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Tourism Development and Resilience in Small Oceanic Islands in Australia and Brazil

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Abstract

This chapter discusses the resilience of social-ecological complex adaptive systems in the context of small-oceanic-island tourist destinations. Fernando de Noronha Archipelago (Brazil) and Lord Howe Island (Australia) were studied by looking at tourism development and localised conservation as emergent properties of social-ecological complex adaptive systems. Data were organised to explain the relationships among contextual conditions, intervening conditions, causal conditions, (inter)action strategies, consequences and phenomenon affecting the two case studies. Local empowerment, local social cohesion, attachment to place and identity were found to be key to the resilience of local social-ecological complex adaptive systems and to the sustainability of tourism development.

Keywords: tourism development; resilience; sustainability; global; local; competition; cooperation; social-ecological systems; complex adaptive systems; Lord Howe Island; Fernando de Noronha; World Heritage; protected area; localised conservation

Introduction

The employment of the concept of resilience to tourism studies is becoming a promising avenue to research on the sustainability of tourism development by emphasising its dynamic aspects and the importance of adaptation and mitigation for long-term ecological conservation and social well-being (see Allison, Moore, & Strickland-Munro, 2010; Hamzah & Hampton, 2012; Nogueira de Moraes, 2014; Scheyvens & Momsen, 2008). As important as discussing the applicability of resilience as a societal and ecological goal is to understand the drivers and inhibitors underlying the processes leading to its manifestation (Walker, Carpenter, Rockstrom, Crépin, & Peterson, 2012). Hence, if resilience is to be understood as the “tip of the iceberg”, the question that arises is: what lies underneath?

This chapter thus investigates the relationships between the contextualised design of tourism development and the resilience of Social-Ecological Complex Adaptive Systems – SECASs in two small oceanic island case studies, namely Fernando de Noronha Archipelago – Brazil and Lord Howe Island – Australia, with the intent to shed light on the underlying processes leading to different degrees of resilience. The conclusions presented

here stem from qualitative research framed by a conceptual model developed from complex adaptive systems theory (Mitchell, 2009; Norberg & Cumming, 2008), network theory (Newman, 2010) and social-ecological systems and resilience theory (Lew, Ng, Ni, & Wu, 2016; Simonsen et al., 2014). This conceptual model recognises a “tourism development complex adaptive system” operating within a “contextualised global-local social-ecological complex adaptive system”, accounting for “local tourism development” and “global tourism” as complex adaptive properties emerging from processes of self-organization that occur in these same systems.

Collected data were organised to allow understanding of causality respecting the characteristics of complex adaptive systems theory: global, national and local *contexts* are depicted as the background for the case studies; environmental and demographic features are explained as *intervening conditions* acting upon the *phenomenon* of self-organisation by means of competition and cooperation; specific historical events, activities and regulations are portrayed as *causal conditions* for the studied *phenomenon*, whose *consequences* are understood here as specific sustainability outcomes and degree of resilience. The processes of *tourism development* and *localised conservation* in both case studies are explained as *(inter)action strategies* acting upon the *phenomenon* or as system-wide emergent properties.

Specific sustainability outcomes related to local empowerment and local social cohesion are identified as consequences of the studied phenomenon and as evidence of the degree of resilience experienced by both case studies. The study of the phenomenon of self-organisation by means of competition and cooperation is carried out by categorising these relationships against a global, global-local and local continuum, allowing understanding of how specific combinations of different degrees of three types of competition and cooperation seem to influence the level of local empowerment and social cohesion leading to different degrees of resilience. Finally, the role of tourism development and of localised conservation as influencers of self-organisation is analysed.

Research Conceptual Framework

Before discussing tourism development from the viewpoint of resilience, the research focused on reviewing the rise of sustainability as a widely employed concept by academics, governments, citizens and enterprises, framing a concept of sustainability that informed research design and practice based on seven cornerstones:

1. the development of ecology and environmental conservation;
2. the growing understanding of human-environmental relations;
3. the construct of Earth's limits and resulting understanding of limits to growth and the need to address inequalities in access to and use of resources;
4. the emergence of the concept of sustainable development in the international arena;
5. the debate on priorities, degrees and dimensions of sustainability;
6. the emergence of sustainability science and complex adaptive systems theory; and
7. the plurality of (sometimes divergent) concepts of sustainability, leading to contradictory implementation strategies.

