

Chapter

SKY COMMONS AS A BASIS TO EXPLORE THE TOURISTIC POTENTIAL OF THE ALQUEVA AREA (PORTUGAL)

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ABSTRACT

This paper analyzes the use of an unpolluted night sky as the basis for the differentiation of a rural tourism destination. As it has been pointed out in other studies the use of the commons as part of the tourism offer may lead to situations of overuse and pollution. In the present case it is shown that by having awareness of the tourism potential of this common resource, stakeholders of the Alentejo Region joined efforts to mitigate all the sources of pollution. A resource that was being neglected has become in the center of preservation policies of local public authorities of this region.

Keywords: rural tourism, astro-tourism, commons, property rights, sky commons, sky observation, cooperation, Alqueva Dark Sky Route

INTRODUCTION

Tourism products presented in this chapter are based on the “observation of the sky”. Nowadays many resources used by tourists are common to several activities and are also used by non-tourists. In this work, a framework for the studied phenomenon is made, considering a theoretical foundation and a geographical framework (in Alentejo, Portugal). The relevance

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of such a project in the tourism sector is studied, aiming to analyze its contribution for the socio-economic development of this region, on which Alqueva is inserted. A recent study for choosing a tourism destination in Portugal, Alentejo took the first place in the ranking of tourists choices (see Genç and Filipe, 2016).

As there are many natural resources which are used by tourists, and that are common to local people and tourists, the study of such a kind of new products allows to highlight its relevance in the context of innovative tourism products and to understand the form that this product is related with other activities and yet to show how these products can bring new wealth to a region.

The geographical area in this region has created the conditions and potentiated them to the quality of the observation of the sky, by reducing as much as possible the light pollution allowing that at night the darkness of the sky got significantly improved. This quality of the observation of the sky allows the offer of a set of products in this area. Some of these products are directly related with the “observation of the sky” itself, others resulting from the generated ambience, by creating a romantic atmosphere for example. Other products yet result from the natural conditions of this region, made possible through a new integrated offer. Several thematic touristic products got offered in this region. All these related activities result important for this region, which was kept out of tourism products offer until recently.

An insight over property rights is made. Several types of property rights are considered in general, involving different related regimes. Different types of property and the related property rights’ regimes are considered taking into account that there are different activities to be developed in the context of these different property rights regimes (which are analyzed and developed in the context of the present project). Commons are defined as well, being possible to see and to study the several complex situations involved in the present study.

THEORETICAL FRAMEWORK

We are all under the same sky

Property Rights and Commons

The existence of well-defined property rights allows to considerably diminish or even to eliminate the destructive basis of competition for controlling and using economic resources. When property rights are well defined and well protected, the use of resources may be done in a more undisturbed way.

Property rights involve many multifaceted and complex concerns in any society. In the complex net of property relationship, there are different kinds, forms and regimes for property rights. It is possible to find, for example, goods in private ownership or in state ownership. It is known that transferences of ownership may be made due to several kind of reasons. Anyway, as much stated along many years of evidences, the worst ending happens when property rights are really eliminated. The most familiar consequent studied case is the tragedy of the commons, as Hardin (1968) well described it.

As stated in Coelho, Filipe and Ferreira (2010), the property nature and the specification of resource use rights are determined by society members and by rules and conventions that

they choose and establish between them, about the use of the resource; not by the resource, itself (see also Gibbs and Bromley, 1989).

A correct and complete definition of property rights (including private property rights) contributes for a good utilization of resources. Anyway, the discussion is kept open, once the boundaries of the concepts are not completely defined.

Considering the private property regime itself, it is possible to present three inherent central characteristics:

- exclusivity of rights to choose the use of a resource,
- exclusivity of rights to the services of a resource, and
- rights to exchange the resource at mutually agreeable terms.

In fact, more than determining the use of his resource, a holder of (private) property rights has the exclusive right to the services of the resource and the right of delegating, renting, or selling any part of rights by exchanging them or by giving them at whatever price the owner decides about it (if there is someone available to pay such price). The level of private property rights fundamentally influences the behaviour of agents that use and participate on the exploitation and control of resources.

Considering the commons, there is a very initial basic status about the meaning of the expression “commons”. In the larger sense of the term, it is intended to express the idea that there are resources and goods that are available to anyone and that anyone may use them. This simple idea implies the necessity of protecting these resources and shows the importance of the way resources management shall be done for the good of all. However, the terms *commons* and *common property* are repeatedly used to refer different situations, including:

- property owned by a government;
- property owned by no one;
- property owned and defended by a community of resource users;
- any common-pool used by multiple individuals independently of the type of property rights involved (Schlager and Ostrom, 1992).

