

Implications of tourism development on islets: Ilot Bernaches, Mauritius, as a destination management case study

Vanessa Gaitree Gowreesunkar

Faculty of Arts and Humanities, Mauritius Institute of Education, Reduit, Mauritius

v.gowreesunkar@mieonline.org

Masood A. Naqvi

Centre for Tourism Research & Development, Lucknow, India

masudansar@gmail.com

and

Hugues Séraphin

University of Winchester, Faculty of Business, Law and Sport, Winchester, UK

hugues.seraphin@winchester.ac.uk

ABSTRACT: Many islands promote their destinations by including islets that surround them. Conscious of the competitive tourism market, the move is based on the need for tourism diversification. Islets are endowed with unique flora and fauna, and when included in the tourism package, islets receive considerable prominence in the gaze of tourists looking for authentic experiences. Mauritius Island has not lagged behind in adopting this trend. Studies show that islets surrounding Mauritius are major tourism assets, but these seem to have received insufficient attention in tourism studies. The current study uses Jordan's core-periphery model to investigate Ilot Bernaches, one of the popular islets of Mauritius. The uniqueness of this study is two-fold: first, it seeks to investigate implications of tourism development at Ilot Bernaches, and second, it makes a case for setting up an islet management authority. The research design is based on a mixed methodology. The major findings reveal that Ilot Bernaches has potential to diversify the existing tourism product and adds value to the Mauritian tourism product. The study discusses destination management implications, makes recommendations regarding tourism development at Ilot Bernaches, and sets the groundwork for further studies of islets in tourism. It is recommended that an islet management authority be established to help cope with core-periphery tensions.

Keywords: core-periphery model, destination management, tourism development, Ilot Bernaches, islands, islets, Mauritius

<https://doi.org/10.24043/isj.26>

© 2017 – Institute of Island Studies, University of Prince Edward Island, Canada.

Introduction

Many islands promote their destinations by including islets that surround them. This decision is based on the need for diversification, as islands suffer scarcity and hence lack diversity in their tourism resources (Carlsen, 1999; Gowreesunkar & Rycha, 2014; King, 1993). Conscious of the competitive tourism market, islands are increasingly upgrading the quality of their tourism product

by emphasising their uniqueness through niche marketing of islet tourism. Islets are endowed with unique flora and fauna as well as endemic and exotic resources, and when they are included in tourism packages, islets receive considerable prominence in the gaze of tourists looking for authentic experiences. Because islands worldwide have similar tourism products, whenever they perceive a new way to diversify their tourism offer, they do not hesitate to follow trends from more successful and established destinations (Gowreesunkar & Rycha, 2014). Mauritius, a small island state in the Indian Ocean, is no exception. According to Ramessur et al. (1998) and Smith et al. (2004), islets surrounding Mauritius are major assets for the local tourism industry. As such, islets surrounding Mauritius such as Ilot Aigrettes, Ilot Benitier, Ilot Cerf, Ile d'Ambre, and Ilot Bernaches are capitalised upon by tourism operators to supplement the conventional tourism package.

Following this line of argumentation, the island of Mauritius provides an interesting case study of tourism development on one of its popular islets, the Ilot Bernaches. At present, there appears to be a lack of academic papers on the islet, despite its contribution to diversifying the Mauritian tourism offer (Gowreesunkar & Sotiriades, 2015). The few available studies on Ilot Bernaches are mainly based on coastal resource management (Ramessur, 1998, 2002), flora and fauna management (Smith et al., 2004), and biodiversity conservation (Maureemootoo & Towner-Maureemootoo, 2002). We could find no stand-alone study of tourism development at Ilot Bernaches. Using a mixed methodology approach, the present research attempts to investigate the implications of tourism development at Ilot Bernaches. In so doing, it aims to contribute to the body of meta-literature in the area of islet tourism. Since it is beyond the scope of this study to investigate all the tourism islets of Mauritius, the present study chooses Ilot Bernaches, for the following reasons:

1. Ilot Bernaches has grown in popularity for recreation and tourism (Smith et al., 2004 Ramessur, 1998, 2002) and there is thus a need to understand the implications of tourism activities on the islet;
2. Recent studies have reported sustainability threats endured by most islets surrounding Mauritius, including Ilot Bernaches (Maureemootoo & Towner-Maureemootoo, 2002).
3. Interviews with regulatory bodies (Ministry of Tourism and Leisure and the National Coast Guard) and other stakeholders (skippers and fishermen) confirm the need for a survey regarding tourism development on the islet.

In line with these current developments, the main research questions that guide the study are:

1. What is the potential of Ilot Bernaches as a tourism islet?
2. What are the limiting factors of Ilot Bernaches?
3. What are the destination management implications for further tourism development at Ilot Bernaches?

The remainder of the paper is structured as follows. First, a review of the literature on islet tourism is conducted. The empirical study is then analytically presented, providing the profile and context of the investigated islet (Ilot Bernaches). The implied research methodology is explained, and the findings are presented. This is followed by a discussion of destination management implications. The study will attempt to make few workable recommendations and propose suggestions for future research.

Literature review

Islets as a tourism component

Island attraction as a tourism component is not a recent phenomenon (Conlin & Baum, 1995), but what is recent is the interest tourism promoters now show in islets surrounding larger islands. According to Dygico et al. (2013), islets are uninhabited landforms with minimal vegetation lying offshore larger islands. Islets have the world's most delicate ecosystems, with unique flora and fauna, and their aesthetic qualities (geographical location, topographic view, and climate) contribute to enhancing tourism experiences. In a competitiveness study undertaken by Pestana et al. (2011, p. 142), it was found that, besides comparative advantage and price, variety in the tourism offer counts in the competitiveness race. This point is also shared by Barros and Alves (2004), who contend that areas that are richly endowed with tourism attractions display a comparative advantage over others that do not. A further study conducted by Cave and Brown (2012) on 36 islands shows that, as island destinations approach maturity, the cultural or natural asset resources upon which the product is based can be destroyed in the process of expanding, rebuilding, or repositioning the product. Islets are therefore more vulnerable compared to islands (Andriotis, 2004; Gowreesunkar & Rycha, 2014), and they are more prone to sustainability threats due to their size, topography, and carrying capacity (Carlsen, 1999; Sharpley, 2001). Islet environments therefore experience the effects of tourism perhaps more severely than island destinations. This is the case because development on an islet can be spread or mitigated due to distance from centres of governance, regulatory mechanisms, infrastructure planning, and formal control (Mycoo, 2006). While it has been recognised that tourism development has impacts (Ballantyne et al., 2011; Dwyer, 2010; Lee et al., 2013), many of those impacts manifest in a subtle and often unexpected manner (Mathieson & Wall, 1992). For instance, in the absence of control, tourism activities like exploitation of vegetation, overfishing, flower picking, trampling (Alessa et al., 2003; Bruyere et al., 2011; Lee et al., 2013), intimidation of small animals, plucking of fruits, and crushing of birds' eggs destroy the environmental resources upon which the islet depends. As such, islands often lose their appeal in the process of tourism exploitation, and islets, as an immediately available resource, are frequently used to develop potential niche and destination positioning strategies. Examples of islets utilised in island tourism packages include, among others, Penguin Islet (Tasmania), Thomson Islet (Queensland), Palawan Islet (Philippines), Chumbe Islet (Zanzibar), Ile aux Deux Coco (Rodrigues), and Ilot Aigrettes (Mauritius).