Resilience theory (Lew et al., 2016; Simonsen et al., 2014) was identified as being transversal to many of these cornerstones, specially to ecology and environmental conservation, to the understanding of human-environmental relations, to limits to growth and to complexity theory. Despite being connected, sustainability and resilience are different concepts that can be understood as being complementary but sometimes also in conflict, due to the breadth of meanings attributed by those with different interests (see Lew et al., 2016). Overall, conflicting concepts arise from the distorted view of sustainability as only seeking to promote the continuity of the *status quo* and the restricted understanding of resilience as being opposed to conservation by understanding it only promotes adaptation as key to the survival of the human species, therefore relieving the need to mitigate human impacts on the environment.

Opposite to that, reviewing the evolution of the context of sustainability led to the understanding that sustainability is an anthropocentric concept related to the human species capacity to survive by undergoing adaptation and undertaking paths of human development that redesign human and environmental systems respecting existing and future thresholds, while catering for social-ecological systems that are more resilient and capable to persist. This way, the conceptual framework employed by this research suggests that the sustainability of human (and tourism) development is dependent on how it affects the resilience of the social-ecological systems in which it occurs.

When analysed from the perspective of complex adaptive systems theory, sustainability and resilience are relative (and not absolute) concepts as, through feedback processes, thresholds are dynamic, thus constantly changing. Being sustainability a concept linked with the idea of future and being the future uncertain, human development through the redesigning of environmental and human systems can be understood as undertaking pathways leading to more or less sustainable futures and never to sustainable or unsustainable futures, as they are yet to occur. Therefore, this chapter prefers to employ the terms sustainability and resilience, instead of sustainable and resilient.

Construction of the research conceptual framework also involved reviewing different tourism (development) concepts and definitions from a complex adaptive systems perspective and in contrast to the concept of sustainability proposed above. The resulting concept from this review suggests that: human needs that cannot be satisfied in tourist residency areas motivate tourists to seek destinations that will cater for these needs and for all others that are brought along with the tourist when travelling. As a consequence of this movement of people around the globe, tourism-oriented redesigning of human and environmental systems and resources takes place, leading to feedbacks that reverberate not only in residency, transit and destination areas but also on other areas of the planet and on the planet as a whole – carbon emissions being a practical example to illustrate this point. This way, tourism development promotes redesigning of resources and systems for tourism purposes, on top of existing redesigning for human development purposes.

The concept also suggests that the sum of resources and systems in their natural state with those that have been redesigned for purposes other than tourism would result in the destination's endogenous attributes or its degree of authenticity, whereas those resources

and systems redesigned for tourism purposes would represent its exogenous attributes or its degree of tourism orientation. This understanding is aligned with Plog's (2001) psychocentric theory on tourism development that proposes tourism could become the seed of its own destruction by excessive development of infra-structure leading to loss of authenticity and decreased capacity to attract tourist flows. As a result, the suggested concept also identifies three dimensions of sustainability associated with tourism development: local (affecting the capacity of local communities to survive), global (affecting the capacity of the human species to survive) and sectoral (affecting the capacity of tourism to continue to exist).

Once a base definition for sustainability and for tourism development in the context of sustainability were developed, a theoretical framework of analysis for researching the dynamics of sustainability and tourism development was also constructed with the aid of concepts and theories related to networks, (social) structure and agency, social-ecological systems, complexity, resilience, competition and cooperation and tourism clusters. As a result, a conceptual model of a local-global social-ecological complex adaptive system portraying tourism development and nature conservation was also constructed.

This concept suggests that agents are open systems that interact with one another with the support of and being influenced by institutional and relational structures (López & Scott, 2000) while also contributing to their redesigning through individual agency. It also implies that agents have limited contact with these structures and therefore incorporate only part of them, what is incorporated becoming embodied structures (López & Scott, 2000) they use to inform decision-making and actions. The concept also implies that agents are subject to environmental conditions as well as relational and institutional structures. By taking into account complex adaptive systems being hierarchical systems (Chu, Strand, & Fjelland, 2003), the concept suggests that local social-ecological complex adaptive systems are contained within global systems, allowing a constant transfer and process of global and local stock of matter, energy, information and agents to take place between the two systems. In that respect, tourists and temporary migrant workers could be examples of agents that leave the global stock and become part of the destination's local stock for a limited time, returning home with experiences that may have transformed them as individuals. Within the organisational network that is established among local and global agents it is possible to identify one where stakeholders are involved with tourism and one with nature conservation. As a result of the relationships established within these networks, one can observe the emergence of the following complex adaptive properties that re-inforce and regulate these same relationships: a global nature conservation movement, global tourism, local nature conservation practice and local tourism development. These emergent properties would also influence one another through reinforcing and regulating feedback.

