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Fijian culture and the environment: a focus on the ecological and social interconnectedness of tourism development

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ABSTRACT

Understanding the complex and adaptive nature of Pacific Island communities is a growing yet relatively unexplored area in the context of tourism development. Taking an ethnographic research approach, this study examines how over 40 years of tourism development have led to complex and multi-scale changes within an Indigenous Fijian village. The study establishes that tourism development has brought a range of ecological shifts that have, over time, spurred far-reaching changes within the embedded sociocultural constructs of the community. The development of the Naviti Resort, a water catchment dam, a causeway and a man-made island have created substantial changes in totemic associations, livelihood approaches, and traditional knowledge structures within Vatuolalai village. The emergence of internal adaptive cycles, and new behaviours, practices and values that redefine the cultural landscape will be discussed. This paper demonstrates the interconnectivity of nature, society and culture within Indigenous communal systems and asserts that ecological changes introduced in one part of a community stimulate complex, non-linear responses in other elements of the socio-ecological system of a Fijian village.

Introduction

Tourism is encouraged in much of the developing world as a tool for attaining long-term prosperity and development (Ayres, 2000). Often, however, little consideration is given to the changes that tourism involvement may create and how such changes affect local communities. Although the impacts and typical life cycles of tourism destinations are well documented, very few studies conceptualise communities as complex and adaptive social and ecological systems (Butler, 1980; Hall & Page, 1996; Prosser, 1994; Movono et al., 2015). As a result, there is a void in understanding the multifaceted and interrelated nature of Indigenous communal systems and how tourism development affects these embedded constructs. The current paper will contribute to this area by demonstrating that, over time, tourism has contributed to incremental ecological changes that have stimulated complex, non-linear responses from various elements within a local community: Vatuolalai, an Indigenous Fijian village.

The paper will first provide a review of the relevant literature, focusing on tourism development, sustainable livelihoods, and complex systems theory. Following this, the methods will be outlined, and some background to the culture and traditional practices of Indigenous Fijians will be provided,

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establishing a baseline understanding of the case study's pre-tourism context. The findings will then detail the ecological impacts associated with the construction of the hotel, water catchment dam, causeway and man-made island. The results will demonstrate the complex social and cultural responses of the community to these ecological changes and use aerial photographs to support participant accounts of the non-linear connections within the Vatuolalai social–ecological system (SES). The discussion will focus on the links between tourism-induced changes and their influence on traditional knowledge structures, livelihoods diversity and the weakening of the sociocultural links that connect villagers to their environment. Ultimately, it will establish that although tourism has been a catalyst for economic development, its ecological impacts have created shifts that have affected the culture, uniqueness of place and sustainability of livelihoods within the community.

Tourism and socio-ecological change

Many development theories mention tourism as an advocate, driver and important factor in the creation and diversification of livelihood opportunities (Ayres, 2000; Croes, 2012; Harrison, 2010). As a perceived "non-extractive industry", tourism is favoured by many resource-deprived states such as Fiji as a development tool (Ayres, 2000; Harrison & Prasad, 2013; Prasad, 2014). Since tourism's beginnings in the 1950s, the Fiji government embraced the development of hotels without due consideration for tourism's potentially diverse and far-reaching implications (Scott, 1970). The Coral Coast, where the case study community is situated, is also where tourism-based resorts were pioneered, with Vatuolalai villagers among the first native Fijians to be involved in tourism. The rise in tourism impact studies in the late 1970s and the 1980s illustrates the growing academic response to the perceived impacts of tourism development in many areas of the world, including Fiji (Harrison, 2010; Movono et al., 2015). Most studies within the development discourse critiqued the influence of tourism development on the environment and destination communities (Ayres, 2000; Harrison, 2010; Kerstetter & Bricker, 2009; Movono et al., 2015). However, the body of literature is compartmentalised, focusing on tourism's impact on ecology, the economy and society as separate entities, with few studies identifying the complex connections and relationships that exist between these domains.

The literature on the ecological impacts of tourism is well established (for an overview, see Becken, 2010). Seminal work was provided by Butler (1980), Prosser (1994) and Hall and Page (1996), who expressed the view that tourism propagates its own destruction. Depending on the type and scale of development, tourism has the potential to cause immense ecological disturbances, from the construction stage through to its daily operations, particularly in coastal systems (Bidesi et al., 2011). Coastal and island regions are acknowledged for their natural beauty, rich biodiversity and high species endemicity. At the same time, they are highly vulnerable ecosystems (Kitoilelei & Sato, 2016). Tourism has been empirically linked to marine pollution, habitat degradation, disturbance of wildlife, and a loss of place and ambiance in many tourism destinations (Croall, 1995; Hall, 1996; Prunier, Sweeny, & Green, 1993). These ecosystem disturbances often become an accepted cost, as resort-based development replaces a pre-existing ecological setting (Hall, 1996). Butler (1980), in particular, describes how a typical tourism destination develops from a pristine baseline setting to a fatigued system, often following a predictable pattern. However, much of the earlier literature does not incorporate local beliefs or value systems of Indigenous communities as being part of a larger socio-ecological system (Holland, 1992; Holling, 2001). As a result, only a few tourism studies have explored the intricate connections between people and their environment, and even fewer have questioned how these connections may be affected as a society that adapts to tourism development (Liu & Lu, 2014; Simpson, 2007).