As stated by Coelho, Filipe and Ferreira (unpublished), the controversy surrounding the use of the term “common property” derives, in part, from the different philosophies based on the traditional and Western scientific visions of the resources management. The most disclosed contemporary Western vision defends that the property is or private or belongs to the State. In this vision, the resources that are not likely in private ownership are called “common property”. This does not mean that a resource is owned by a collective group, but that it is not owned by anyone - it is a free good. For example, marine resources are often defined in law of Western Nations as “owned by no one and belonging to everyone” (NOAA, 1985). According to this definition of common property, these resources are basically free access resources, captured at a null price by any user.

Another perspective defends common property as being restricted to resources owned in common, i.e., are resources for which there are communal rules for agreements/exclusion of non-members and for the use and allocation of resources between the co-owners. The concept of common property in this sense (or community property /communal property) is well

established in the formal institutions like the Common Anglo-Saxon Law or Roman law (Scott, 1983). It is also well established in informal arrangements based on custom and tradition (see Ruddle and Panayotou, 1989; Acheson, 1981; FAO, 1983; Panayotou 1984). Based on several contributions, Coelho, Filipe and Ferreira (2007) propose the following typology presented on Table 1 (see also Filipe, Coelho and Ferreira, 2010).

Consequently, common property may be considered as property of no one, the “commons”, understood in this larger sense (being otherwise also possible to consider the common property for situations of state and communal properties).

The terms used in this chapter are based on the terminology above, proposed in Coelho, Filipe and Ferreira (2007), according to the property-rights regimes relevant to common property resources (in addition to the private property), which are based on Berkes and Farvar (1989).

In this chapter commons represents the idea of open access, the idea that anyone can access and use a given resource/good.

It is also convenient to make a first reference to the term global commons, which is an expression that usually is used to express international, supranational and global resource domains in which common-pool resources are found. Global commons consist for example on earth’s shared natural resources, such as the deep oceans, atmosphere, outer space and Northern and Southern polar regions, the Antarctic in particular. Cyberspace also meets the definition of a global commons. Global common-pool resources may face problems of congestion, overuse, or degradation. One of these Commons, as pointed above, is the outer space, or just space, which is the void that exists between celestial bodies, including the Earth.

Table 1. Idealised types of property-rights regimes relevant to common property resources^{1,2}

| | |
|----------------------------------|--|
| Open Access (res nullius) | Free-for-all; use rights are neither exclusive nor transferable; rights to access are common but open access to everyone (therefore no one property). |
| State Property (res publica) | Ownership, management and control held by a government agency; public resources to which access rights have not been specified |
| Communal Property (res communes) | Resource use rights are controlled by an identifiable group of co-owners; there exist rules concerning access, who should be excluded and how should the resource be used and conserved; community-based resource management system; “true” common-property. |

¹The fourth property-rights regime is private property.

²Based on Berkes and Farvar (1989).

Commons and Cooperation

Commons Theory is crucial to understand effects of human behavior in the exploitation of Earth resources. The essence of the problem is that resources are exploited and it is

necessary to well understand the way exploitation is done. Often, agents aim to have maximum benefits in line with the generalized selfish human behaviour; a consequent tragedy for the resource may be the corollary.

Hardin (1968) discussed solutions for defending resources from over-exploitation. The privatization of resources or the implementation of coercive measures were possible ways proposed by Hardin. Besides, as stated before, cooperation involving agents may be an important form to reach this objective. In fact, if there is cooperation, may it be among all agents exploiting the resource and/or among those agents and the ones who rule or coordinate resources exploitation, a considered resource may be better managed and a more consequent regulation may result also in a better preservation of the resource. As so, cooperation may bring a more suitable definition of prices and a better level of global rents for agents, by using coordinated activities and a good cooperation among involved agents.

In fact, in the commons area, this kind of problem may be integrated in the very well-known problem that results from the traditional formal issue of “Dilemma of the Prisoner” that is relevant in the Game Theory analysis. In Game Theory the problem is posed for example for situations in which two players for instance, in a game have dominant strategies, what makes that the solution of the game is a dominant strategies’ equilibrium. This equilibrium is stable and players will not change their choices. The problem is that this kind of solution implies a lower total payoff than the result that players could have if they had some form of cooperation between them. In this kind of situations, players will choose the dominant strategy (which in the case of the natural resources exploitation, for example, is always the strategy of non-conservation) and they will not have incentives to use it efficiently and conserve the resource. Players are compelled to follow this strategy because they are functioning in competition conditions. So, that puts a player in a situation that represents a dilemma with ethical boundaries. By one side, player really thinks that it is important to have a proper management policy for the use of a resource in the long term, but by the other side he is compelled to have an egoistic and myopic view of the resource use and exploits it too much compared with the ideal inter-temporal production level (Filipe, 2011).

Experience for many situations teaches that, by inducing an effective cooperation and avoiding free-riding, it is important that a set of enforcement mechanisms are used to conduct to higher levels of cooperation and to the effective involvement of the group elements. This may involve and may stabilize practices among unrelated individuals and in large groups (Melis and Semmann, 2010).