The core-periphery model

A study conducted by Jordan (2007) shows that islands can be seen in the context of the core-periphery model of development, where the main island (core destination) is the primary tourism destination and islets represent elements of the periphery. One of the defining features of the core-periphery relationship is the idea of domination of the periphery by the core, which is viewed as the place where administrative, cultural, and economic power resides and is seen as the decision-making nucleus separated from the periphery. The core-periphery model indicates that there might be some commonalities between a core destination where the infrastructure and institutional framework are in place and the periphery where separate, different, or no institutions exist and that there is limited communication between the core and the periphery. The study by Jordan (2007) was based on twin-island states of the Caribbean, namely Antigua and Barbuda, Trinidad and Tobago, and St. Kitts and Nevis. The findings of this study show that the internal core-periphery relationships have contributed to conflicts between key public sector organisations responsible for tourism policy-making in the countries under study. Thus, devising suitable governance structures for geographically separate territories (in the context of a common sovereignty within the framework of a unitary state) is highly problematic. Consequently, the study shows that solutions must be sought that take into account the complex interplay between the psychological impact of the shared history and the insights derived from modern theories of governance.

The logic behind the core-periphery model has also been reflected in a study conducted by Gowreesunkar (2013) on the island of Mauritius. It was found that tourism regulating bodies in Mauritius (Tourism Authority, Beach Authority, and Mauritius Tourism Promotion Authority) were also experiencing core-periphery relationships, and consequently there was a duplication in the roles enacted by them. For instance, licensing, inspections, and monitoring were undertaken by three regulators, namely the Beach Authority, the Tourism Authority, and the District Council. Similarly, while safety and security at the beach ought to be the responsibility of the tourism police, the function was also fulfilled by the Beach Authority and the National Coast Guard. Therefore, regulators were found to be duplicating the work of their partners without a common vision, and the core-periphery relationship was apparent in the dominant roles exerted by certain tourism regulatory bodies over the others. Crouch and Ritchie (1999) postulate that a destination that has a tourism vision, shares the vision among all the stakeholders, has management that develops an appropriate marketing strategy, and has a government that supports the tourism industry with an efficient tourism policy may be more competitive than one that has never asked what role tourism is to play in its economy. This type of tourism administration influenced by the core-periphery relationship logic has arguably weakened institutional arrangements for tourism in Mauritius and the key tourism organisations.

Gap in the literature

The gap on islet tourism literature has been identified at both international and local levels. From an international perspective, tourism studies on islets are scarce, as most researchers choose to investigate islands, given that, by now, island tourism studies have gained increased prominence worldwide and have thus become a researchable field of study. In contrast, despite being part of the tourism package, many islets surrounding islands are inadequately researched. For instance, many tourism studies undertaken in the Aegean and Mediterranean islands (e.g., Andriotis, 2008; Sharpley, 2001; Spilanis & Vayanni, 2003; Sterren, 2007) focus on main islands like Crete, Santorini, Majorca, Malta, Canary, Rhodes, and Paros while islets such as Nea Kameni, Palaia Kameni, Archi, Chalki, Dragonada, and Elassa in the Aegean alone are not investigated. It is thus observed that whenever an islet is under the sovereignty of another land, research conducted on the islet is usually undertaken in conjunction with the mainland. Likewise, in the context of the current study, existing tourism studies on Mauritius emphasise the mainland but not the islets (e.g., Gowreesunkar & Rycha, 2014; Prayag et al., 2010; Seraphin et al., 2013). Moreover, available studies on islets of Mauritius are researched from the context of the mainland. For example, studies by Ramessur (1998, 2002) and Mauremootoo and Towner-Mauremootoo, (2002), discuss islets in a general manner but do not consider the tourism aspect.

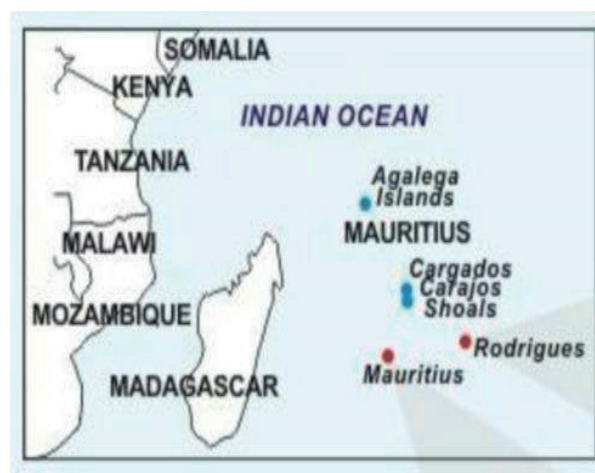


Figure 1: Island of Mauritius with surrounding islands. (Source: Gowreesunkar et al., 2015)

Empirical study

Mauritius and its islets

The Republic of Mauritius (Figure 1) is composed of four islands of the Indian Ocean, namely Mauritius, Rodrigues, Agalega, and St. Brandon (Cargados, Carajos, and Shoals), as well as 46 offshore islets. Mauritius is the principal island and has a land area of 720 square miles.

The area of study, which is Ilot Bernaches, is less than 2 acres in size and is illustrated by Figure 2. The islet is made up primarily of coralline sand with some coral outcrops and is surrounded by mangrove trees and rocks. Ilot Bernaches comprises considerable endemic and exotic resources that appeal to visitors. For instance, rare birds (Tourterelle, Perdrix, and Pic Pic), butterflies, rabbit and pine trees, palm trees, mangrove, berry trees, flowers, and tropical fruit trees represent the flora and fauna of the islet. The islet is so small that it takes around 30 minutes to walk around it. There are some beautiful stretches of sandy beaches, and the islet is often visited by tourists and locals. The rest of the islet's beaches are made up of rocks and boulders. The islet is accessible from two main embarkation points of Mauritius (Bain de Rosnay and Goodlands) and from the Poudre D'or public beach, and it takes around 35 minutes to reach the islet. Ilot Bernaches is mainly popular for its beach and sea activities. Ordinary boats, catamarans, speedboats, and pleasure craft are the means of transport utilised to reach the islet.