Based on the theoretical framework just presented, the research was designed as a qualitative and embedded-multiple-case study (Yin, 2009) that made use of Grounded Theory methods (Charmaz, 2006; Corbin & Strauss, 2008) as the framework guiding data analysis. To help data organisation and visualisation through the lens of global-local Social-Ecological Complex Adaptive Systems – SECASs, the research applied Strauss and Corbin's Coding Paradigm (Böhn, 2004, p. 272) to define its core variables as follows:

1. Context(ual Conditions): developed and developing countries and globalisation
2. Intervening Conditions: small oceanic island tourist destinations
3. (Inter)Action Strategies: emergent system properties of localised conservation and tourism development
4. Causal Conditions: events, incidents and actions leading to agency
5. Phenomenon: self-organisation by means of competition and cooperation
6. Consequences: sustainability challenges and degree of resilience

Small oceanic islands were chosen as case studies for their capacity to portray intrinsic conditions and variables that could be more easily distinguished by being naturally amplified, for their clearly defined spatial boundaries and isolation. When the research was being designed (April 2009), Fernando de Noronha Archipelago and Lord Howe Island were the only small oceanic islands listed as natural World Heritage where tourism development included the provision of accommodation (at the time, Galápagos Islands were listed as an *in danger* property). Data collection was carried out through the triangulation of: direct observation; contextual and focused interviews; and access to secondary sources. A total of 26 interviews were conducted in Fernando de Noronha and 45 on Lord Howe Island with representatives of: the Federal (10), State (4) and Local Governments (19); the Local Community (7); NGOs (7); Tourism (18) and complementary sectors (4) and universities (2), totalling 71 qualitative interviews. In addition, 21 interviews were conducted with representatives of international organisations, including: those part of the United Nations System (11), NGOs (6) and Universities (4).

Context(ual conditions)

Contextual conditions are understood here as being “slow” variables (Walker et al., 2012). Their study included the identification of: the evolution of global, national and regional tourism and related structures; the evolution of the global and national nature conservation movements and related structures; and the associated broader global and national historical backgrounds to which tourism development and the nature conservation movement were subject to.

Two complementary global structures influencing tourism development and environmental conservation were identified: one arising more prominently from national governments relationships of competition and cooperation, namely the United Nations system of international governmental organisations; and the other arising from the efforts of non-governmental organisations worldwide.

Overall, the research identified the emergence and development of a global network of organisations influencing the management of tourism development and nature conservation worldwide, with organisations increasing specialization and joint projects promoting integration as the network grows in complexity.

The investigation of national contexts led to the understanding that despite both being federations of states, Brazil and Australia experienced different pathways that led to the

establishment of national, state and local levels experiencing different degrees of empowerment, resulting in the incorporation of global nature conservation and tourism development strategies in different ways. While Brazil first incorporated local tourism development (EMBRATUR, 2002) followed by regional tourism development (MTur, 2013) as strategies for decentralising tourism planning and management, in Australia, “[d]espite a very well organised tourism sector at both federal and regional level, with a few exceptions, the organisation of tourism is weak at the local level. Nonetheless, local governments have considerable powers available for tourism, although these powers vary from State to State” (Cooper & Ruhanen, 2005, p. 47). In regard to World Heritage, while this global conservation strategy has allowed the Australian Commonwealth Government to become more influential in the proclamation of national protected areas in state land (see Australia, 1997), in Brazil, considering the great empowerment of the Federal Government when it comes to the proclamation of protected areas, World Heritage translates more as a tool for raising awareness to the need to protect what is listed, than anything else.

Analysis of global and national contexts reinforce the argument that tourism development and protected areas are both promoters and products of globalisation, thus affecting the level of dependence of local destinations to the global social-ecological complex adaptive system. These contexts also shed light on the reinforcing feedbacks between global and national levels when it comes to tourism and environmental conservation, pushing for global, national and local (inter)action strategies of tourism development and localised conservation through the establishment of protected areas.

Intervening Conditions

Environmental and demographic features affecting the two case studies were regarded as intervening conditions influencing self-organisation (by means of competition and cooperation) through tourism development and localised conservation.