MacNaught (1982), while studying tourism impacts in the Pacific, argued that tourism development leads to changes in the sociocultural and political structures of Indigenous communities. He suggested that behaviours adopted from exchanges with tourists, as well as the tourism work setting itself, are often carried forward into local villages, triggering behavioural changes within society (MacNaught, 1982). Bolabola (1981) observed such changes, proposing that hotel workers in Fijian resorts

were becoming more reliant on processed and tinned foods as opposed to locally sourced food. Bolabola (1981) attributed such dietary and gastronomical changes to shifts in livelihood activities as women become increasingly engaged in shift work at the hotels, spending less time on and giving less emphasis to traditional food collection and production. Movono et al. (2015) noted that because villagers received regular incomes at the resort, had better living standards with increased purchasing ability, there was little motivation for engagement in other (more traditional) forms of livelihood activities. For most communities, the pursuit of economic development via tourism has introduced a plethora of changes in quality of life, attitudes, economic conditions, behaviours and culture (Bolabola, 1981; Douglas & Douglas, 1996; Hall & Page, 1996; Movono et al., 2015). Although these impact-based studies contributed extensively to knowledge on tourism and development, they overlooked the multispectral, interconnected and adaptive nature of Indigenous communities (Harrison, 2010; Veitayaki et al., 2015). This has left a void in the body of literature because the complex social and ecological change processes that a destination community undergoes as a result of prolonged tourism involvement are not adequately captured.

Sustainable livelihoods approach and complex systems theory

When research is conducted at the communal level, communities and Indigenous people must be examined as equal actors in the process. Indigenous communities respond and adapt to development in many ways, and it is important that the approach adopted in this present study encapsulates the complex nature of Indigenous Fijian society. Chambers and Conway (1992), Chambers (1995) and, later, Scoones (1998) and Mbaiwa (2010) initiated debates that aroused a greater appreciation for the value of sustainable livelihoods research in rural development. Today, livelihoods-based studies have expanded beyond their origins in rural development and human ecology to include applications in Indigenous communities that deal with tourism (e.g. Scoones, 2009). Tao and Wall (2009) emphasise the need to utilise the sustainable livelihoods approach (SLA) to guide studies conducted on Indigenous communities. This approach will make the current study better able to quantify and validate tourism's holistic contribution to development.

The SLA is a people-centred approach focused on community-level actions that considers the inherent capacities and knowledge systems of Indigenous communities (Wu & Pearce, 2013). Consensus built around the notion of SLA recognises that it is critical to understand livelihoods security as a starting point in any communal development. Tao and Wall (2009) consider the concept of livelihoods as more tangible than development because it is easier to describe, discuss, observe and quantify for rural Indigenous communities. Accordingly, Mwaiba and Stronza (2010) express that the SLA is the most appropriate tool to guide research design because it allows for the complex multisectoral nature of tourism and communities to be appropriately examined and accordingly translated. Livelihoods are comprised of activities, assets (capital, human, physical, natural, social) and entitlements. It is proposed that only the combined use of these livelihood components (Chambers, 1995) makes it possible to adequately understand the very functions and alternatives that the community combines to attain the desired outcome. Furthermore, Helmore and Singh (2001) and Mbaiwa and Sakuze (2009) propose that a people-centred approach requires an integrative approach that must capture the embedded characteristics of society, allowing for the most marginalised in the community to be assessed.

The SLA promotes the use of *adaptive strategies*, loosely defined as adjustments that people make in their livelihood systems to allow difficult circumstances to be endured or overcome (Tao & Wall, 2009). Helmore and Singh (2001) express that adaptive strategies are often based on local knowledge and are attained by combining traditional and less traditional knowledge systems. Adaptation can be better understood if the SLA is employed by examining socio-ecological systems that are inclusive of the cultural assets, social benefits and non-monetary activities of communities in making a living. However, Wu and Pearce (2013) state that the SL framework is too static and needs to include a mechanism that translates the fluidity and long-term changes which occur within Indigenous

communities. There is a risk that because of the comprehensive nature of the SLA, some dynamic issues such as the complex non-linear relationships within a community may be treated superficially. This is because there may be too much emphasis on the technical nature of livelihoods and development (Wu & Pearce, 2013, p. 444).

The complex adaptive system (CAS) theory is, therefore, proposed to complement SLA and compensate for its perceived weaknesses (Shen et al., 2008). CAS provides a theoretical framework to better understand the dynamics of an Indigenous Fijian communal system exposed to both gradual and sudden changes (Morse et al., 2013). CAS is suitable for studying constantly evolving concepts and processes, such as communal development and the multiple, interrelated and interacting entities within an embedded system (Holland, 2006). CAS is a specific variation of systems thinking, adopted in this paper as a means to help understand the elements, structures and processes within the Indigenous Fijian communal system (Byrne, 1998). In this way, specific societal processes such as livelihoods activities, traditional knowledge and totemic connections subject to tourism disturbance are considered in a cohesive manner (Holland, 1992). Addressing some of the shortcomings of SLA, CAS theory creates understanding about non-linear dynamics, aggregation, emergent behaviour, feedback loops, adaptation and contextual-based responses. CAS has the potential to show how simple interactions at the micro, ecological level can lead to very complex implications at the macro, communal level, or vice versa (Gunderson & Holling, 2002; Holland, 2006).