Figure 2: Main islets of Mauritius. (Source: © 2017 Data SIO, NOAA, U.S. Navy, GEBCO, Landsat/Copernicus, Data LDEO-Columbia, NSF, NOAA, Map data ©2017 Google.)

Methodology

The study utilised a mixed methodology based on a range of well-rehearsed arguments about the advantages of mixing methods (Nunkoo et al., 2013). The primary data was therefore derived from structured interviews (with regulators and trip operators) and semi-structured questionnaires (for visitors) whilst secondary and tertiary data were obtained from the Internet, online articles, the Ministry of Tourism and Leisure, the Tourism Authority, the Ministry of Environment, the National Coast Guard, and the Mauritian Wildlife Foundation. Initially, it was decided to utilise questionnaires for both target populations, but upon realising that this might deviate trip operators from their duties, it was decided to choose structured interviews. Semi-structured questionnaires were chosen for visitors as they had a waiting time for boats to take them back to the mainland. Prior to the main survey, questionnaires were piloted on 10 academic colleagues who had an educational tour with their students to Ilot Bernaches.

Sampling plan

Visitors on the islet and trip operators (skippers, fishermen, boatmen, tour operators) accompanying visitors to the islet comprised the sampling frame. Convenience sampling was the preferred technique for both target populations as no *a priori* sample design could be established.

Various reasons accounted for this: first, it was difficult to predetermine the number and category of visitors for the day as trip operators were unwilling to disclose information; second, it was impossible to establish in advance whether trip operators would be willing to participate in the survey. Due to the difficulty in reaching trip operators and their clients, a 'first available' formula was adopted, whereby the first trip operator willing to undertake the survey was approached. According to tour operators working on a full-time basis at Ilot Benaches, the number of visitors to the islet suffered some level of fickleness, as in the case of any destination. It was therefore difficult to establish the weekly population of visitors at Ilot Bernaches. For instance, during a specific week, the islet might receive as many as 60 visitors, whereas during the next week, the islet might hardly receive 20 visitors. The reasons for these fluctuating numbers included school holidays, bank holidays, weekends, peak season, and other occasions like birthday celebrations, anniversaries, and festivals. Arguably, the islet received more visitors if those occasions arose during a given week. Based on these arguments, it would be plausible to suggest that if the highest sample of visitors is taken (that is, 18), the weekly sample representativeness is acceptable, being 30% of the population.

Data collection phase

Data collection took place in three phases and was spread over a period of seven months (February to August 2014). The first phase involved the writing of actual empirical instances of the islet under study. Two tasks were performed during this stage. The first task related to familiarisation with trip operators (tour operators, fishermen, skippers) conducting trips to Ilot Bernaches. Thus, during the first month (February 2014), a visit was conducted to the site, and casual conversations were engaged in to elicit information on the trip operation (number of trips conducted daily, frequency of trip, timing). This was helpful for establishing the research plan. Moreover, a structured informal interview was held with representatives of the Ministry of Tourism and Leisure, the Mauritian Wildlife Foundation, and the National Coast Guard so as to validate this line of study and establish areas of concern about the islet. The second task was to acquire firsthand knowledge about the islet, and this was undertaken separately. The researcher visited and explored the islet as a visitor and was involved in a non-participant form of observation. The second phase related to questionnaire administration. Questionnaires were administered twice a week from March 2014 to August 2014 (24 weeks). This was the most difficult phase since the researcher had to be involved in a tedious exercise of scrutinising which boat could be suitable for her trip to and from the islet. Moreover, some uncertainties were involved in the process. For instance, approval had to be sought from operators, and this could only be obtained on the spot. Moreover, the researcher was charged a fee for the travel cost, which varied from Rs 200.00 (US\$6) to Rs400.00 (US\$12), depending on the category of boat. Given that the survey was on a weekly pattern, trip operators became familiar with the researcher, and by the 20th week, the survey was conducted with less difficulty. To gain better insight into the visiting pattern of the islet, the survey schedule was organised on a weekday and on a weekend. Most visitors preferred to fill in the questionnaires on their own in order to keep themselves busy, and from the feedback obtained, it was found that Section 5 (open-ended questions) engaged more interest relative to the other sections. In total, 233 visitors completed the questionnaire.

The third phase of the survey related to structured interviews conducted on 10 trip operators, and it was purely qualitative. Those operating catamarans and pleasure craft on behalf of hotels were unwilling to participate in the survey. The fact that they were employed by hotels or had contractual agreements with hotels and business groups probably explains the refusal. The interviews with trip operators were therefore conducted on the way back to the mainland as, at this moment, visitors were tired and quite passive, thus leaving tourism operators relatively free to engage in conversation with the researcher. Interviews lasted until the end of the journey (approximately 30 minutes) and took place in the form of casual conversation. It was impossible to make audio recordings of the conversations as boats engines were too noisy. As a result, notes were taken.

Data analysis and response

The study generated 233 completed questionnaires from visitors and rich qualitative data from 10 trip operators, representatives of regulatory bodies, and the Mauritius Wildlife Foundation. However, six questionnaires from visitors were not properly filled out and were thus not usable for the analysis. Table 1 details the number of surveyed visitors.

Table 1: Number of visitors interviewed.

Weeks	Week Day	Week End	Total
Week 1 (March)	3	5	8
Week 2 (March)	4	7	11
Week 3 (March)	3	2	5
Week 4 (March)	2	5	7
Week 5 (April)	5	10	15
Week 6 (April)	5	7	12
Week 7 (April)	6	4	10
Week 8 (April)	3	3	7
Week9 (May)	5	5	10
Week 10 (May)	1	3	4
Week 11 (May)	3	4	7
Week 12 (May)	3	6	9
Week 13 (June)	3	9	12
Week 14 (June)	5	10	15
Week 15 (June)	5	7	12
Week 16 (June)	4	4	8
Week 17 (July)	4	3	7
Week 18 (July)	1	3	4
Week 19 (July)	6	9	15
Week 20 (July)	4	4	8
Week 21 (Aug.)	2	4	6
Week 22 (Aug.)	3	6	9
Week 23 (Aug.)	6	12	18
Week 24 (Aug.)	6	8	14
Total	92	141	233

The table shows that most visitors were reachable during holidays and the summer period. There were more visitors on weekends and public holidays compared to normal weekdays. Data was analysed using the SPSS version 8.0. Close-ended responses were numerically coded and analysed whilst qualitative responses from open-ended answers and interviews were triangulated with quantitative data to detect reliability.

Limitations

Major difficulties of the study related to limited information regarding the islet (size, number of visitors, regulating bodies, and carrying capacity of the islet). Identifying the appropriate stakeholders who could provide information on the islet was the most difficult phase of the study. The limited literature on islet tourism presents a limitation and gaps highlighted in the study might thus suffer from shortcomings. Moreover, due to high transportation costs, the survey was limited to just two days per week.