Fernando de Noronha Archipelago and Lord Howe Island are small oceanic islands laying respectively on the South Atlantic and South Pacific oceans. While Fernando de Noronha is located some 345 km off the Northeast coast of Brazil, close to the Equator and subject to the warm nutrient-poor Southern Equatorial current coming from Africa, Lord Howe Island is about 570 km off the east coast of Australia, below the Tropic of Capricorn and in the confluence of the warm Eastern Australian current and cold streams coming from the south, portraying greater biodiversity of marine life. With greater altitude differences (0 to 875m above sea level), Lord Howe Island also portrays greater terrestrial biodiversity than Fernando de Noronha (0 to 323m above sea level). Both islands are the result of eroded volcanic formations that were gradually colonised by different species that, in many cases, specialised and became endemic.

The Brazilian archipelago was discovered by the Portuguese in early 1500 with permanent residents arriving in 1737, while the Australian island was discovered by the British in 1788 with first permanent residents arriving in 1833. By 2011, Lord Howe Island was estimated to host about 360 inhabitants while Fernando de Noronha to hold about 10 times that number. This way, despite Fernando de Noronha’s main island being slightly larger (17.01 sq km)

than Lord Howe Island (14.54 sq km) and both portraying similar ratios of land areas available for residence due to the protected areas implemented (30.0% in the case of Fernando de Noronha and 29.6% in the case of Lord Howe Island), they present very different demographic densities: 705 people per sq km and 84 people per sq km, respectively. Their growth trends are also very different, stability being reached by Lord Howe Island since the 1990s when it had 369 inhabitants and Fernando de Noronha experiencing significant growth since the early 1990s, more than doubling its already greater population along this period (1,700 to 3,600 inhabitants).

Overshooting of Fernando de Noronha's carrying capacity was already evident in 2000 when it was calculated as being able to host 1,433 people and its population had already reached 2,900 people (ADM&TEC, 2000). Development of infra-structure could not draw near to population growth as 8 years later, the island was equipped to properly serve only 2,550 people, while residents and tourists accounted for a total daily average of 4,000 (ICMBio & Elabore Consultoria, 2008). Tourism growth followed similar patterns to those of the resident population, with numbers increasing more than 10 times in Fernando de Noronha during the period from 1991 to 2009 – 5,911 to 62,823 people (ADEFN, 2005; 2010), while Lord Howe Island experienced little growth, going from 13,182 to 15,148 during the period from 1999 to 2010 (LHIB, 2011).

In terms of localised conservation through the implementation of protected areas in the context of World Heritage listing, Lord Howe Island was proclaimed Natural World Heritage in 1982, right after a State Permanent Park Preserve was declared to protect about 70% of its terrestrial areas, with its surrounding marine areas being declared protected areas in 1989 with the proclamation of a State Marine Park, and expanded in 2000 and 2012 with the proclamation of Commonwealth Marine Parks.

In the case of Fernando de Noronha, World Heritage listing came last, when in 2001 it was proclaimed part of a serial natural World Heritage property also containing Rocas' Atoll. Prior to that, a Federal Environmental Protection Area was declared in 1986 containing both terrestrial and marine areas. In 1988, part of it was converted into a National Marine Park comprising both land and sea. In 1993 the existing protected areas were considered as core and buffer areas of part of the Atlantic Forest Biosphere Reserve, extending protection to a marine transition area. With no practical effect, in 1989 the whole archipelago was declared a State Environmental Protected Area and in 1995 a State Marine Park.

Overall, when environmental and demographic characteristics were analysed, geographical and social isolation were identified as both barriers and facilitators to globalisation, pushing and being pushed by the implementation of localised conservation and tourism development. Complementarily, local social cohesion and local empowerment seem to be greatly impacted by regulations that recognise and grant specific rights to different social groups sharing isolated local areas.

By exploring the tension between endemic and invasive species and different social groups in local social-ecological complex adaptive systems that experienced processes of increasing globalisation, the research illustrated the interactions established between global

and local systems and their results in terms of shifting regimes that led different populations to stability, instability and extinction.

To make sense of the role of isolation in cultural differentiation and the emergence of different local social groups and the relationships of competition and cooperation established among them, the ecological concepts of traditional/endemic and invasive species provided helpful insights, helping to explain how *Noronhenses* and Lord Howe Islanders have specialised in terms of their cultural gene pool. In that respect, comparison of the two cases suggest that the resilience of the local social-ecological complex adaptive system is increased when local and global knowledge are shared among traditional islanders and migrants, allowing the establishment of processes that can make the best use of global resources to leverage the establishment of local processes that can cater for a more autonomous local system.

