	43%

(b) Other visited places

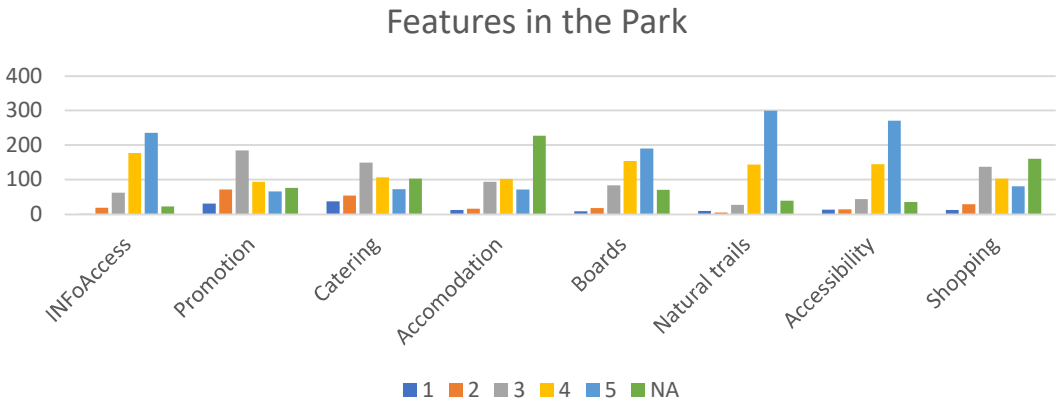
	Observed	Percentage
Museums	96	18%
Divaska caves	127	23%
Stud Farm Lipica	83	16%
Educategorical dataional Trail	119	23%
Sport activites	146	28%
Others	66	13%
NA	130	25%

(c) Appealing features

	Observed	Percentage
Landscape	486	93%
Access	128	24%
Remote locategorical dataion	60	11%
Flora/Fauna	120	13%
History	142	27%
Peace	185	35%
Money	112	21%
FriendPeople	202	39%
Culture	78	15%
Other	10	2%

(d) Rates in Park's features

	Info Access	Promotion	Categorical dataering	Accomodation	Boards	Natural trails	Accessibility	Shopping
1	1	31	37	12	8	9	13	12
2	19	71	54	16	18	5	14	29
3	62	184	149	94	83	27	44	137
4	177	94	107	102	154	144	145	103
5	235	66	72	71	190	299	271	81
NA	22	76	103	227	70	39	35	160



(e) Motivation of future visits

Motivation	Observed	Percentage (tot 522)
Cultural offer	255	49%
Tour packages	55	10%
Sport	281	54%
Educategorical dataional activities	151	30%
Relax motivations	190	36%
Other (spiritual, enogastronomic and other..)	137	26%

(f) Rates of interest

Grade of interest	Observed	Percentage (tot 522)
1	12	2%
2	16	3%
3	96	18%
4	156	30%
5	200	38%
NA	42	8%