Discussions

Ilot Bernaches as a tourism islet

Environmental qualities are important for tourism and have a positive impact on overall tourism experience (Kirillova et al., 2014). Regarding the current study, the overall findings indicate that the islet has the required environmental qualities to enhance the tourism offer. The islet comprises a peaceful, lush green atmosphere, with many trees and various endemic birds and butterflies beautifying the environment. However, the selling factor of the islet remains the beach and sea activities (snorkeling, fishing, parasailing, diving). The following quotes from a young South African couple and an older Indian tourist support this:

“This place is a delight for beach activities and we spend our whole day parasailing; there is no crowd, no disturbance, and we practise our sea activities the way we want without anyone imposing conditions on us.”

“I come here just for the beach. It is not polluted with people and bottle. In Mauritius, there is not enough place to swim at good beaches.”

Interviews with skippers and tour operators were somewhat congruent with those of visitors but these were mainly judged from a business perspective:

“We capitalise on beach activities at Ilot Bernaches, as in Mauritius, the beaches are too crowded and our clients do not like it.”

“Here, we do business the way we want; the islet is ideal for making barbecues and picnics; we are far away from the mainland, and we have no interference on the way we organise our day package.”

Overall, the lack of control seemed to be an encouraging factor for both visitors and trip organisers to use the islet the way they felt appropriate. This observation concurs with an earlier observation by Cave and Brown (2012), who argue that, away from centres of governance, regulatory mechanisms, and infrastructure planning, tourism operators and tourists do not utilise tourism resources responsibly. Regarding the visiting time, it was found that most visitors spent an average of 4–5 hours on the islet, whereas in a few cases, groups of people stayed overnight for camping purposes. The normal time for a day visit spanned from 10:00 to 15:00, and mixed findings reveal that the islet receives an approximate range of 150–200 visitors on weekdays and 250–350 visitors on weekend days.

Limiting factors of the islet

The first limiting factor of the islet was the hazardous embarkation point from which trip operators picked up and dropped off visitors. This was captured in the words of Capitaine West, one of the trip operators:

“Many times my clients get injured when they trying to get out from the boat. The embarkation place has too many rocks, and these are slippery.”

Some visitors expressed the same concern:

“We are a group of 5 and my mother is 70 years old. When we came in the morning, the skipper carried her till the beach; now we will be embarking again to go back to Mauritius; it is yet another problem.”

From trip operators, the following points were raised:

“Authorities should look for another embarkation point or enlarge the existing one so that it can accommodate two to three boats at a time; during weekends, boats have to wait in queue to drop off visitors as it is too narrow here.”

The next limiting factor unanimously shared by visitors and trip operators (including representatives of authorities) was the need for a toilet. Taking into consideration the number of visitors on the islet and their visiting time (4–5 hours daily), serious reflection was given to the amount of raw sewage visitors could generate in the absence of toilet facilities. During the preliminary visits, some parts of the islet could not be visited due to the bad odour. A specific question was politely formulated to gain insight into how people on the islet coped with the call of nature. The following responses were obtained from trip operators:

“We go inside the bush; we have no choice.”

“When I have to follow the call of nature, I do it in a private corner and I cover it with sand.”

Visitors also lamented the lack of toilet facilities, but most of them refused to comment on the way they managed to heed the call of nature. A family of six men and three boys were spotted camping on the islet for a weekend, and when asked the reasons for such gender-based camping, they collectively answered the following:

“Ladies cannot stay here for too long as there is no toilet. For a man, it is easier to manage.”

A further limiting factor was the lack of potable water on the islet. This in turn suggested that visitors and trip operators had to carry water to the islet. Findings reveal that, when leaving the islet, many visitors did not carry back their empty bottles with them, and other visitors lamented on the following issues:

“There is no waste disposal here and I am responsible enough to put all my garbage in a plastic bag and carry it back with me; I don’t think all others have done the same; I can’t see them carrying their empty bottles and boxes.”

“Bins should be placed everywhere; else the islet will become a garbage land.”

“I have to carry back dirty nappies; it is very embarrassing; bins should have been arranged; we have paid for a package and we have neither toilet nor bin; is not worth the money spent on the package.”

Some visitors expressed concern over kiosk and bench facilities and suggested the following:

“If few benches and kiosks could be introduced, to protect from rain.”

“We are seniors citizen and after some times, we want to sit on a chair or a bench; our bones are too old to sit down on the beach. Thanks that the skipper brought this plastic chair.”

Carrying capacity of the beach-front

According to Mathieson and Wall (1992), carrying capacity is the maximum number of people who can use a destination without an unacceptable alteration to the physical environment, an unacceptable decline in the living environment of the community, and an unacceptable decline in the visitor

experience. Carrying capacity is usually examined from physical, geographical, psychological, social, cultural, and economic thresholds. At present, there is limited experience in applying carrying capacity to islands due to the inherent methodological difficulties in arriving at unique figures (Apostolopoulos, 2012, pp. 141-142): There are too many elements that come into play to specifically determine the actual desired, and acceptable thresholds, and measuring each threshold requires expertise in diverse environmental, social, and economic fields. Thus, determining carrying capacity at a tourism destination is a complex exercise. At the outset, the calculation of carrying capacity is dependent on basic information like the size, length, and width of the islet. Regarding the current study, no information could be retrieved on the carrying capacity of the islet. Reports available on Mauritius and surrounding islets mainly offer status of flora and fauna, number of species at risk of extinction, status of biodiversity, and agricultural biodiversity but do not give any indication on carrying capacities. Whenever the concept was referred to, it was always treated as a lost element among other variables, and there was no quantified information on numbers, percentage, or tolerance level (see for example, Prayag et al, 2010).

Thus, available reports have been utilised as a foundation for the present study. Given that no information could be retrieved regarding length and width of the islet, the help of the National Coast Guard Officer was solicited. With the help of a measuring tape, the approximate length and width of Ilot Bernaches was calculated. The islet has approximately 150 metres of sandy beaches and is 180 metres long, with a width of 160 metres. This measurement recognises that there are physical limits to the number of visitors that can be accommodated on the beach. Given that there is no control over the number of visitors, tourism operators organise trips without any agreed consensus on the number of visitors, and they operate in isolation. Consequently, findings revealed that visitors were unhappy about sharing their space when there was overcrowding on the islet. These were mainly highlighted by visitors, whereas trip operators refused to comment:

“When we arrived in the morning, the islet was empty; now we feel like going away after the arrival of the catamaran with its 40 passengers; there is no place anymore for us on the beach.”