CAS theory is founded on the view that complex behaviour emerges as a result of interactions among system components (Holland, 1992; Holling, 2001; Morse et al., 2013). Proponents of CAS theory argue that elements of a CAS modify their behaviour and respond to both internal and external changes in the environment, which are characterised by panarchy (Coetzee et al., 2016; Gunderson & Holling, 2002). *Panarchy* is termed as a nested set of adaptive cycles operating at discrete ranges of scale, emphasising vertical and horizontal structuring, cross-scale and multi-levelled linkages, and focusing on the processes and relationships between these connected elements (Allan et al., 2014; Coetzee et al., 2015; Holling, 2001). The concept of panarchy implies that processes, such as tourism development, which occur at one scale of the system, have the potential to affect the overall dynamics of an Indigenous community (Folk et al., 2003). Panarchy is concerned with identifying emergent patterns, connections and responses of elements to processes or activities that are introduced to the system (Holland, 1992; Holling, 2001). Panarchy theory has seldom been used in the social sciences, and is adopted here to support the aims of this study in understanding the complex social and ecological changes that have occurred in the Vatuolalai system as a result of over 40 years of tourism involvement. This is essential for the current study as it attempts to shed light on the links between tourism-influenced ecological disturbances and shifts in the values and cultural processes within society.

The research area

The case study, Vatuolalai village, is set along the Coral Coast, Fiji's oldest tourism region where resort-based tourism was pioneered in the 1950s (Belt Collins and Associates, 1973) (Figure 1). Comprising five districts consisting of interrelated villages and a diverse tourism product, the Coral Coast remains one of Fiji's leading tourism regions, receiving around 27% of Fiji's visitors annually (Movono & Dahles, 2017). Vatuolalai village is comprised of two clans or *mataqali* who live communally in highly embedded and interrelated kinship networks. There are 32 households equating to about 220 people, the majority of whom are below the age of 35 and a slightly higher percentage of females (54%) compared to males (46%). A high number of people are involved in or have been involved in some form of tourism (over 92%) (Movono et al., 2015).

In 1972, the Naviti Resort, a relatively large-scale, all-inclusive resort, was built on land next to the village, ushering a new era of development for villagers. The close proximity of the resort which leases land from villagers has provided them with new opportunities and new ways of life. It has now influenced complex social and ecological changes for over four decades. The highly embedded

nature of the community makes it necessary to employ research methods that adhere to local contexts and effectively yield data that accurately interpret phenomena occurring within the community.

Methods

The Fiji Vanua Research Framework (FVRF) is an attempt to localise research methods, recognise Indigenous Fijian society, and decolonise research (Movono & Dahles, 2017; Nabobo-Baba, 2008; Smith, 1999). Neuman (2003) identified FVRF as interpretive social science and described the researcher as a person who wants to learn about meaningful and relevant everyday life experiences from the participants. The FVRF is adopted as a central paradigm to guide the orientation and methodology of the current research because it promotes localised methods and a focus on the embedded nature of Indigenous society (Nabobo-Baba, 2008). This approach also dovetails the SLA and complex adaptive theory discourse, which encourages a bottom-up approach, and places people and their values and belief systems at the centre of analysis. The FVRF is ideal for this study as it encourages the researcher to be adaptive, reflexive and considerate of the holistic and interconnected nature of society.

Data collection

To complement its indigenist orientation, the current study has employed a case study methodology for its suitability and applicability in conducting in-depth investigations, particularly within an embedded communal setting (Veal, 2006). Advocates of the case study method assert that it allows the investigation of "social processes in their appropriate context", facilitating the incorporation of ethnography within qualitative research (Hartley, 1994, p. 208; Movono & Dahles, 2017). Ethnography is defined as an approach that combines "research design, fieldwork, and various methods of inquiry to produce historically, politically, and personally situated accounts, descriptions, interpretations, and representations of human lives" (Tedlock, 2000, p. 455). The lead researcher (an Indigenous Fijian) immersed himself in village life, forging relationships and engaging in close, long-term interaction with villagers to gain their trust and confidence in order to yield a deep understanding of their beliefs, motivations and behaviours (Tedlock, 2000).

This study has predominantly relied on complete participant observations and the modification of semi-structured interviews as conversations, or *talanoa*, as key tools for data collection. Although the study also employed researcher-administered surveys as a means to gather demographic data, conversations prevailed as a data-rich method. *Talanoa* in the Fijian cultural context refers to the process where people converse, share ideas and stories, and where dynamic communication and dialogue are established between two or more parties (Nabobo-Baba, 2008). Hence, a *talanoa* is similar to an in-depth interview "in context", yet is more attuned to semi-structured interviews "in practice" (Nabobo-Baba, 2008). *Talanoa* method served as a dynamic platform that allowed for participants to consciously recall specific events and contemplate and reflect on their experiences. The researchers' role as catalysts for developing meaningful conversations through the *talanoa* framework has allowed the study to generate historical data and capture the thoughts, feelings and stance held by participants regarding their involvement in tourism over four decades. In total, 72 *talanoa* were held with participants from a broad segment of the community, and 15 of these were conducted with key individuals. Conversations were also held in groups and with individuals from all segments of the community aged from 18 to 72, including youths, young mothers, special interest groups and community leaders. Specifically, the older population and village elders aged between 45 and 72 years primarily informed this study. The key participants (Appendix) were selected for their influence and position within the community, and for the frequency and depth of encounters as well as their knowledge about the community and its development.