Appendix VI.c

Scripts of boxplots

```
> setwd("C:/Users/xfaml001/Desktop/letizia/ChiSquared")
> spend<-read.csv("SPENDna.csv", header = T, sep= ",")
> summary(spend)
     Categorical dataer      Accomodation       Shopping
 0       :130   Min.   :   0.0   Min.   :  0.000
 20      : 33   1st Qu.:   0.0   1st Qu.:  0.000
 10      : 32   Median :   0.0   Median :  0.000
 5       : 31   Mean   :  18.2   Mean   :  4.004
 15      : 19   3rd Qu.:  15.0   3rd Qu.:  5.000
 (Other):128   Max.   :1000.0   Max.   :100.000
 NA's    :149   NA's   :149      NA's   :153
> spend$categorical dataering<-as.numeric(spend$Categorical dataer)
> summary(spend$categorical dataering)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.    NA's
   1.00    2.00   11.00   12.85   22.00   39.00     149
> summary(spend)
     Categorical dataer      Accomodation       Shopping          ca
tegorical dataering
 0       :130   Min.   :   0.0   Min.   :  0.000   Min.   : 1.00
 20      : 33   1st Qu.:   0.0   1st Qu.:  0.000   1st Qu.: 2.00
 10      : 32   Median :   0.0   Median :  0.000   Median :11.00
 5       : 31   Mean   :  18.2   Mean   :  4.004   Mean   :12.85
 15      : 19   3rd Qu.:  15.0   3rd Qu.:  5.000   3rd Qu.:22.00
 (Other):128   Max.   :1000.0   Max.   :100.000   Max.   :39.00
 NA's    :149   NA's   :149      NA's   :153       NA's   :149
> setwd("C:/Users/xfaml001/Desktop/letizia/ChiSquared")
> spend<-read.csv("SPENDna.csv", header = T, sep= ",")
> summary(spend)
     Categorical dataer      Accomodation       Shopping
 0       :130   Min.   :   0.0   Min.   :  0.000
 20      : 33   1st Qu.:   0.0   1st Qu.:  0.000
 10      : 32   Median :   0.0   Median :  0.000
 5       : 31   Mean   :  18.2   Mean   :  4.004
 15      : 19   3rd Qu.:  15.0   3rd Qu.:  5.000
 (Other):128   Max.   :1000.0   Max.   :100.000
 NA's    :149   NA's   :149      NA's   :153
> spend$Categorical dataering=as.numeric(spend$Categorical dataer)
> summary(spend$Categorical dataering)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.    NA's
   1.00    2.00   11.00   12.85   22.00   39.00     149
> spend <- subset(spend, select = -Categorical dataer)
> View(spend)
> summary(spend)
  Accomodation       Shopping          Categorical dataering
 Min.   :   0.0   Min.   :  0.000   Min.   : 1.00
 1st Qu.:   0.0   1st Qu.:  0.000   1st Qu.: 2.00
 Median :   0.0   Median :  0.000   Median :11.00
 Mean   :  18.2   Mean   :  4.004   Mean   :12.85
 3rd Qu.:  15.0   3rd Qu.:  5.000   3rd Qu.:22.00
 Max.   :1000.0   Max.   :100.000   Max.   :39.00
 NA's   :149      NA's   :153       NA's   :149
> boxplot(spend)
> boxplot(spend, outline=FALSE)
> Categorical dataering<-summary(spend$Categorical dataering)
> Accomodation<-summary(spend$Accomodation)
> Shopping<-summary(spend$Shopping)
```

```
> EconomicView<-data.frame(cbind(Categorical dataering,Accomodation,
 Shopping))
> View(EconomicView)
```

Appendix VI.d

Scripts Spending – Educategorical dataion. Pearson's Chi Squared Test

```
> SpenEDu= read.csv("SpendEd.csv", header = T, sep=",")
> SpenEDu
  primary HgS UnG GrDg PHD.or.Eq
1      15  62 106   74         30
2       9  22  30   29          8
> SpenEDuc= chisq.test(x= SpenEDu, simulate.p.value = TRUE)
> SpenEDuc

        Pearson's Chi-squared test with simulated p-value (based on
2000 replicategorical dataes)

data:  SpenEDu
X-squared = 3.4696, df = NA, p-value = 0.4993

> SpenEDuc$expected
       primary      HgS       UnG     GrDg PHD.or.Eq
[1,] 17.890909 62.61818 101.38182 76.78182 28.327273
[2,]  6.109091 21.38182  34.61818 26.21818  9.672727
> SpenEDuc$residuals
        primary         HgS        UnG       GrDg  PHD.or.Eq
[1,] -0.6834681 -0.07812068  0.4586601 -0.3174677  0.3142844
[2,]  1.1696236  0.13368846 -0.7849083  0.5432847 -0.5378370
```