(Inter)Action Strategies

Tourism development and the implementation of protected areas in Fernando de Noronha Archipelago and Lord Howe Island were the two (inter)action strategies researched, or the two emergent properties of the local and global social-ecological complex adaptive systems that were the focus of investigation. Results pointed to tourism development and the implementation of protected areas as being self-regulating and self-reinforcing properties that portray great influence on one another and on the resilience of local social-ecological complex adaptive systems by interfering with their level of empowerment and independence.

Different models of tourism development seem to have arisen on Lord Howe Island and Fernando de Noronha Archipelago stemming from their different histories and associated levels of local empowerment and self-sufficiency, contributing to their reinforcement. The two case studies portray that the emergence of tourism on these isolated communities seem to come as an alternative for these local economies to adapt to global economic shifts, by allowing greater connectivity, as well as the economic exploration of these islands natural attractions. As for localised conservation through the implementation of protected areas, it seems to have been the result of a combination of political, economic and conservation pressures that influence human and tourism development and land control.

Causal Conditions and Phenomenon

The main historical events, incidents and actions influencing the way self-organisation takes place in the two islands were considered as the causal conditions for the researched phenomenon of competition and cooperation. Results pointed to three types of competition and cooperation that are determined by the relationships established among local agents themselves, global agents themselves and between local and global agents. Global and local empowerment and social cohesion were found to be highly influential on the way competition and cooperation takes place, being reinforced or regulated by these same relationships.

The contrast and comparison of these findings coupled with more abstract analysis led to the development of a grounded theory for the researched phenomenon of competition and cooperation in global-local social-ecological complex adaptive systems (See Figure 1).

<Figure 1 About Here – Resulting Grounded Theory for the researched phenomenon>
Source: Nogueira de Moraes (2014, p. 350)

Mediating the relationships between local and global agents are entry barriers that are affected by global and local relational and institutional structures. These structures arise from relationships of competition and cooperation that are linked with certain levels of empowerment and social cohesion experienced by global agents and local agents within their global and local systems. This way, the resilience of the global and local social-ecological complex adaptive systems and the sustainability of their emergent properties of tourism development and nature conservation through localised conservation (by means of the establishment of protected areas) seem to be greatly dependent on the levels of empowerment and social cohesion experienced by both the global and local levels.

Consequences

Selected resulting sustainability challenges were investigated as the consequences arising from specific types of competition and cooperation taking place on Lord Howe Island and Fernando de Noronha Archipelago. These challenges were defined through a process of consultation with key stakeholders from both destinations, and based on UNWTO's (2004) proposed list of baseline issues grouping indicators of sustainable tourism for the types of tourist destinations being researched. The list was expanded with contributions from the interviewees, and later categorised to facilitate analysis (see Table 4).

<Table 1 About Here – Categorisation of sustainability challenges>

Out of all sustainability challenges identified, social cohesion and local empowerment were identified as being of great importance by their intrinsic relationship with the researched phenomenon of self-organisation by means of competition and cooperation. Different tourism development and environmental impact management models seem to emerge from different levels of local social cohesion and local empowerment at the same time they can reinforce these same levels. When it comes to large scale commoditisation of the tourist destination, results point to a close relationship to lower levels of social cohesion and local empowerment, the same logic manifesting for small scale and differentiation being linked with higher levels of local empowerment and social cohesion.

Conclusions

Competition, Cooperation and Resilience

As pointed out earlier, competition and cooperation are understood here as driving forces of self-organisation leading to a certain organisational structure of social-ecological complex adaptive systems. Understanding systems as being hierarchical – contextuality property

(Chu et al., 2003, p. 25) helped to clarify the role of different types of competition and cooperation in making social-ecological complex adaptive systems more resilient. This approach led to the identification of two types of agents involved with tourist destinations – global and local – and three types of relationships of competition and cooperation established among them – global competition and global cooperation established among global agents, local competition and local cooperation established among local agents, and global-local competition and global local cooperation established between global agents and local agents.