“I am a fussy kind of person; I would refuse to sit too close to strangers. I cannot share my space with others as I have paid to enjoy this beach.”

The exceeded physical threshold explains the current situation. The physical capacity of a destination or site is determined by availability of space, the form of the landscape, and the carrying capacity of the land. It recognises that there are physical limits to increasing tourism numbers. For the present case, if 1 m² of beach is earmarked for 1 visitor, and a 1 metre physical distance is maintained between one visitor and his co-occupant on the beach, it would imply that approximately 2 m² space could be earmarked per visitor. Thus, the carrying capacity of the beach is somewhat dictated by length of the beachfront. According to this calculation, the beach at Ilot Bernaches can accommodate a total of 75 people at a time, and going beyond this number would imply exceeding the carrying capacity of the beach and hence impacting negatively on the quality of the visitors' experience. If this number is reconciled with the approximate number of visitors on weekdays (150–200 visitors) and on weekend days (250–300 visitors), it is assumed that the physical carrying capacity of the beach at Ilot Bernaches has been exceeded. This point gives room for reflection.

Destination management implications

The present study shows that Ilot Bernaches is exploited for its tourism and recreational resources, whereas tourism needs to protect the very resources upon which it depends (Sharpley, 2001). Trip operators organise trips without controlling the number of visitors and types of tourism activities. Carlsen (1999) observes that uncontrolled tourism in island cases is more fatal than on a big continent.

In the absence of control, many destinations do not develop within the framework of sustainability, and they lose their future appeal (Andriotis, 2004). For example, Ile-à-Vache and Ile aux Tortues (islets of Haiti) have lost their authenticity due to lack of control from regulatory bodies (Botti et al., 2008).

Regarding Ilot Bernaches, government ownership over this piece of land means that the government has a responsibility to ensure that the bio-physical resources of the islet are not placed at risk. Recognising that sustainability of the islet depends on preserving its attractive features, lower density tourism development should be aimed for, with less capacity usage, thus generating less adverse environmental impacts. Islands are now focusing on upgrading the quality of their tourism product, and lessons from successful island destinations show that the integration of islets into the tourism package can become a tool for destination differentiation and that this addition to the tourism portfolio can create a distinction between existing destinations and attract new markets (Scherrer et al., 2009). Examples abound: Singapore has reinvented itself as a conventions destination through careful destination positioning and marketing (MacLaurin&Litvin, 2001), whilst Cyprus is using values of quality and sustainability, and cultural and social heritage in its destination renewal campaigns (Soteriades et al., 2007). Tenerife in the Spanish Canary Islands (Rodríguez Barroso, 2007) and Ios in Greece (Styliadis et al., 2008) have chosen to differentiate themselves on the basis of leisure and entertainment. In the context of Mauritius, the government may utilise a combination of these strategies to continue capitalising on Ilot Bernaches and others of Mauritius's neighbouring islets. The government of Mauritius needs to recognise these possibilities and introduce a business model to ensure that tourism activities at Ilot Bernaches are conducted within well-established and scientifically calculated parameters.

The island tourism literature possesses many examples of destination development models that have successfully demonstrated their viability through favourable environmental and social outcomes. The study by Cave and Brown (2012) mentions a few models, such as the modified versions of the Tourism Area Life Cycle on the Isle of Man and Tenerife (OrejaRodriguez et al., 2008); Butler's Realms of Experience (Ioannides, 2008), environmental audit (Diamantis& Westlake, 1997) on the Greek island of Mytilini; destination knowledge mapping in Korea (Pyo, 2005); the tourism consumption system (Woodside & Dubelaar, 2002); integrated technical economic modelling (Xu et al., 2003); and systems approaches that encompass multiple social, economic, cultural, and environmental dimensions (Carlsen, 1999; Northcote & Macbeth, 2006). These models are obviously underpinned by an awareness that tourism deals with finite—rather than infinitely renewable—markets and resources, leading to the need for sustainable approaches in the management of island destinations (Dodds, 2007).

At present, the Mauritian tourism industry has no destination development model or Destination Management Organisation (DMO). The main pieces of legislation providing for the protection and management of offshore islets in Mauritius do not include tourism legislation and are governed by the Forests and Reserves Act 1983, Wildlife and National Parks Act 1993, Pas Geometrique Act 1895, and the State Lands Act 1874. Consequently, due to a lack of control from tourism authorities, islets with tourism potential have been overexploited for short-term economic advantage, and this has encouraged all types of tourism promoters (skilled and unskilled, licensed and unlicensed) to capitalise on the opportunities. Without the introduction of a control mechanism, trip operators may continue to operate their tourism activities in the same uncontrolled and unsustainable manner.

Drawing upon the core-periphery model (Jordan, 2007), it is reasonable to suggest that Mauritius also suffers from a core-periphery relationship. One of the defining features of this model is the idea of domination of the periphery by the core, which is viewed as the place where administrative, cultural, and economic power resides and is seen as the decision-making nucleus separated from the periphery. In the present study, the power resides at the Ministry of Tourism of Mauritius and, as the main authority, it has the prerogative to delegate power to authorities operating under its aegis. As a result, tourism regulators such as the Tourism Authority, the Beach Authority, and the Mauritius Tourism Promotion Authority working under the Ministry of Tourism of Mauritius experience core-periphery relationships and, due to excessive power or less power delegated to them, they lack common vision and often duplicate the roles of their partners. The regulators therefore operate in a fragmented fashion, thus

reminding us of the ‘fragmentation’ aspect underlined in the work of Cooper et al. (1998). The differing objectives of the aforementioned regulatory bodies eventually result in conflicting objectives, domination of one authority over the other, and hence lead to the issue of destination mismanagement. This recalls the observation of Sheehan and Ritchie (2005), who argue that having a wide range of stakeholders entangled in core-periphery relationships might threaten the ability to achieve the destination’s tourism goal. The issue of destination management was also highlighted in the work of Andriotis (2010) on the Mediterranean and Aegean islands. This study revealed that when tourism development decisions are made from the top down, when ‘experts’ make decisions, conflicts between stakeholder groups can arise. Decisions made in this manner are perceived by the local community as not reflecting community interests and opinions. While individuals actively become involved in and shape the institution that best supports their own interests, these behaviours can be quite opportunistic in nature. Individuals therefore usually follow this dominant logic because they have little choice based on entrenched power structures. Others seize the opportunity to shape and control aspects of their institutions in the hope that it will become the dominant logic and that they will be better positioned to receive beneficial outcomes.

Proposal: islet management authority

In the context of the present study, the core-periphery model is significant in that it indicates the implications of institutional reforms in internal core-periphery relationships, both within the main island and between the main island (the core) and an islet (the periphery) within the same sovereign territory. Based on the Commonwealth Secretariat recommendation to resolve core-periphery relationship issues by taking into account insights derived from modern theories of governance (Jordan, 2007), the establishment of an islet management authority under the purview of a government task force may be one feasible solution.