Although not strictly longitudinal, the data obtained via the *talanoa* technique were used to establish a historical account of about four decades of tourism development and change in the

village. Although this may be different to a strictly longitudinal perspective where data would be collected over a long period at different points in time, it is nonetheless appropriate given the rich information derived from participants. The approach required essential on-site reflection and action to ensure the reliability of "remembered" information, because memories are influenced, filtered and often distorted by individual experiences (Veal, 2006). This study ensured the stories told reflected "real" changes through consistent and systematic data and source triangulation, conferring with other individuals, raising questions and continually validating the data (Tracy, 2013). The analysis also included the triangulation of village narratives and interview quotes with aerial photographs, retrieved from the Fiji Department of Lands map repository. Reflexivity (Berger, 2015) is the modus operandi in all facets of this study, with the researcher regularly reflecting on the research process, participant accounts, observations and data collection in an integrative manner. Consideration was also provided to the social location, emotional responses, social biographies, and interpersonal and academic contexts of both the participants and the lead researcher (Mauthner & Doucet, 2003).

The fieldwork was conducted in two phases, with the total data collection stretching over a period of 120 days or 16 weeks from July to December 2015. In between each phase, a four- to six-week reflection period was taken, allowing for preliminary data analysis and for identification of patterns that warranted following-up in the second phase. Data from this study were analysed manually and incrementally throughout the duration of the study in order to cope with the large volume and richness of qualitative data. Participant interviews were periodically transcribed, translated coded and thematically organised into key categories, the results of which have been presented in a number of publications including the current paper (Movono, 2017; Movono & Dahles, 2017). Ethical considerations, where an individual's or a specific group's identity and sensitivities are concerned, were acknowledged, and efforts were made to conceal their identities, including the use of pseudonyms.

Findings: Indigenous Fijian social and ecological systems

Movono and Dahles (2017) argued that Indigenous Fijian communities are in essence complex, adaptive systems that have a unique set of social and ecological elements linking to people through traditional knowledge and customs, livelihoods activities and specific totemic connections. Traditional Indigenous knowledge is transferred both orally and in a practical process through observances of specific cultural and daily activities (Ravuvu, 1983, 1987; Seruvakula, 2000). Customary livelihoods practice facilitates traditional knowledge exchange and also preserves specific techniques and skills unique to a particular village that have been passed down from generation to generation (Derek, 1957; Seruvakula, 2000). Cultural knowledge and totemic associations also govern the activities and interactions between Indigenous Fijians and nature, and these are entrenched within Indigenous Fijian notions of time and place. The Fijian lunar calendar – the *Vula Vakaviti* – provides an overarching framework that envelops livelihoods activities, providing structural support for the observance of totemic connections, customs and traditions at specific stages throughout the year (Ravuvu, 1987; Seruvakula, 2000). The Fijian calendar follows a 12-month system that is based on the yam cultivation cycle. Each stage in the yam cycle, from planting to harvesting, is attached to other naturally occurring phenomenon, such as fish spawning, turtle nesting and migration of birds, which all indicate the months of the year. The Fijian calendar guides daily livelihoods activities by providing a platform for people's continued symbiotic relationship with their natural surroundings (Scott, 1970). In essence, the cultural philosophies of Indigenous Fijians serve as "sociocultural links" that guide behaviours, connecting people to each other and to the ecological and social elements within their systems.

Figure 2 illustrates the connections between people and their natural resources, indicating the role of culture, traditions, totemic associations, and traditional knowledge and livelihoods activities as connectors that link people's interaction with nature. Figure 2 further demonstrates that the custodianship functions, intergenerational concerns, and the adaptive and opportunity-seeking nature of
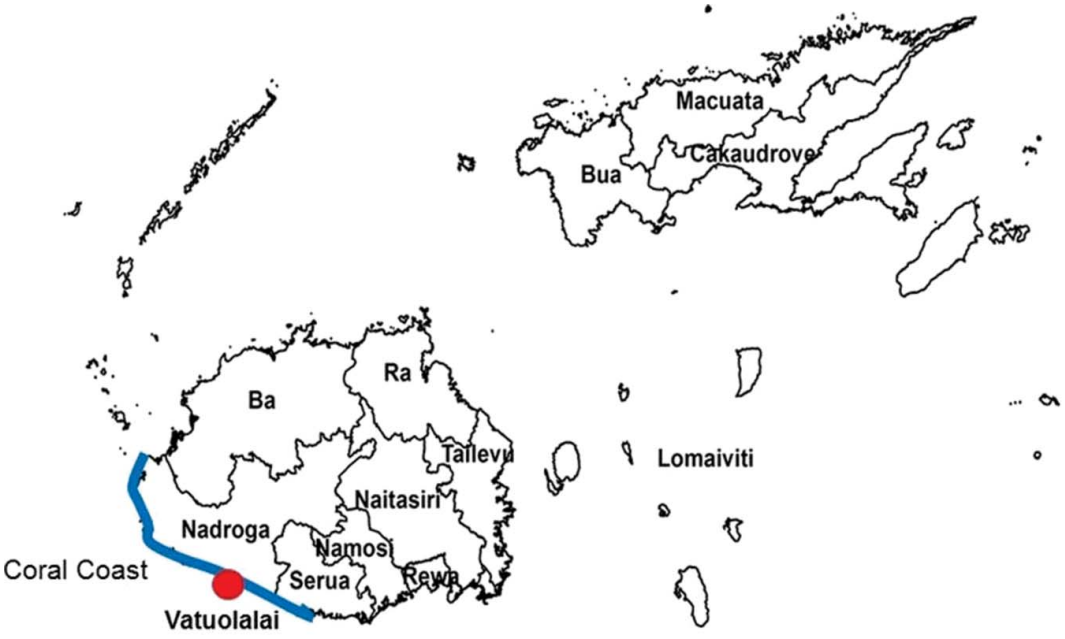
Figure 1. Map of Fiji.
Source: SBK, 2016.

people are operationalised through their cultural systems. This allows people to utilise and interact with nature, and gain valuable learning platforms, sustenance, pride and sense of identity from their natural resources.