Scripts Spending – Age. Pearson's Chi Squared Test

```
> SpenAge= read.csv("SpendAge.csv", header = T, sep=",")
> SpenAge
        <15     16-25   26-30   31-50   >50
1       13      40      48      132     53
2       7       27      16      35      14
 > SpendAge= chisq.test(x= SpenAge, simulate.p.value = TRUE)
 > SpendAge

 Pearson's Chi-squared test with simulated p-value
 (based on 2000 replicategorical dataes)

 data:  SpenAge
 X-squared = 11.172, df = NA, p-value = 0.02749

 > SpendAge$expected
           X.15   X16.25   X26.30    X31.50     X.50
 [1,] 14.857143 49.77143 47.54286 124.05714 49.77143
 [2,]  5.142857 17.22857 16.45714  42.94286 17.22857
 > SpendAge$residuals
            X.15    X16.25      X26.30     X31.50       X.50
 [1,] -0.4818121 -1.385058  0.06629935  0.7131253  0.4576362
 [2,]  0.8189230  2.354146 -0.11268723 -1.2120800 -0.7778319
```

Appendix VI.e

Scripts Times of visit -Nationality. Pearson's Chi Squared Test

```
> CountryTimes= read.csv("TimesCountry.csv", header = T, sep=",")
> CountryTimes
  Slo  EU Asia North.A. South.A. Australia Africa
1  86 164   25       15        1         6      3
2  19 134   33       23        2         7      2
> CountryTm= chisq.test(x= CountryTimes, simulate.p.value = TRUE)
> CountryTm

        Pearson's Chi-squared test with simulated p-value (based on
2000 replicategorical dataes)

data:  CountryTimes
X-squared = 37.756, df = NA, p-value = 0.0004998

> CountryTm$expected
          Slo       EU     Asia North.A. South.A. Australia   Africa
[1,] 60.57692 171.9231 33.46154 21.92308 1.730769       7.5 2.884615
[2,] 44.42308 126.0769 24.53846 16.07692 1.269231       5.5 2.115385
> CountryTm$residuals
           Slo         EU      Asia  North.A.   South.A.  Australia
     Africa
[1,]  3.266439 -0.6042641 -1.462771 -1.478592 -0.5554701 -0.5477226
 0.06793662
[2,] -3.814379  0.7056284  1.708149  1.726624  0.6486493  0.6396021
-0.07933288
```

Appendix VI.f

Scripts of Knowledge – Spending. Pearson's Chi Squared Test

```
> setwd("C:/Users/xfaml001/Desktop/letizia/06.03")

> KNWSpend= read.csv("KnoSPEnd.csv", header = T, sep=",")

 > KNWSpend
   X0know X1know X2know X3know
1      45    114     85     38
2      12     50     30      7
 > KnwSpend= chisq.test(x= KNWSpend, simulate.p.value = TRUE)
 > KnwSpend

 Pearson's Chi-squared test with simulated p-value
 (based on 2000 replicategorical dataes)

 data:  KNWSpend
 X-squared = 4.9956, df = NA, p-value = 0.1694

 > KnwSpend$expected
        X0know    X1know   X2know   X3know
 [1,] 42.18898 121.38583 85.11811 33.30709
 [2,] 14.81102  42.61417 29.88189 11.69291
 > KnwSpend$residuals
          X0know     X1know      X2know     X3know
 [1,]  0.4327778 -0.6703709 -0.01280196  0.8131566
 [2,] -0.7304188  1.1314154  0.02160645 -1.3724015
```