Cooperation may represent an advantage to develop activities looking for an added value. For instance, some cases may serve as examples as in a community group the cooperation in agriculture or the coordination of activities to provide an integrated set of consistent services in the tourism area. The cooperation in a community shows people helping each other bringing significant advantages for the group.

As referred in Filipe (2011), sometimes cooperative behaviours may induce immediate results but sometimes the long term results are even more effective and important. Also, as can be seen very commonly, people may prefer benefits of short term for themselves (considering their self-interest), than the long term benefits obtained from cooperation, which are greater for all as a whole, even though it may be sometimes necessary to create rules with the purpose of making effective the benefits for all (for example, by redistributing benefits through side payments).

By understanding that, a correct management of resources is necessary involving all agents related to the given resource. Besides, it is shown that many times cooperation may bring interesting results either in terms of economic effects as in terms of resources preservation (Filipe, 2011, Filipe 2014 or Filipe et al., 2012, for example).

Filipe et al. (2012) state that cooperation has been seen as an interesting way to reach good results in the exploitation of the commons, allowing rewarding resources management solutions. Some interesting patterns of human cooperation are exemplified in the literature on institutions for managing the commons (Richerson et al., 2002).

As defended in Filipe (2011), new kind of projects, dealing with technological innovation, can be developed involving Universities and local organizations, by creating structures for new value development as much as new projects involving local communities and local companies in order to create new economic and social businesses. These types of partnership and new practices may be considered to bring new development to regions and to allow citizens, in the day-to-day way of living, to get an improved socio-economic welfare condition.

Having these considerations into account, the Alqueva case study presented in this chapter shows how new activities may bring new wealth to a region and how new ideas may allow the development of new activities in a region, where cooperation among agents may represent an important tool to an integrated and well succeed tourism development.

Rural Tourism

According to McDonagh (2007) the countryside is now being challenged as never before by issues of agricultural restructuring, declining service provision, depopulation and counter-urbanization, communication and infrastructural deficits and the degradation of the natural environment. Nevertheless rural destinations are rich in natural and cultural resources and may be the basis for tourism development. Many of these areas started to develop tourism as an alternative source of income (Brandth and Haugen, 2011). Rural tourism makes a transition of the use of the space from a producer of agricultural goods for a place of consumption of experiences.

There are many definitions of rural tourism. OECD summarized the principles that should exist when a destination wants to develop this sort of tourism (OECD, 1994: 14). For that, a destination should

- be located in rural areas;
- be functionally rural, built upon the rural world's special features, i.e., small scale enterprise, open space, contact with nature and the natural world, heritage, traditional societies and traditional practices;
- be rural in scale, both in terms of buildings and settlements, and therefore, to have a small scale.
- be traditional in character, growing slowly and organically, and connected with local families. It will often be very largely controlled locally and developed for the long-term good of the area;

- be sustainable in the sense that its development should help to sustain the special rural character of an area, and in the sense that its development should be sustainable in terms of the use of its resources. Rural tourism should be seen as a potential tool for conservation and sustainability, rather than as an urbanizing and a development tool;
- be featured under many different kinds, representing the complex pattern of rural environment, economy and history.

Rural tourism is not only based on agriculture and farm life; it can encompass all the tourist activities done in rural landscapes (Oliver and Jenkins, 2003). According to Long and Lane (2000) a “*rural place*” generally reflects a lifestyle, values and a landscape that is desirable for its uniqueness, relative isolation and pace of living, special aesthetic qualities and also for its spirituality. Those activities could be based in the natural and cultural assets. The range of potential activities that may be undertaken in a rural context includes: touring; water-based activities; land-based activities; aerial activities; cultural and educational activities; conservation activities; gastronomic activities; health and fitness activities; and ‘spiritual’ activities such as pilgrimage and retreats. Rural tourism goes beyond simply complementing traditional activities such as agriculture, and can act as a catalyst for a whole range of new entrepreneurial activities, partnerships and networks (Oliver and Jenkins, 2003).

By other side, in the last decade, tourism demand has shifted from standardized mass tourism to more individualistic patterns, in which greater flexibility and a more meaningful experience have gained prominence (Briedenhann and Wikens, 2004).

According to Fayos-Solá et al. (2014) more educated and seasoned travelers are demanding knowledge rich experiences, and the industry perceives the need for specialization as an element of competitiveness. There is also a heightened feeling for community participation, and tourism may be at the dawn of an era of greater rationality and real contribution to the needs of human development.

According to Sgroi et al. (2014) tourism largely contributes to the formation of places, fostering reconfiguration and restructuring processes that tend to create new rural opportunities in function of services it provides to the society as a whole satisfying demands, needs and desires of tourists.

Astro-Tourism in Rural Destinations

For Crouch (2001) terrestrial space tourism probably began with the movement of astronomical observers to different locations to better observe certain astronomical phenomena such as eclipses and movements of planets. Nowadays there are organized visits, such as cruises and tours to see the launch of shuttle flights, and there are some “space tourism tour operators” emerging and creating a large range of diversified products (Cater, 2009).