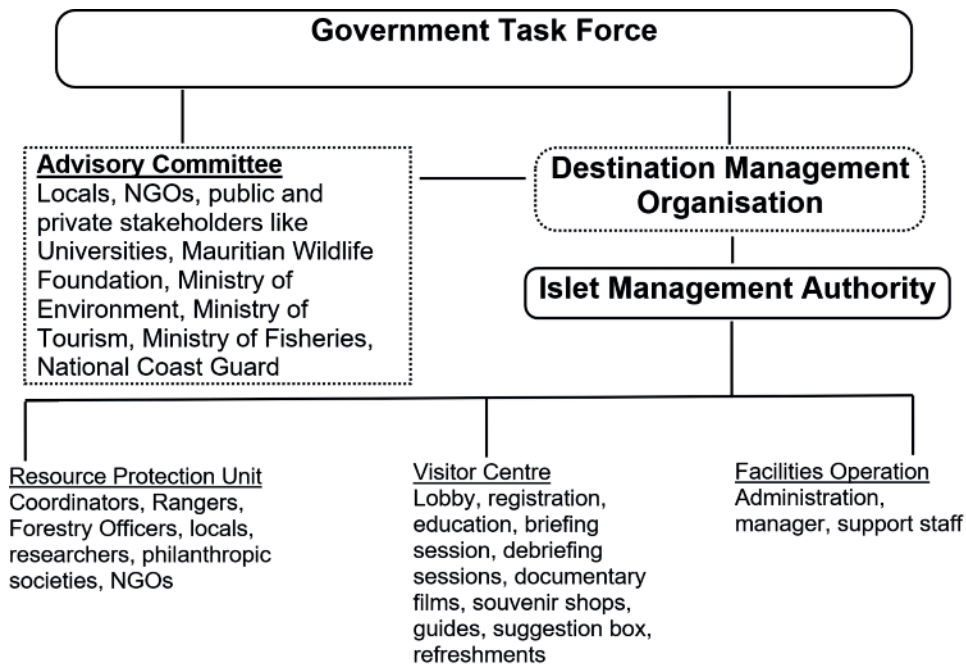


Figure 3: Proposed structure for an islet management authority. (Source: Gowreesunkar, Naqvi, & Séraphin, 2017.)

The institutionalisation of an islet management authority will give legitimacy to efforts at controlling tourism development and visitors’ activities on Mauritius’s islets. The authority should look into destination management, restoration programmes, sustainability issues, leasing of islets,

conservation, and preservation. Thus, the proposed islet management authority will comprise different units, namely a Resource Protection Unit, a Visitor Centre, and a Facilities Operation Unit. The Resource Protection Unit will work in collaboration with key stakeholders, conduct research, and feed information to the Visitor Centre. Local community empowerment and stakeholder perceptions are growing themes in destination development literature as evidenced by cases, for example, in Bali (Picard, 2003) and in Crete (Briassoulis, 2003). The Visitor Centre could employ and train locals on the history of the islet so that they could brief and educate visitors on the importance of protecting and preserving the islet's resources. The number of trips and number of visitors could also be controlled. For instance, Facilities Operation officers could use passes to control the number of visitors and their visiting time. The visiting time should have a time span to allow officers to go on a quick patrol every afternoon before leaving the islet.

The authority would act as a facilitator among key stakeholders and give direction on the number of visitors to be allowed as well as the types of tourism activities to be conducted. For instance, the authority could introduce specific seasons for fishing and snorkelling. This might give some breathing space to the marine life. Entry fees could be charged per visitor and funds could be utilised for cleaning and maintenance of the islet. Moreover, the Facilities Operation Unit might make a case for the development of a sewage system, the introduction of rubbish bins, and the availability of potable water as well as the development of kiosks and benches for visitors. The authority could also monitor and follow up on previously established committees that have proved ineffective. For instance, the National Report on the Convention on Biological Diversity (2010) mentions that a mangrove restoration programme was initiated and is ongoing. However, this needs to be reviewed and readapted according to contemporary issues that have emerged since the inception of the report. The government can also capitalise on its affiliation with international organisations like the Peregrine Fund (USA) and World Wide Fund for Nature (WWF) to establish more effective strategies to continue use of the islet as a tourism resource. The islet management authority might collaborate with the Mauritian Wildlife Foundation, an NGO mainly concerned with the conservation and preservation of endangered plant and animal species.

Recognising that any form of tourism development involves diverse stakeholders, the authority could establish an advisory committee and work plans with representatives of ministries, private partners, NGOs and Community-Based Organisations (CBOs) from adjacent villages. Moreover, to align diverse stakeholders' goals into a common vision, the authority could establish cooperative relationships with associations of boat owners, residents, fishermen, skippers, tour operators, and other service providers, especially in matters of resource utilisation and tourism development. Ritchie (1999) observes that a destination that has a tourism vision, shares the vision among all stakeholders, has management which develops an appropriate marketing strategy and a government which supports the tourism industry with an efficient tourism policy may be more competitive than one that has never asked what role tourism is to play in its economy. Given that the islet is government property, it is suggested that the government provide financial support to enable all the facilities needed on the islet. The introduction of entry fees to the islet could probably help in maintaining the facilities.

Conclusion and future research

Despite the difficulties of combining the different pertinent issues affecting Ilot Bernaches into a single stream of argument, the present study has helped establish that the islet has limiting factors that culminate in negative impacts and destination management implications. The overall findings have been explicit enough to determine that Ilot Bernaches has a major role in diversifying the Mauritian tourism offer. The study confirms that a lack of control has triggered gradual degradation of the islet's natural resources and that trip operators operate tourism activities according to their own terms and conditions. Therefore, central to this research is the belief that the sustainable future of the islet is dependent on the proper management of visitors and tourism activities. As a result, the present study makes a case for introducing an islet management authority for monitoring the islet and

addressing identified limiting factors. The application of the core-periphery model to the present study has been significant in establishing the implications of institutional reforms within the main island (the core) and between the main island (the core) and its islet (the periphery).

The islet management authority holds reasonable promise, but implementing it effectively will largely depend on whether destination management organisations or tourism bodies have the organisational capacity to make these partnerships work. The findings, though preliminary in many ways, enable tourism planners to better understand the implications of tourism development at Ilot Bernaches and probably at other islets with similar characteristics and tourism potential. Since tourism cannot be developed without depletions and implications, the outlined recommendations may inform tourism strategies for Ilot Bernaches. Future research might consider a replication of the study at Ilot Margenies, Ilot Cerfs, and Ilot Benitiers.

Acknowledgements

Dr. Tatayah, conservation director of the Mauritian Wildlife Association.