Before the construction of the resort, economic opportunities were limited, and Vatuolalai villagers lived semi-subsistence lifestyles governed by a communal livelihoods framework that emphasised
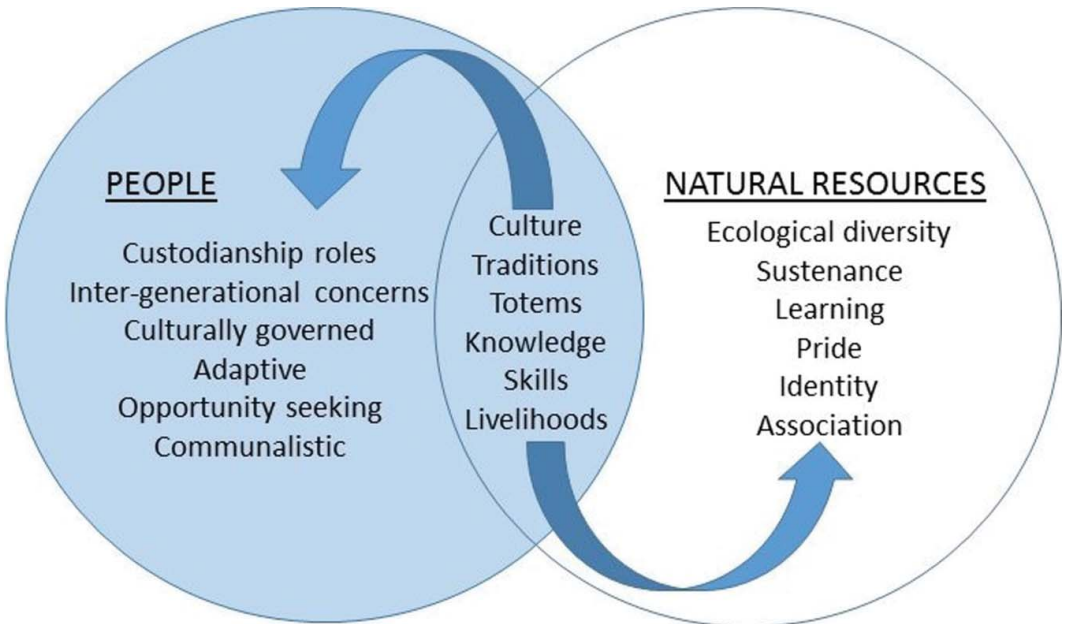

Figure 2. Pre-existing social–ecological system.

synergies between sociocultural values and ecological custodianship. Elders were considered authorities, because they had extensive knowledge and skills relevant to survival. The men would engage in communal work, and mainly tend to gardening, building, hunting and fishing for consumption and to meet traditional obligations. Some copra production complemented these livelihoods. The women would oversee the administration of household affairs, and partake in craft-making, mat weaving, coconut oil production and food preservation, as well as tending to vegetable gardens, foraging, and fishing the streams and uphill creeks (Scott, 1970; Seruvakula, 2000). Children would accompany their parents and elders, observing, partaking, and gaining invaluable knowledge and skills involved in traditional livelihoods activities. Village elders described the pre-tourism setting as a time when the community had a "variety" of skills, and knowledge with which to utilise the vast array of natural resources available to them. This way of life enabled villagers to plant, fish, build, create and hunt without much exposure to the volatilities of the external market. Aminiasi, a village elder and former lay preacher, recalls that his elders planted "everything, every day, including root crops, fruit-bearing plants and trees of all kinds, and they also harvested a variety of food to depend on day in day out". Although villagers had limited economic options (confined to copra and some fishing), they partook in a wide variety of traditional livelihoods activities, owned a wealth of traditional knowledge about their natural environment, and lived mainly self-sustaining, diverse and resilient lifestyles.

The 1970s: hotel construction, communal euphoria and systemic disturbance

The hotel development heralded a new era for the villagers of Vatuolalai, opening economic opportunities and initiating an ongoing process of change and development (Butler, 1980). Villagers recall greeting tourism with much enthusiasm and euphoria, eager to embrace the promise of economic prosperity. From the outset, elders recall the introduction of tourism as having created sudden disturbances because "they have never witnessed anything like it before." The construction of the hotel was the first time for villagers to experience land clearing, construction and the inward flow of people from all parts of the world on an industrial scale. Participant accounts echo sentiments that the resort had an almost "overnight effect" on their lives as it literally "replaced" what once existed. Invaluable natural resources, traditions and livelihoods activities were substituted with new opportunities and lifestyles that have over time influenced shifts within the embedded constructs of the community.