When Fernando de Noronha Archipelago and Lord Howe Island are contrasted and compared, results point to combinations of certain levels of the three types of relationships leading to increased or decreased resilience by influencing local social cohesion and local empowerment in different ways. Stronger local competition and weaker local cooperation added to stronger global-local cooperation seem to drive decreased local social cohesion and local empowerment, while stronger global-local competition, stronger local cooperation and weaker local competition appear to increase local social cohesion and local empowerment.

While better access to global resources is improved by increased global-local cooperation, it also increases the capacity of global factors that are outside local control to impact the local social-ecological adaptive system. World wars and global economic and financial crises mark great shifts on local systems on both Lord Howe Island and Fernando de Noronha Archipelago. However, being able to tap into global resources can also make the local system more resilient by allowing it to survive when local conditions are less favourable. This way, it is inferred here that the emergent process of globalisation needs to be counteracted by localisation for the global-local social-ecological complex adaptive system to become more resilient, localisation being dependent on how island stakeholders relate to these islands as places that help form their identity.

The Influence of Localised Conservation and Tourism Development

Tourism development and localised conservation through the proclamation of protected areas in the context of World Heritage listing were the two (inter)action strategies (or system-wide properties) emerging from self-organisation by means of competition and cooperation that were the focus of the research. Considering the self-reinforcing and self-regulating roles of emergent properties on the same phenomenon of self-organisation they stem from, the research sought to understand how localised conservation and tourism development can influence the patterns of competition and cooperation among stakeholders of the two case studies.

Results point to localised conservation affecting the balance of tourism offer and demand in those destinations by limiting the access to resources and containing the establishment of tourism businesses directly related to the capacity of hosting tourists. Both islands experience some sort of bed-capping (or imposed limits on the offer of accommodation) aiming to keep tourist inflows within the destinations tourism carrying capacity. However, by regulating accommodation businesses and not doing so with local tour operators, these

islands portray different levels of competition among these two types of tourism businesses. Limited land availability and unique land tenure systems in place also help contain the establishment of excessive numbers of tourism businesses. When it comes to cooperation, localised conservation tends to push for greater global-local cooperation as global investors are, many times, better able to deal with the great amount of regulations involved with establishing and running businesses in destinations that are part of protected areas. In this scenario, access to education by island residents seem to play a great role in making local businesses more independent and competitive when it comes to tapping into global resources and conforming to regulations without the need to resort to cooperation with global investors.

Localised conservation also seems to influence competition between economic sectors in those islands. By affecting land use, protected areas tend to privilege tourism over more traditional activities such as agriculture and fishing. This is reinforced by increased connection to the mainland promoted by tourism which brings down the costs of purchasing food produced in the mainland, contributing to greater dependence of those islands on global food stocks, therefore making them less resilient. This situation is reinforced by mainland regulations that are implemented on these local areas that are easily adhered by large businesses, but that may make small-scale local businesses to become financially unfeasible.

As for the influence of tourism development in self-organisation, it seems to have promoted a decrease of community values and an increase in individuality in both islands in different degrees. By allowing greater connectivity with the mainland, tourism pushed for greater local-global cooperation and greater local competition in the appropriation of scarce local resources by local businesses. What helps to explain the lower degree of individualisation experienced by Lord Howe Island is its longer history of greater local empowerment, allied to the longer existence of a local traditional population that portrays greater attachment to the island and greater local identity. Overall, the greater control over tourist numbers exercised by Lord Howe Island also seems to play a considerable role in containing the effects of globalisation on the island, bringing the conclusion that tourism carrying capacity must be analysed in direct connection with social-ecological carrying capacity, for excessive numbers of tourists seem to also impact the local population's capacity to face the challenges brought by globalisation.

The Role of Local Environment and Local Human Population

Intervening conditions were considered in the case studies as being comprised by the intrinsic environmental characteristics and local human population demographics of both islands.

Results highlighted the role of scale and of geographical and social isolation as promoters of differentiation, serving also as barriers and facilitators to globalisation and being linked with the implementation of localised conservation and tourism development. Results also pointed that local empowerment and social cohesion can be largely impacted by laws and

regulations that define and acknowledge rights exercised by different social groups sharing these islands and affecting the way they relate to their local environment.

Intervening conditions also help determine the ratio of resource offer and demand, therefore influencing patterns of competition and cooperation and resulting in sustainability challenges that can attenuate or reinforce certain processes. As a result, understanding social-ecological carrying capacity becomes essential to tourism carrying capacity studies focusing on the sustainability of tourism development in destinations. By helping to shape the way agents compete and cooperate, environmental and demographic characteristics indirectly affect local empowerment, social cohesion, attachment to place and local identity and, consequently, the sustainability of human development in those islands.