Even if the sky¹ is a natural resource and there is a connection between man and space through history, the relevance for a preserved sky to be recognized has heritage by UNESCO

¹ The sky (or celestial dome) is everything that lies above the surface of the Earth, including the atmosphere and outer space.

is very recent, it started in 2009. World Tourism Heritage is imbued with the principle that the experience of nature may be enriched with the multifunctional landscapes where the aesthetic, cultural, historical scientific and environmental aspects can be enjoyed enriching and giving more meaning to the tourist experience (Loveridge et al., 2014).

Weaver (2011) refers that “[...] *celestial ecotourism involving nocturnal megacaela* [mega-skies] *include the naked eye observation of starry skies in sparsely populated areas with low light and air pollution*”. There are many different activities involving this ambience. The activities that can be done during the night using a preserved sky as main resource are, in fact, diversified ranging from walks, horse riding to stargazing, amongst others. In the advent of a growing demand for meaningful experiences the activities based on a preserved night sky can be developed and marketed at that level, where a tourist can enjoy a destination during 24 hours a day and even an experience such as walking during the day that is different than during the night.

Fayos-Solá, Marín and Jafari (2014: 663) define astrotourism as “*an activity of travelers wishing to use the natural resource of well-kept night-scapes for astronomy-related leisure and knowledge*”; or yet, it is the “*tourism using the natural resource of unpolluted night skies, and appropriate scientific knowledge for astronomical, cultural or environmental activities*” (Fayos-Solá and Marín, 2009: 5). The StarLight Declaration adds: “[astrotourism] ... *opens up unsuspected possibilities for cooperation among tourism stakeholders, local communities, and scientific institutions*” (Jafari, Fayos-Solá and Marín (2007:4). Most of the more prestigious destinations for stargazing are in remote areas or have security and even health limitations to visitation, such as the following examples of Atacama desert (Chile) and lake Tekapo (New Zealand) which are remote areas, the Gran Canaria (Spain) where the altitude can affect the vision and it is not possible to turn on any light. By its turn at Galloway Park in Scotland the weather is cloudy most of the year so it is not possible to make stargazing regularly.

For the development of a tourism product based on a preserved night landscape it is necessary the existence of a preserved sky from light pollution sky which can be enjoyed by both, families and amateur astronomers. It is also necessary that this kind of tourism be developed in areas with good accessibility, favorable weather conditions and a prepared and organized tourism offer based on the cooperation of the community stakeholders.

In fact, this tourism product is based on a preserved sky, a common good free of sources of light pollution. Light pollution can be defined as “*any adverse effect of artificial light, including sky glow, glare, light trespass, light clutter, decreased visibility at night, and energy waste*” (IDA, 2011). According to Lima et al. (2016:2) “*bad public and private lighting, meaning the use of nonshielded streetlights, scenic light projectors directed upward, and advertising panels, together with manifestly excessive artificial light sources, are main causes of outdoor light pollution and sky glow*”. The mitigation of light pollution is an initiative that just can be achieved with the cooperation of all stakeholders in a community since by one side it is necessary that excess of night lightning should be mitigated from particular homes, roads, commercial establishments and monuments, by other side light is associated with purity and security becoming necessary a dialogue and education about the problems caused by this source of pollution.

CASE STUDY: ALQUEVA DARK SKY ROUTE

The case study methodology is widely used in tourism because of the need and desire to understand complex social phenomena (Beeton, 2005; Adeyinka-Ojo, Nair and Khoo-Lattimore, 2014)). Yin (2009: 18) defines the case study methodology as “an empirical inquiry about a contemporary phenomenon (e.g., a “case”), set within its real-world context - especially when the boundaries between phenomenon and context are not clearly evident”. This analysis was based in a holistic approach (Yin, 2009). The period of research was from June 2015 to November 2015. The following sources were used:

- Semi-structured interviews (Merriam, 2009) with some local actors (see Table 1). Local entrepreneurs were chosen by their relevant role in the implementation of the project, using the snowball technique, ie, using referrals made among the people involved in the project (Birnacki and Waldorf, 1981);
- Documentation collected on various sources of documentation such as internet, regional entities and local libraries;
- Participant observation. This technique is recognized as the most appropriate method to obtain data on interactions since it allows recording behaviors “in situ” (Jorgensen, 1989). The participant observation was done by this chapter first author. Participant observation is done when there are activities related to the implementation of the project, namely meetings between the entrepreneurs and activities such as the “Dark sky Star Party”.

Alqueva is a Region of Alentejo, Portugal (see Figure 1). This region suffered a radical transformation in 2002 with the inclusion of a dam which reservoir was full in 2012. The Alqueva Dam constitutes one of the largest dams and artificial lakes (250 square kilometres) in Western Europe, which is distributed along the municipalities of Moura, Mourão, Portel, Barrancos, Reguengos de Monsaraz and Alandroal.