Korovolivoli, or Sandy Village, which includes their ancestral beach, was the first obvious example and an indicator of the replacement processes (Bulleri & Chapman, 2010). Referred to as their *vanua ni gagade* or foraging and leisure grounds, Korovolivoli beach and its adjacent land (an area of some 14 hectares) was well known for its biological diversity, and was embedded with many cultural associations before the Naviti Resort was constructed in 1973 (Butler, 1980; Prosser, 1994). This area is described by elders as their "classroom" because it was where villagers would learn about the trees, birds', shrubs and natural resources that they depended on for daily consumption and specific traditional events. Participants relate that the hotel had replaced this area, not only providing them with attractive and lucrative economic opportunities but also taking away key ecological, cultural features associated with the area (Liu & Lu, 2014). Elders describe the removal of their sacred *ivi* or Polynesian chestnut (*Inocarpus fagifer*) tree totem during land clearing as a sad and emotional experience. Eleni, a clan matriarch and handicraft operator, likened the loss of her totem tree to "having her limbs removed". Villagers also noticed the disappearance of some endemic birds, which include the Soqe or Peals Pigeon (*Ducula latrans*), Kikau or Fiji wattled honeyeater (*Foulehaio taviunensis*), and Manulevu or Fiji Goshawk (*Accipiter rufitorques*). The decline in large-winged seabirds that would use the foliage as nesting areas and as a sanctuary during bad weather were also noted (e.g. Prunier, Sweeny, & Green, 1993).

Participants also described how turtles (*Chelonia mydas*) drastically dwindled in number because the resort complex removed important habitats and nesting grounds, leading "to an almost instantaneous decline in sightings". Etonia, a former public servant, states that the last witnessed turtle nesting occurred in 1998. Villagers also note the abrupt disappearance of land crabs, which were an

important food source for cultural events in the latter parts of the year and preserved for consumption over the cyclone season (Bolabola, 1981; Bulleri & Chapman, 2010). Participants note that the resort had an immense impact on specific organisms which not only defined the ambiance and character of the area but were also their totemic emblems (Jennings, 2004; Liu & Lu, 2014). Key participants state that the resort had replaced a vital area where their totem bird, Dilio, or the Pacific Golden Plover (*Pluvialis fulva*), would flock in large numbers, feeding on the once-abundant fiddler crabs (*Uca perplexa*) in the mid-parts to latter parts of the year. Elders state that "no other village in the province would accommodate so many dilio in one area—only in Vatuolalai because we had a lot of fiddler crabs; that's why it is our bird … this place is their home too". Participants emotionally maintain that despite introducing better standards of living, their "sacred values, beliefs, and interests were forfeited" in pursuing tourism development. Figure 3 shows the extent to which the resort has changed the ecological character of the area within the first five years of tourism development. It also demonstrates the sheer scale of the resort, providing a visual reference of how it has replaced the pre-existing ecological setting, thereby affecting river processes and spurring the disappearance of the Korvolivoli beach and leading to the creation of two new sand bars.

Following the hotel construction, villagers observed a marked decline in Saqaleka, or Giant Trevally (*Caranax ignobilis*), their totem fish, catch and size within their customary fishing area. The nearby river (Halama) was a known spawning ground for the totem fish that disappeared over the first decade, arousing feelings of despair and helplessness among the cohort. Villagers noted that the high siltation occurring at the river mouth impeded the ability of trevally to travel upstream to spawn, and regularly affected corals because debris would be washed out during heavy rain (Bulleri

Figure 3. Vatuolalai village, 1978.
Source: Fiji Department of Lands, 1978.

& Chapman, 2010; Prunier et al., 1993). Despite acknowledging the many socio-economic benefits derived from the resort, villagers lament the loss of "much more than their totemic emblems" because they had to look elsewhere to source traditional materials and medicines and they no longer had free access to their ancestral grounds. The observed losses within the first 10 years of the hotel's existence served as an indicator for villagers that their "yaubula" or natural resources had been substituted by a new resource that they and their future generations must now contend with. This perception of replacement raises awareness about the immense value villagers place on their culture, indicating their conscious realisation of changes within their community. Women, in particular, were very forthcoming during conversations and made recognisable contributions to knowledge about how female-specific traditions have been disrupted.

Creeks and streams are often acknowledged within Fijian society as a domain over which women have significant authority (Seruvakula, 2000). In Vatuolalai, women are considered custodians of their river systems and resources, as they would primarily be responsible for harvesting their totem freshwater prawns (*Macrobrachium rosenbergii*), river fish and eels. Women would go out in groups to harvest river resources, and also forage for ferns and wild yams that grow along the river banks and the upper creeks (Seruvakula, 2000). Women describe this as a time where they would connect with their daughters and impart the knowledge, skills and legends of their ancestors. Girls were taught knowledge about the weather, climatic conditions, ideal fishing spots, and the best time to find prawns and certain fish during these encounters, which served as platforms for imparting traditional knowledge. Ana, a female entrepreneur and former hotel maid, mentions that these communal activities provided women with the "space" to freely discuss specific issues among themselves, a rare opportunity in the close confines of the village (Annes & Wright, 2015). The women state that changes in their freshwater resources, coupled with new opportunities to work at the hotel, had an immense and almost permanent effect on their way of life, drawing them away from traditional practices. Setaia, the local church deaconess, states that in adapting to tourism, women forfeited specific knowledge and skills related to mat weaving, oil making, pandanus cultivation, trap making and other traditions that were no longer practised in Vatuolalai. Over time, the shift away from traditional beliefs and livelihoods structures has forced villagers to abandon the structures, beliefs and traditional practices that define them as a people. Here, the case study findings confirm the views of theorists, Adger (2000) and Holling (2001), by showing that changes introduced in one part of a system can initiate change processes and internal adjustments that cause shifts in the entire societal system.