Mr. Kowlessur, senior tourism planner at Ministry of Tourism and Leisure.

Mr. Budloo, senior Cartographer at Ministry of Land and Housing.

Mr. Fokeerbux, National Coast Guard, Ilot Benaches and surrounding territory, Poudre D'Or.

Mr. Nazurally, National Coast Guard, Ilot Benaches and surrounding Territory, Poudre D'Or.

References

- Alessa, L., Bennett, S.M., & Kliskey, A.D. (2003). Effects of knowledge, personal attribution and perception of ecosystem health on depreciative behaviors in the intertidal zone of Pacific Rim National Park and Reserve. *Journal of Environmental Management*, 68(2), 207-218. [https://doi.org/10.1016/S0301-4797\(03\)00068-9](https://doi.org/10.1016/S0301-4797(03)00068-9)
- Andriotis, K. (2004). Problems of island tourism development: the Greek insular regions in coastal mass tourism: diversification and sustainable development in Southern Europe. In B. Bramwell (Ed.) *Coastal Mass Tourism* (pp. 114-132). Clevedon: Channel View.
- Andriotis, K. (2008). Integrated resort development: the case of Cavo Sidero, Crete. *Journal of Sustainable Tourism*, 16(4), 428-444. <https://doi.org/10.1080/09669580802154207>
- Andriotis, K. (2010). Cruise visitors' experience in a Mediterranean port of call. *International Journal of Tourism Research*, 12(4), 390-404. <https://doi.org/10.1002/jtr.770>
- Apostolopoulos, Y. & Gayle, D. (Eds.) (2012). *Island tourism and sustainable development: Caribbean, Pacific, and Mediterranean Experiences*. Westport: Praeger.
- Ballantyne, R., Packer, J., & Falk, J. (2011). Visitors' learning for environmental sustainability: testing short- and long-term impacts of wildlife tourism experiences. *Tourism Management*, 32(6), 1243-1252. <https://doi.org/10.1016/j.tourman.2010.11.003>
- Barros, C.P., & Alves, P. (2004). Productivity in tourism industry. *International Advances in Economic Research*, 10(3), 215-225. <https://doi.org/10.1007/BF02296216>
- Botti, L., Peypoch, N., & Bernardin S.A. (2008). Time and tourism attraction. *Tourism Management*, 29, 594-596. <https://doi.org/10.1016/j.tourman.2007.02.011>
- Briassoulis, H. (2003). Endowed by nature, privileged by geography, threatened by tourism? *Journal of Sustainable Tourism*, 11(2/3), 97-115. <https://doi.org/10.1080/09669580308667198>
- Bruyere, B., Nash, P.E., & Mbogella, F. (2011). Predicting participation in environmental education by teachers in coastal regions of Tanzania. *The Journal of Environmental Education*, 42(3), 168-180. <https://doi.org/10.1080/00958964.2010.525262>
- Carlsen, J. (1999). A systems approach to island tourism destination management. *System Approach and Behavioural Science System Research*, 16, 321-327. [https://doi.org/10.1002/\(SICI\)1099-1743\(199907/08\)16:4<321::AID-SRES255>3.0.CO;2-5](https://doi.org/10.1002/(SICI)1099-1743(199907/08)16:4<321::AID-SRES255>3.0.CO;2-5)

- Cave, J., & Brown, K. (2012). Island tourism: destinations: An editorial introduction to the special issue. *International Journal of Culture, Tourism and Hospitality Research*, 6(2), 95-113. <https://doi.org/10.1108/17506181211233036>
- Conlin, M., & Baum, T. (1995). *Island tourism: management and practice*. Chichester: Wiley.
- Cooper, C., Fletcher, J., Gilbert, D., & Wanhill, S. (1998). *Tourism Principles and Practice*. London: Pearson.
- Crouch, G., & Ritchie, J.R. (1999). Tourism competitiveness and Societal Prosperity. *Journal of Business Research*, 44(3), 137-152. [https://doi.org/10.1016/S0148-2963\(97\)00196-3](https://doi.org/10.1016/S0148-2963(97)00196-3)
- Diamantis, D., & Westlake, J. (1997). Environmental auditing: an approach towards monitoring the environmental impacts in tourism destinations, with reference to the case of Molyvos. *Progress in Tourism and Hospitality Research*, 3(1) 3-15. [https://doi.org/10.1002/\(SICI\)1099-1603\(199703\)3:1<3::AID-PTH44>3.0.CO;2-J](https://doi.org/10.1002/(SICI)1099-1603(199703)3:1<3::AID-PTH44>3.0.CO;2-J)
- Dodds, R. (2007). Sustainable tourism and policy implementation: Lessons from the case of Calvia, Spain. *Current Issues in Tourism*, 10(4), 296-322. <https://doi.org/10.2167/cit278.0>
- Dwyer L. (2010). The relevance of yield measures to achieving sustainable tourism. Conference proceedings: Sustainable tourism—Issues, debates and challenges, Greece, 22-25 April.
- Dygico, M., Songco, A. White, A., & Stuart, G. (2013). Achieving MPA effectiveness through application of responsive governance incentives in Tubbataha reef. *Marine Policy*, 41, 87-91. <https://doi.org/10.1016/j.marpol.2012.12.031>
- Gowreesunkar, V.G.B. (2013). *The role of internal marketing in destination management: an empirical investigation of its application in the island of Mauritius*. Doctoral research at University of Technology, Mauritius under supervision of Professor Cooper (Oxford-Brookes University).
- Gowreesunkar, G.B. & Rycha, I. (2014). A study on the impacts of dolphin watching as a tourism activity: Western Mauritius as a case study. Paper presented at the International Conference on Hospitality and Tourism Management, Paris, 21-22 May.
- Gowreesunkar, V. & Sotiriades, M. (2015). Entertainment of leisure tourists in island destinations: Evidence from the Island of Mauritius. *African Journal of Hospitality, Tourism and Leisure*. 4(2223), 1-19.
- Gowreesunkar, V., Van der Sterren, J., & Seraphin, H. (2015). Social Entrepreneurship as a Tool for Promoting Global Citizenship in Island Tourism Destination Management, *ARA Journal*, 5(1), 7-23.
- Ioannides, D. (2008). Hypothesizing the shifting mosaic of attitudes through time: a dynamic framework for sustainable tourism development on a 'Mediterranean Isle'. In S. McCool & R. Moisey (Eds.) *Tourism, Recreation and Sustainability: Linking Culture and the Environment* (pp. 51-75), 2nd ed., Wallingford: CABI. <https://doi.org/10.1079/9781845934705.0051>
- Jordan, L. (2007). Inter-organisational relationships in small twin island developing states in the Caribbean—the role of the internal core-periphery model: the case of trinidad and tobago. *Current Issues in Tourism*, 10(1), 1-32. <https://doi.org/10.2167/cit267.0>
- King, R. (1993). The geographical fascination of islands. In D. Lockhart, D. Drakakis-Smith, & J. Schembri (Eds.), *The development process in small island states* (pp. 13-37). London: Routledge.
- Kirilova, K., Fu, X., Lehto, X., & Cai, L. (2014). What makes a destination beautiful? Dimensions of tourist aesthetic judgment. *Tourism Management*, 42, 282-293. <https://doi.org/10.1016/j.tourman.2013.12.006>
- MacLaurin, D., & Litvin, S. (2001). Tourism strategies in an island economy: how Singapore attracts the world. *Tourism (Zagreb)*, 49(4), 383-388.
- Mathieson, A. & Wall, G. (1992). *Tourism: economic, physical and social impacts*. New York: Longman.
- Mauremootoo, J.R., & Towner-Mauremootoo, C.V. (2002). Restoring paradise: alien species management for the restoration of terrestrial ecosystems in Mauritius and Rodrigues. Proceedings of a workshop on forging cooperation throughout southern Africa Lusaka, Zambia, 10-12 June.
- Mauritius Environment Outlook (2011). Ministry of Environment and Sustainable Development. Government of Mauritius, 3-24.
- Mauritius Fourth National Report on the Convention on Biological Diversity (2010). Ministry of Environment and Sustainable Development, Government of Mauritius, August, 2-78.
- Mycoo, M. (2006). Sustainable tourism using regulations, market mechanisms and green certification: a case study of Barbados. *Journal of Sustainable Tourism*, 14(5), 489-511. <https://doi.org/10.2167/jost600.0>