With the inclusion of this new element the landscape changed drastically and local communities started to create synergies to develop tourism. Several projects of lodging, surrounding this asset, emerged. It is the case of the project for the construction of two marinas, four golf courses, hotels and tourist complexes with capacity for 17,000 beds. Given the size of this project, state officials decided, in 2008, to set up a new entity to manage the emerging destination: TGLA (Tourism Land of the Great Lake Alqueva - Alentejo). Integrated strategies were prepared for the development of tourism in the region; partnerships were seen as being a fundamental tool to achieve the goals.

Table 2. Stakeholders interviewed

| Interviewed | Number of interviewed people |
|--|------------------------------|
| President of a non-profit rural tourism organization | 1 |
| Tourism entrepreneur (owner of a rural lodging unit) | 2 |
| Tourism entrepreneur (food and beverage) | 3 |
| Owner of a rural lodging unit and member of a rural tourism organization | 4 |
| Tourism entrepreneur (tourist activities) | 5 |
| A volunteer of the Dark Sky project | 5 |



Source: <http://www.darkskyalqueva.com>.

Figure 1. The Region of Alqueva

Bases for the development of tourism in lake areas are complex and result from the interaction between society, environment and the various local actors. The development is more effective if it results from an interaction between the several actors (Bramwell and Pomfret, 2007). Awareness of this issue has prompted the TGLA to foster the development of partnerships as a means of securing sustainable tourism development and to generate the creation of innovative products. With this in mind a partnership in Alqueva was created with the Alentejo Network of Village Tourism, Genuineland (a non-profit association of rural tourism entrepreneurs that has the responsibility of coordinating the process), the TGLA, the EDIA SA (the company that manages the dam) and the Alentejo Regional Coordination and Development Commission.

The aim of the partnership is to implement the Agenda for Sustainable and Competitive Tourism through the development of the Alqueva Dark Sky Reserve. In addition to the core partnership several working groups have been created to involve other main stakeholders such as universities, regional and local public authorities (municipalities and others), national and international experts, national authorities with competencies in tourism and agriculture areas, non-professional associations for development and astronomy, agencies for regional

development and other Portuguese professionals. TGLA was abolished in 2013 but the philosophy of the territory to work in partnership with all the stakeholders was kept.

This region - as many other in southern Europe - has been suffering from depopulation. This phenomenon has changed the rural environment (Pinilla et al., 2008) and generated new perspectives at the level of creating new attractive ways to maintain or increase the number of inhabitants in those areas. In spite of the aforementioned constraints, this region shows strong potential in areas such as the environmental preservation. The richness of the cultural and ethnographic heritage and tourism has been developed as an alternative source of income. Local people want tourism to increase income levels. As a consequence many villages like Monsaraz, Telheiro and Portel have based their development strategies around tourism. Other villages and communities with less potential also need the income from tourism but currently have more limited tourism services and are not yet well organized (Rodrigues et al., 2014).

The tourism in rural areas has become more competitive with the increasing number of areas that are investing in this sector. In order to keep it competitive it was analyzed what kind of endogenous resources could be used to develop a distinctive image of this region. As this region suffers from under population phenomena and it has a restricted number of sources of light pollution, this region has proper conditions for the development of astro-tourism. In 2009 a Dark Sky Route was created with two main objectives: (i) to implement a sustainable use of lightning policies and (ii) to maximize the tourism opportunities of the region by creating new tourism products linked to the night sky and to the development of this area, basing the strategy of marketing in the involvement of residents, local and regional stakeholders and scientific community.

The project was financed by public organizations involved and by private businesses such as hotels/guest houses and restaurants.

Since 2009, €39000 have been spent in the project. Volunteers and the employees of one key partner organization have been carrying out most of the work required. The project is based on a low level of financial commitment to help to ensure its sustainability and continuity. The night resource in order to be explored as a tourism product had to be improved, by one side, through a reorganization of the tourism offer to meet the needs of tourists and, by other side, through the offer of an unpolluted night sky. The quality of the night sky in the area was certified in 2011 by the Starlight Foundation and was the first Starlight Tourism Destination² in the world. It had this recognition not just because of the high quality of the night sky but also because of the high quality tourism offer that has been organized to receive and support astro-tourists.

The creation of the Dark Sky Route leads this region to a distinctive image and was also a way to satisfy a need in terms of the control and the prevention from any additional sources of light pollution, with a continuous commitment of the involved stakeholders. According to that, the aforementioned projects for the construction of two marinas, four golf courses, hotels and tourist complexes with capacity for 17,000 beds were not carried out. Anyway the development of these projects could be surely made considering the principles for the preservation of this region, being responsible, having full awareness of the situation and respecting local policies of preservation, but the quality of night observation would be affected.

² Starlight Destinations are visitable places characterised by excellent quality for the contemplation of starry skies and the practice of tourist activities based on this resource (Starlight Foundation, 2011).