The Role of Global and National Contexts (or “Slow Variables”) and that of History

Study of the global and national contexts affecting Lord Howe Island and Fernando de Noronha Archipelago highlighted self-reinforcing relationships between global and national levels and between national and local levels that result in tourism and nature conservation (relational and institutional) structures that continue to grow in complexity. In return, this growth seems to contribute to greater globalisation fuelled by the implementation of local tourism development and localised conservation through the proclamation of protected areas. Local tourism development is understood here as tourism development that takes place at the local level in any form and not necessarily following a community-based model. As for localised conservation, it is understood as conservation that is geographically situated in a specific (protected) area.

Additionally, context influences local mindset (or embodied structures) in self-reinforcing and self-regulating ways, historical levels of local empowerment and local social cohesion helping to determine the outcomes of the struggle between globalisation and localisation.

Historical events (or causal conditions) help determine the patterns of competition and cooperation that are established in local areas, leading to certain levels of local empowerment and local social cohesion. This way, it is understood here that sustainability should be sought after through a process of transitioning capable to tap into self-reinforcing and self-regulating processes that can change the way the relational structure is established locally and the way it connects to the global relational structure.

Overall, when the two case studies are contrasted, history seems to play an extremely relevant role in setting paths of dependence leading to different sustainability outcomes. Additionally, reaching greater degrees of resilience requires processual structural changes and the reaccommodation of competition and cooperation among local and global agents.

Crosscutting Conclusions

Results obtained for the two case studies portraying the relationship between environmental conservation, localisation and collectivism/well-being and that between environmental degradation, excessive globalisation and materialism/individualism seem to corroborate with those by Hurst et al. (2013), pointing that on processes of localisation, identity and attachment to place emerge alongside the development of a network of self-reinforcing values that highlight the central role of community, the importance of collective ownership of public spaces and the understanding that individuals are part of systems.

Dealing with social-ecological complex adaptive systems as hierarchical systems that can be analysed by the identification of global and local systems brings a new perspective on the study of the struggle between structure and agency and the self-moderating and self-regulating forces established between the two, contributing to resilience research by framing the context in which greater degrees of resilience can manifest.

Finally, future research on the topic could focus on places portraying combinations of different levels of global, local and global-local competition and cooperation so as to critique, complement and adjust the conclusions presented in this chapter. The identification of possible negative effects of extreme levels of local empowerment to the resilience of local social-ecological complex adaptive systems seems to be a promising avenue, Norfolk Island being a potential case study in that regard.

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Table 1. Categorisation of sustainability challenges

Sustainability Challenges	Fernando de Noronha	Lord Howe Island	Total
Waste Management (UNWTO)	17	12	29
Energy Consumption and Generation (UNWTO)	11	15	26
Sewage Treatment (UNWTO)	12	13	25
Water Management (UNWTO)	13	3	16
Island Supply Management (FDN)	1	10	11
Material and Energy Flows	54	53	107
Environmental Impact Management (UNWTO)	13	17	30
Access to Natural Resources (UNWTO)	13	3	16
Climate Change (UNWTO)	2	12	14
Environment and Conservation	28	32	60
Local Empowerment (FDN)	3	18	21
Social Cohesion (FDN)	1	19	20
Benefits Retention (UNWTO)	6	6	12
Sense of Ownership of Public Spaces (LHI)	N/A	3	3
Community	10	46	56
Tourism Development Management (UNWTO)	10	14	24
Tourism Intensity (UNWTO)	5	13	18
Access to Destination and Attractions (UNWTO)	2	9	11
Tourism	17	36	53
Demographic Density (FDN)	8	12	20
Housing (FDN)	4	15	19
Seasonality and Migration (UNWTO)	9	3	12
Population	21	30	51
Cultural Heritage Protection (UNWTO)	7	7	14
Skills Strategy (LHI)	N/A	6	6
Education (FDN)	1	4	5
Information and Knowledge	8	17	25
Total	138	214	352

UNWTO: proposed by the World Tourism Organisation

FDN: emerged from interview in Fernando de Noronha Archipelago

LHI: emerged from interview on Lord Howe Island

Figure 1. Resulting Grounded Theory for the researched phenomenon

Source: Nogueira de Moraes (2014, p. 350).

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