The 1980s–1990s: change processes and internal adjustments

Participants accept that the construction of the hotel and dam influenced the disappearance of totemic emblems, which previously were an identifying feature of their village (Hall, 1996; Jennings, 2004; Liu & Lu, 2014). "Today, our totems are almost becoming our legends; stories that we only tell our grandchildren; before the hotel, prawns, trevally, ivi, and dilio were always in abundance—we saw and connected with totems every day," Ilimeleki (Clan elder) states. Totems are natural objects adopted by a particular society as their emblem because of specific spiritual and societal significances that indicate ancestry, and they are sacred within local belief systems. Totems are a means by which the members of the community also differentiate themselves from other tribes and villages in Fiji, because they act as a symbol that links them to each other and their resources. Elders of the community romanticise memories of a bygone era and lament the disappearance of their identity through their totems (Ravuvu, 1987; Seruvakula, 2000). Participants indicated that the loss of specific ecological resources has weakened the traditional processes and relationships embedded within those resources, and so demonstrating panarchy (Holling, 2001).

Villagers have adapted to work at the resorts, earning steady incomes, and in doing so, limit their opportunities to engage in other livelihoods activities. This further contributes to the weakening and overall decline in community valuing of, and appreciation for, traditional activities (Tao & Wall, 2009). For most participants, the loss of totemic emblems symbolises the culling of their identity, leading to

a declining association with, pride in, and valuing and appreciation of, their elements of culture and tradition. Emori, the village chairman, sums up these facts, stating that "Vatuolalai is no longer known for its traditional totems; we are now known for tourism." Emori's statement is indicative of the changing perceptions of villagers, and it draws attention to the far-reaching and complex implications of tourism development on embedded Indigenous communities. Participant accounts further indicated how the perceived costs of tourism development extend beyond the visible impacts, thereby permeating totemic associations and influencing shifts in how people identify with their community.

Figure 4 illustrates the emergence of tourism as a powerful and dominant force disrupting the pre-existing and embedded social and ecological structures of the system. Figure 4 further indicates how the hotel, in replacing ecology, has led to the disengagement and weakening of the people–ecology interaction. As demonstrated above, involvement in the resort creates shifts within society and leads to the redundancy of traditional knowledge and activities. By 1989, resource-use patterns in the village had changed dramatically. Participants observe that they had fewer communal farms, were more focused on individual concerns and had experienced a notable decline in the practice of traditional livelihoods activities (Movono et al., 2015). Villagers began building new homes made of concrete with iron roofs, and phased out the use of traditional thatched huts along with the skills they entail (Bolabola, 1980). Villagers' note that their behaviours and everyday routines in the village changed as they adapted to "new ways of life" introduced through the resort (Hall, 1996). Participants state that they began to observe that villagers were minimising their involvement in communal activities and focusing instead on individual household interests and economic prosperity (Helmore & Singh, 2001). Elders state that by the late 1980s, a large number of village youths had grown up in a
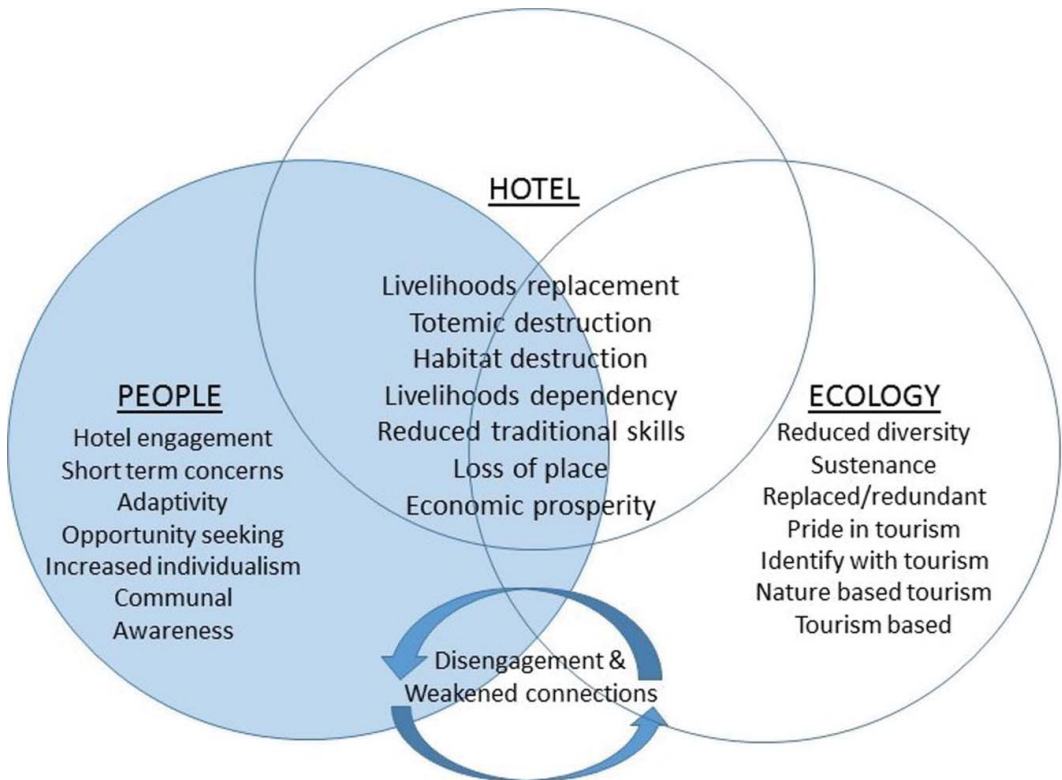

Figure 4. New tourism-shaped social and ecological system.

new setting, where there was minimal practice of traditional activities. Villagers would seldom practise traditional construction methods, food preservation, mat weaving, fishing, yam or kava cultivation which, according to Avitereki, an elder and the longest serving village headman, contributed to the incremental and systematic decline of Indigenous traditional knowledge and skills within their community.