Scripts of Knowledge –Overnight. Pearson's Chi Squared Test

```
> KnNight<-read.csv("KnOv.csv", header = T, sep= ",")
> summary(KnNight)
    knowSPZ           Over
 Min.   : 34.0   Min.   :114.0
 1st Qu.:137.8   1st Qu.:174.8
 Median :241.5   Median :235.5
 Mean   :241.5   Mean   :235.5
 3rd Qu.:345.2   3rd Qu.:296.2
 Max.   :449.0   Max.   :357.0
> chisq.test(x= KnNight, simulate.p.value = TRUE)

Pearson's Chi-squared test with simulated p-value
(based on 2000 replicategorical dataes)

data:  KnNight
X-squared = 466.08, df = NA, p-value = 0.0004998

> Lalla= chisq.test(x= KnNight, simulate.p.value = TRUE)
> Lalla$expected
      knowSPZ     Over
[1,] 285.0409 277.9591
[2,] 197.9591 193.0409
> Lalla$residuals
        knowSPZ      Over
[1,]   9.711404 -9.834338
[2,] -11.653270 11.800786

> setwd("C:/Users/xfaml001/Desktop/letizia/ExNewChiSquared")
> KnNight<-read.csv("KnOv.csv", header = T, sep= ",")
> fisher.test(KnNight)

        Fisher's Exact Test for Count Data
data:  know
p-value < 2.2e-16
alternative hypothesis: true odds ratio is not equal to 1
95 percent confidence interval:
 27.09596 63.88258
sample estimates:
odds ratio
  41.06654
```

Scripts of Knowledge –Times of visit. Pearson's Chi Squared Test

```
> TimesKNOW= read.csv("ExNewChiSquared/TimesKnow.csv", header = T, s
ep=",")
> TimesKNOW
  X0know X1know X2know X3know
1     40     93     64     19
2     34    122     95     43
> TimesKnow= chisq.test(x= TimesKNOW, simulate.p.value = TRUE)
> TimesKnow

Pearson's Chi-squared test with simulated p-value
(based on 2000 replicategorical dataes)

data:  TimesKNOW
X-squared = 7.9899, df = NA, p-value = 0.04648
```

```
> TimesKnow$expected
       X0know    X1know   X2know   X3know
[1,] 31.34118  91.05882 67.34118 26.25882
[2,] 42.65882 123.94118 91.65882 35.74118
> TimesKnow$residuals
        X0know     X1know     X2know    X3know
[1,]  1.546683  0.2034248 -0.4071543 -1.416539
[2,] -1.325728 -0.1743642  0.3489894  1.214176
```

Scripts Interest - Knowledge. Pearson's Chi Squared Test

```
 > KnowINT= read.csv("ExNewChiSquared/KnoINT.csv", header = T, sep="
,")
> KnowINT
  X0know X1know X2know X3know
1      0      7      3      3
2      2      8      5      1
3     15     36     37      7
4     27     64     40     25
5     22     81     67     25
> KnowINT= chisq.test(x= KnowINT, simulate.p.value = TRUE)
> KnowINT

Pearson's Chi-squared test with simulated p-value
(based on 2000 replicategorical dataes)

data:  KnowINT
X-squared = 14.521, df = NA, p-value = 0.2744

> KnowINT$expected
        X0know    X1know X2know    X3know
[1,]  1.806316  5.364211   4.16  1.669474
[2,]  2.223158  6.602105   5.12  2.054737
[3,] 13.200000 39.200000  30.40 12.200000
[4,] 21.675789 64.370526  49.92 20.033684
[5,] 27.094737 80.463158  62.40 25.042105
> KnowINT$residuals
         X0know      X1know      X2know      X3know
[1,] -1.3439925  0.70627609 -0.56873679  1.02975446
[2,] -0.1496674  0.54404303 -0.05303301 -0.73581055
[3,]  0.4954337 -0.51110125  1.19703581 -1.48875567
[4,]  1.1435832 -0.04618230 -1.40402352  1.10956799
[5,] -0.9787669  0.05984778  0.58232514 -0.00841397
```

Appendix VI.g

Contingency table Interest in visiting the surrounding and 4 appealing features

Grade of interest	Number of respondents			
	Easy accessibility	Good value for money spent	Friendliness of people	Local culture and customs
1	2	0	2	12
2	2	1	4	16
3	25	19	31	85
4	36	38	58	128
5	56	49	88	160