(Photo: Miguel Claro/ Dark Sky Alqueva)

Figure 2. Alqueva at night.

Before the creation of the Route, this region used to base the tourism offer in terms of the cultural assets of the villages. These places were strongly illuminated along all the night, even if tourists were not exploring these destinations after midnight. Municipalities started to switch off the public illumination of streets and monuments at mid night, saving in electricity expenses. This money could then be used to be invested in the improvement of quality of life of local people (ex: scholarships, more support for the elderly, and yet other kind of initiatives, aiming to benefit the region). However, it would not be possible to maintain a high level of low pollution without the collaboration of tourist entrepreneurs and the local population. The collaboration has been got and results got important. In fact, the unpolluted sky became a source of income for the former (tourist entrepreneurs) and a source of pride for the second (local population).

DISCUSSION AND RECOMMENDATIONS

Space: the final frontier!... Sky always was seen as something that fascinated human race. Particularly, in the night sky the moon, planets and stars are visible in the sky. This is a common good that can be shared, watched and enjoyed by all humans without paying for that. The only problem is to get conditions to see the sky in optimal conditions. Smoke pollution, light pollution, cloudy regions or even other inherent causes for a bad stargazing are obstacles to enjoy the sky observation.

The possibility of enjoying global commons as it is the case of the observation of the sky for instance, suffers from problems of very different kinds. The observation of the sky depends on the management capacity of global atmosphere. Air pollution or light pollution are inherent difficulties. These difficulties may result from the human activity. To overcome them an adjusted management system is required to allow better conditions for the use of resources and to get higher quality resources.

In fact, an important way to manage the commons is the conception of management and control structures that may allow the governance of the many available resources in the

studied region, in Alentejo. Often the divergent multiple interests - either they are private or public, often unpredictable, and either they are at local, regional, national or international levels - bring egoistic behaviors and lead to the use of resources without thinking on other people's interests.

The importance of cooperation results obvious to get a possible higher global benefit for all the agents as a whole. In reality, in the present case, this type of commons (the observation of the sky) in order to get important results may require that several kind of entities may participate and contribute for the quality of products in this area and for the improvement of region settings. Either the entities are legal organisms - by providing the contextual legal frameworks for example - or governmental or yet even private agents, being them national, international, or supranational, they may have an important role in the definition of the quality of the region management capability.

The diversity of interests and the type of resources to be managed are very considerable and need the commitment of many involved agents either in the offer of high quality products or in the preservation of the region's assets. The involvement of agents, their capability to comply with each other and to cooperate may bring the possibility to get important outcomes to the region interests and to agents themselves (as commercial entities, for example) or simply by respecting the commons as a good to be preserved. This is a possible way to avoid the well-known tragedy of the commons.

Nowadays, people are more ware of the need of preservation of common goods. Anyway, there is still the usual divergence among individual interests and collective good. In Alentejo Region at Alqueva area, entities have got aware of the importance of commons projects to be managed by different entities and on which private agents are participating as well.

Considering the good recent experience of this region it may be interesting that the marketing strategy may be worked in order to get a more integrated offer. It may be also interesting that low scale private projects, integrated in the area, may be able to get tourists who know to preserve the region cultural heritage as much as all the specificities of the region, contributing to the welfare of communities and the sustenance of the region. Additionally, endogenous resources of the region should be potentiated to develop a distinctive image for this region, benefiting from the fact that the region is well preserved from the light pollution and other types of pollution, as much as all stakeholders in the region are committed with the success of the astro-tourism development and related projects, guarantying the preservation of the specificities of the region.

CONCLUSION

The "observation of the sky" is an important basis for the offer of a tourism product in Alentejo Region, in Alqueva geographical area. This region has excellent conditions to offer a set of products in this area and to allow the development of astro-tourism in the region. It is a non-polluted region, the sky is free of pollution itself, there are low levels of light at night, and all this makes this region ideal for the observation of the sky. The related activities generate tourism products' offers which induce the improvement of wealth in the region.

First in this chapter property rights framework was discussed, being then the commons highlighted in order to understand the importance of accessing freely to goods that may be

classified as belonging to no one. The relevance of the management systems is also seen to understand that common goods may be exhausted or may suffer from congestion if there are not ways to preserve these common goods from the overuse and/or excessive human activity. The cooperation is a means to contribute for that a common good (in this case a high quality ability to observe the sky) allows better incomes and benefits for the community as a whole and for all users of the related touristic products (particularly in this case tourists that come to observe the sky). In short, the different agents who are in the system management may contribute to the quality of the air and to the preservation of region's natural, cultural, architectural resources and even other resources, which are essential to the region heritage and tradition protection. In this chapter, rural tourism, as specified above in this chapter, under defined boundaries, gets important in the defense of the values of the region and to the creation of additional value and welfare for local communities.