- Northcote, J., & Macbeth, J. (2006). Conceptualizing yield: sustainable tourism management. *Annals of Tourism Research*, 33(1) 199–220. <https://doi.org/10.1016/j.annals.2005.10.012>
- Nunkoo, R., Smith, S.L.J., & Ramkissoon, H. (2013). Residents' attitudes to tourism: a longitudinal study of 140 articles from 1984 to 2010. *Journal of Sustainable Tourism*, 21(1), 5–25. <https://doi.org/10.1080/09669582.2012.673621>
- Oreja Rodriguez, J., Parra-Lopez, E., & Yanes-Estevez, V. (2008). The sustainability of island destinations: tourism area life cycle and teleological perspectives: the case of Tenerife. *Tourism Management*, 29(1), 53–65. <https://doi.org/10.1016/j.tourman.2007.04.007>
- Pestana, B.C., Botti L., Peypoch, N., Elisabeth, R., Bernardin, S.A., & Assaf, A.G (2011). Performance of French destinations: tourism attraction perspectives. *Tourism Management*, 32, 141–146. <https://doi.org/10.1016/j.tourman.2010.01.015>
- Picard, M. (2003). Touristification and balinization in a time of Reformatasi. *Indonesia and the Malay World*, 31(89), 108–18. <https://doi.org/10.1080/13639810304435>
- Prayag, G., Ramphul, K., & Mootoo, M. (2010). Hotel development and tourism impacts in Mauritius: hoteliers' perspective on sustainable tourism. *Development Southern Africa Report*, 27(5), 697–712. <https://doi.org/10.1080/0376835X.2010.522832>
- Pyo, S. (2005). Knowledge map for tourist destinations—needs and implications. *Tourism Management*, 26(4) 583–94. <https://doi.org/10.1016/j.tourman.2004.03.001>
- Ramessur R.T., Parry S.J., & Jarvis K.E (1998). Characterization of some trace metals from the Export Processing Zone and a coastal tourist area in Mauritius. *Environment International*, 326(24), 773–781. [https://doi.org/10.1016/S0160-4120\(98\)00063-4](https://doi.org/10.1016/S0160-4120(98)00063-4)
- Ramessur, R. (2002). Anthropogenic-driven changes with focus on the coastal zone of Mauritius. *Regional Environmental Change*, 3(1–3), 99–106. <https://doi.org/10.1007/s10113-002-0045-0>
- Ritchie, J.R.B. (1999). Crafting a value driven vision for a national tourism treasure. *Tourism Management*, 20(2), 273–282. [https://doi.org/10.1016/S0261-5177\(98\)00123-X](https://doi.org/10.1016/S0261-5177(98)00123-X)
- Rodriguez, J., Parra Lopez, E., & Yanes-Estevez, V. (2008). The sustainability of island destinations: tourism area life cycle and teleological perspectives: the case of Tenerife. *Tourism Management*, 29, 53–65. <https://doi.org/10.1016/j.tourman.2007.04.007>
- Scherrer, P., Alonso, A., & Sheridan, L. (2009). Expanding the destination image: wine tourism in the Canary Islands. *International Journal of Tourism Research*, 11(5), 451–63. <https://doi.org/10.1002/jtr.713>
- Seraphin, H., Gowreesunkar, G.B., & Butler, C. (2013). Entrepreneurship in the tourism sector: a comparative approach of Haiti, Mauritius and Coastal Kenya. *Journal of Hospitality and Tourism*, 11(2), 72–92.
- Sharpley, R. (2001). Tourism in Cyprus: challenges and opportunities. *Tourism Geographies*, 3(1), 64–86. <https://doi.org/10.1080/14616680010008711>
- Sheehan, L., & Ritchie, J.R.B. (2005). Destination stakeholders: exploring identity and salience. *Annals of Tourism Research*, 32(1), 711–34. <https://doi.org/10.1016/j.annals.2004.10.013>
- Smith, M., Hills, J., Florens, V., Sotheran, I., & Daby, D. (2004). Rodrigues islets strategy framework. *Tourism Management*, 28, 409–422.
- Soteriades, M., Avgeli, V., Holden, A., & Wickens, E. (2007). Promoting tourism destinations: a strategic marketing approach. *Tourism (Zagreb)*, 55(3) 335–45.
- Spilanis, I., & Vayanni, H. (2003). Sustainable tourism: utopia or necessity? The role of new forms of tourism in the Aegean island. *Journal of Sustainable Tourism*, 2(9).
- Stylidis, D., Terzidou, M., & Terzidis, K. (2008). Islands and destination image: the case of Ios. *Tourismos*, 3(1), 180–99.
- Woodside, A., & Dubelaar, C. (2002). A general theory of tourism consumption systems: a conceptual framework and an empirical exploration. *Journal of Travel Research*, 41(2) 120–32. <https://doi.org/10.1177/004728702237412>
- Xu, P., Brissaud, F., & Salgot, M. (2003). Facing water shortage in a Mediterranean tourist area: seawater desalination or water reuse? *Water Science and Technology: Water Supply*, 3(3), 63–70.