Scripts interest and the feature of friendliness of people

```
> IntPeo= read.csv("IntPeop.csv", header = T, sep=",")
> IntPeo
  yes.people no.people
1          2        10
2          4        12
3         31        63
4         59        96
5         88       111
> IntPeople= chisq.test(x= IntPeo, simulate.p.value = TRUE)
> IntPeople

Pearson's Chi-squared test with simulated p-value
(based on 2000 replicategorical dataes)

data:  IntPeo
X-squared = 7.6048, df = NA, p-value = 0.1089

> IntPeople$expected
     yes.people  no.people
[1,]   4.638655   7.361345
[2,]   6.184874   9.815126
[3,]  36.336134  57.663866
[4,]  59.915966  95.084034
[5,]  76.924370 122.075630
> IntPeople$residuals
     yes.people   no.people
[1,] -1.2251426  0.97253248
[2,] -0.8785388  0.69739438
[3,] -0.8852326  0.70270798
[4,] -0.1183336  0.09393463
[5,]  1.2628055 -1.00242978
```

Appendix VI.h

Scripts Interest in visiting the Karst Biosphere Reserve – Rated Park's feature.
Regression Tree

```
> library (rpart)
> library (partykit)
> setwd("C:/Users/xfaml001/Desktop/letizia")
> FiF<-read.csv("FutIntFeat.csv", header = T, sep = ",")
> FutINT=ctree(FutINtSurr~., data=FiF, na.action=na.pass, control=ct
ree_control(testtype = c("Bonferroni"), mincriterion=.95, majority =
 TRUE))
> plot(FutINT)
> FutINT

 Model formula:
 FutINtSurr ~ InfoAccessibility + MediaPromotion + Categorical dataeringServices
     Accomodation + Boards + CuturalTrails + Accessibility + Shopping

 Fitted party:
 [1] root
 |   [2] Accessibility <= 1
 |   |   [3] InfoAccessibility <= 2: 0.720 (n = 25, err = 37.0)
 |   |   [4] InfoAccessibility > 2: 2.739 (n = 23, err = 84.4)
 |   [5] Accessibility > 1
 |   |   [6] MediaPromotion <= 2
 |   |   |   [7] Shopping <= 4: 3.754 (n = 130, err = 168.1)
 |   |   |   [8] Shopping > 4: 1.900 (n = 10, err = 48.9)
 |   |   [9] MediaPromotion > 2
 |   |   |   [10] CuturalTrails <= 4: 3.790 (n = 124, err = 154.5)
 |   |   |   [11] CuturalTrails > 4: 4.276 (n = 210, err = 268.0)

 Number of inner nodes:    5
 Number of terminal nodes: 6
```

Appendix VII. Locals Survey Results

The degree of the agreement for each statement of the survey section n.3.
Colours indicategorical datae the categorical dataegory:
Blue is for the statement about quality.
Yellow is for the statements about involvement.
Red is for the statements about visitors relationship.

Statement.	Degree of agreement				
	1	**2**	**3**	**4**	**5**
A.Presence of PŠJ: The quality of my life has improved because of PŠJ.	1	3	2	6	1
B. Presence of PŠJ: I live in a better environment; no pollution from traffic; clean water and air.	2	2	3	6	0
C. Involvement by PŠJ: I have the opportunity to participate in the management of PŠJ.	3	7	2	1	0
D. Communicategorical dataion with SCP managers and ranger is easy	1	0	1	4	7
E. Visitors do not affect my privacy	3	3	3	2	2
F. *Visitors strongly affect the quality of my life*	4	2	3	4	0
G. The management of visitors is good and it does not have any deficiencies	3	5	2	3	0
H. The natural environment in the PŠJ is well protected and managed	1	1	4	5	2
I. want to be more involved in the Park activities.	0	2	7	3	1
J. Involvement Visitors I would like to have more contact with visitors to the Park, and maybe participate in some form of tourism activity.	5	3	2	2	1
K. I would like to see some improved facilities and/or services in the area of the Park.	0	1	4	6	2
Tot.	23	29	33	**42**	16