After all considerations for the framework involving the studied phenomenon, the case study of Alqueva area was developed. The particularities of the Alqueva Dark Sky Route were emphasized in the context of such a project. The relevance of cooperation on this project was particularly highlighted, by showing the partnership relations created around the Alqueva project, in order to develop high quality products, and guarantying the sustainability of the region for the future. Many agents were involved. It can be seen that this kind of partnership is relevant considering the number of stakeholders involved and their relevant participation.

The development of the tourism resources in this area has been aimed to be sustainable and allow the continuity of the night resource exploitation in adequate levels allowing the continuity of the resource and the success of the strategy of the region agents for the future in order to get an interesting level of sustained incomes.

REFERENCES

- Acheson, J. (1981). Anthropology of Fishing. *Annual Review of Anthropology*, 10, 275-316.
- Adeyinka-Ojo, S., Nair, V. and Khoo-Lattimore, C. (2014). *Case Studies Approach in Tourism Destination Branding Research*. Retrieved from <http://www.shs-conferences.org> in 7-7-2015.
- Beeton, S. (2005). The Case Study in Tourism Research: A Multi-Method Case Study Approach. In *Tourism Research Methods. Integrating Theory and Practice*, eds. Brent Ritchie, Peter Burns and Cathy Palmer. CAB International, pp.37-48.
- Berkes, F. and Farvar, M. (1989). Introduction and Overview. in Berkes, F. (ed), *Common Property Resources, Ecology and Community- Based Development*. London: Belhaven Press.
- Biernacki, P and Waldorf, D. (1981). Snowball Sampling: Problems and Techniques of Chain Referral Sampling. *Sociological Methods & Research November*, 10, 141-163.
- Bramwell, B. and Pomfret G. (2007). Planning for Lake and Lake Shore Tourism: Complexity, Coordination and Adaptation. *Anatolia: An International Journal of Tourism and Hospitality Research*, 18 (1), 43-66.
- Brandth, B. and Haugen M. (2011). Farm diversification into tourism – implications for social identity? *Journal of Rural Studies*, 27 (1), 35–44.

- Briedenhann, J. and Wikens, E. (2004). Rural tourism-meeting the challenges of the South Africa. *International Journal of Tourism Research*, 6(3), 189-203.
- Cater C. (2009). Steps to Space: Opportunities for Astrotourism. *Tourism Management* 36(6):838–845.
- Coelho, M., Filipe, J. A. and Ferreira, M. A. M. (2010). On Commons, Anti-commons and Tragedies, in António Romão, Joaquim Ramos Silva and Manuel Ennes Ferreira (Org), *Livro de Homenagem ao Prof. Dr. Adelino Torres*, Edições Almedina, Sa (Coimbra), Coleção Económicas, 2ª Série, nº 14, pp 587-600. Lisboa.
- Coelho, M., Filipe, J. and Ferreira, M. (Unpublished). *Sobre Comuns e Tragédias: Revisitação de um Conceito*. Pre-publication retrieved from https://www.researchgate.net/publication/283463853_SOBRE_COMUNS_E_TRAGEDIAS_REVISITACAO_DE_UM_CONCEITO_Pre-Publicacao.
- Crouch, G. (2001). *The Market for Space Tourism: Early Indications*. *Journal of Travel Research*, 40: 213–219.
- FAO (1983). *Case studies and working paper's presented at the Expert Consultation on Strategies for fisheries development*, FAO Fisheries Report 298, Suppl. Rome/FAO.
- Fayos-Solá, E. and Marín, C. (2009). *Tourism and Science Outreach: The Starlight Initiative*. UNWTO Papers. Madrid: UNWTO.
- Fayos-Solá, E., Marín, C. and Jafari, J. (2014). Astrotourism: No requiem for meaningful travel. *Pasos*, 12(4), 663-671.
- Filipe, J. A. (2011). Socio-Economics in Transition Times: A Reflection on Cooperation as a Strategy to Promote Wealth. *International Journal of Latest Trends in Finance and Economic Sciences*, 1 (3), 149-153.
- Filipe, J. A. (2014), Tourism Destinations: A Methodological Discussion on Commons and Anti-commons. The 'Ammaia' Project's Locale Impact, *International Journal of Latest Trends in Finance and Economic Sciences* 4 (2).
- Filipe, J., Coelho, M. and Ferreira, M. (2007). *O Drama dos Recursos Comuns*, Lisboa: Ed. Sílabo.
- Filipe, J. A., Ferreira, M. A. M., Coelho, M. and Pedro, M. I. (2012). Cooperation on Stocks Recover. *International Journal of Latest Trends in Finance and Economic Sciences* 2 (1), 74-79.
- Genç, T. and Filipe, J. A. (2016). A Fuzzy MCDM Approach for Choosing a Tourism Destination in Portugal. *International Journal of Business and Systems Research (IJBSR)*. Inderscience Publishers. Vol. 10, Nº 1.
- Gibbs, J. and Bromley, D. (1989). Institutional Arrangements for Management of Rural Resources: Common-Property Regimes. In Berkes (Ed), *Common Property Resources, Ecology and Community-Based Sustainable Development*, Belhaven Press.
- Hardin, G. (1968). The Tragedy of the Commons, *Science*, Vol.162, pp 1243.
- IDA (2011). *Definition of Light pollution*. Retrieved from <http://www.darksky.org/>.
- Jafari, J., Fayos-Solá, E., and Marín, C., (rapporteurs).(2007). *StarLight Declaration: International Conference in Defence of the Quality of the Night Sky and the Right to Observe the Stars*. La Palma, Canary Islands, Spain: UNESCO-MaB, IAC, Spanish Ministry of Environment and La Palma BR.
- Jorgensen, D. (1989). *Participant observation: A methodology for human studies*. *Applied social research methods series*, Thousand Oaks, CA, US: Sage Publications, Inc.

- Lima, R., Cunha, J. and Peixinho, N. (2016). Light Pollution: Assessment of Sky Glow on two Dark Sky Regions of Portugal. *Journal of Toxicology and Environmental Health, Part A: Currents Issues*. Retrieved from <http://www.tandfonline.com>.
- Long, P. and B. Lane (2000). Rural Tourism Development, in W.C. Gartner and D.W. Lime (Eds.), *Trends in Outdoor Recreation, Leisure, and Tourism*, 299-308, Wallingford: CAB International. London.
- Loveridge, A; Duel, R. Abbart, J and Moffat, M. (2014). Night landscapes: A challenge to world heritage protocols. *Landscape Review*, 5(1): 64-75.
- McDonagh, J. (2007). *Rural development*. in B. Bartley and R. Kitchin (Eds). Understanding contemporary Ireland, 88–99, London: Pluto Press.
- Melis, A. P. and Semmann, D. (2010). How is human cooperation different? *Philosophical Transactions of the Royal Society B: Biological Sciences* 365 (1553): 2663–2674.
- Merriam S. B. (2009). *Qualitative research: A guide to design and implementation*. 3rd ed. San Francisco, CA: Jossey-Bass.
- Mollett, N. (eds.) (1989). *Rights Based Fishing*, Kluwer Academic Publishers.
- NOAA (1985). *Fishery Management - Lessons from other Resource Management Areas*, National Oceanic and Atmospheric Administration, Washington, DC.
- OECD - Organization for Economic Cooperation and Development (1994). Tourism Strategies and Rural Development. Retrieved from WWW at <http://www.oecd.org/dataoecd/31/27/2755218.pdf>.
- Oliver, T. and Jenkins, T. (2003). Sustainable Rural Landscapes: The role of integrated tourism. *Landscape Research*, 28(3), 293-307.
- Panayotou, J. (1984). Territorial Use Rights in Fisheries. *Fisheries*, 289 (2), 153-160.
- Pinilla, V., Ayuda, M. and Saéz, L. (2008). Rural depopulation and the migration turnaround in Mediterranean Western Europe: A case study of Aragon. *Journal of Rural Community Development*. 3, 1-22.
- Richerson, P. J., Boyd, R., and Pacciotti, B. (2002). An evolutionary theory of commons management. In E. Ostrom, T. Dietz, N. Dolsak, P. C. Stern, S. Stonich, and E. U. Weber (Eds), *The drama of the commons* (pp. 404-406). Washington DC: National Academy Press.
- Rodrigues, A., Rodrigues, A. and Peroff, D. (2014). The Sky and sustainable tourism development: A case study of a Dark Sky Reserve implementation in Alqueva. *International Journal of Tourism Research*, 17(3), 292-302.
- Ruddle, K. and Panayoto, T. (1989). The Organization of Traditional Inshore Fishery Management Systems in the Pacific, and Comments, in Neher, P., Arnason, R. and Mollett, N. (eds.) (1989), *Rights Based Fishing*, Kluwer Academic Publishers.
- Schlager, E. and Ostrom, E. (1992). “Property-Rights Regimes and Natural Resources: A Conceptual Analysis”, *Land Economics*, Vol. 68, N° 3, pp 249-262.
- Scott, A. (1983). Property rights and property wrongs. *Canadian Journal of Economics*, 16 (4), 555-573.
- Sgroi, F. Frapani, A., Testa, R. and Tudisca, S. (2014). The rural tourism as development opportunity or farms. The case of direct sales in Sicily. *American Journal of Agricultural and Biological Sciences* 9 (3), 407-419.
- Starlight Foundation (2011). *Definition of Stralight Tourism Destinations*. Retrieved from <http://www.starlight2007.net>.

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- Weaver, D. (2011). Celestial ecotourism: New horizons in nature-based tourism. *Journal of Ecotourism*, 10(1), 38-45. (available at <http://www.tandfonline.com/doi/abs/10.1080/14724040903576116>).
- Yin, R. K. (2009). *Case study research: Design and methods* (4th Ed.). Thousand Oaks, CA: Sage.

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