The 1990s–2000s: causeway construction: awareness, saturation and consolidation

By the early 1990s, Vatuolalai had endured over 20 years of tourism involvement, with the majority (87%) of villagers gaining new skills and employment at the hotel, and the village becoming well-endowed regarding infrastructure and standard of living in comparison to other non-tourism villages in the area (Movono et al., 2015). The rise in socio-economic standards was also accompanied by the weakening of traditional knowledge and values, reaching a consolidation or saturation point in the late 1990s (Butler, 1980). By the mid-90s, villagers had observed a clear wedge between the new and the older generation regarding traditional knowledge and skills. Participants attribute the shifting values of the younger generations to the loss of interest in and appreciation for the significance of traditional activities, as youths had now become more committed to enhancing knowledge and skills applicable to their new livelihood source; namely hotel work (Helmore & Singh, 2001; Tao & Wall, 2009). Most youths were dropping out of school as early as Year 9 in anticipation of joining the hotel workforce. This behaviour might indicate their eagerness to join what seems the only logical economic alternative and embrace a modern lifestyle partitioned from the "old" traditional livelihoods framework (Movono et al., 2015). Villagers observed that people were moving away from variety planting, instead focusing on easier crops, such as cassava and sweet potatoes. Some families left farming entirely to focus on tourism work, and consequently chose to purchase food, rather than hunt, fish or plant (Bandahari, 2013; Movono et al., 2015). This demonstrates that although at the outset, tourism encourages diversified livelihoods activities, it also has the potential to replace pre-existing livelihoods frameworks and reduce the diversity of activities within a communal setting. This has significant socio-economic implications regarding vulnerabilities, resilience and long-term sustainability of livelihoods within the community.

Villagers state that by 1995, they were no longer supplying seafood such as lobsters to the resort, and large reef cod and other prime fish had dwindled in volume as they observed the significant decline in the health of their reefs and scarcity of marine resources. Participants attribute the disappearance of fish to the effluent run-offs from the hotel and golf course, which led to increased algal growth in the area, killing corals and decimating customary fishing grounds (Hall & Page, 1996). In 1996, the resort built a concrete causeway to link the hotel to the sandbar, which they had turned into a man-made island. This, according to the chairman of their conservation committee, heavily restricted the natural tidal flows within the area and led to the observed decrease in fish numbers, increased volume of sargasm (seaweed often associated with high nutrient levels) and loss of migratory baitfish (Jennings, 2004). Villagers observed that fish had moved to deeper waters, rendering traditional hand-thrown spears and traditional casting nets obsolete. This prompted people to adapt to new technologies such as gillnetting and freediving; using spear guns and night diving techniques. As a result, the younger men grew unaccustomed to the craft of traditional fishing. Key participants mention that over time, fewer and fewer people went out to fish, and for those who were fishing, predominantly modern approaches were used. Participants recall that they reduced farming and fishing because these activities "became chores", and were "getting too difficult", with the majority of households (82%) stating it is "easier to purchase fish and meat" using tourism-derived income (Lasso & Dahles, 2017; Movono et al., 2015). Involvement in tourism has continued to have a cascading effect on the interconnected elements within the community. The involvement has prompted people to constantly adapt to not only economically prospering from tourism but also forfeiting

Figure 5. Vatuolalai village here.
Source: Fiji Department of Lands, 2009.

invaluable cultural practices and techniques that may be particularly useful in reducing dependency on tourism.

Figure 5 triangulates participant accounts of changes and specific impacts that have occurred within the area over three decades. Figure 5 identifies specific siltation effects, the causeway and a man-made island, and supports cohort accounts related to the river impacts and reduced agricultural activities that are a result of the hotel development. Participants note that by the late 1990s, fulfilling traditional obligations had become a very costly affair because most of the food, mats, oil and crafts formerly produced by villagers had to be purchased because they had either lost the skills or had little time or opportunity to make traditional items (Bolabola, 1980; Chambers & Conway, 1992). Women were no longer weaving and producing traditional crafts and men were not planting or rearing enough livestock to fulfil obligations associated with death, birth and marriage. As a result, traditional obligations have become more of an economic exercise as villagers have to raise as much as AUD$5000 for a single wedding or funeral. Socio-ecological changes created through the resort have led to the emergence of a new cultural system that is increasingly dependent on monetary support, as opposed to locally sourced and locally produced food and cultural items (Gunderson & Holling, 2002). The majority of key participants indicate that the changes became too obvious for them to ignore in the 1990s. Marica, a pioneering female entrepreneur and auravedic spa operator, states: "We finally saw that we could lose everything and decided it was time to find ways to improve our situation, so we started to talk about it," spurring adaptive responses from within the community. Here, the current study reveals the reflexivity of the community, their awareness of specific changes and their conscious actions to "rescue" themselves from their situation. The dynamic responses and adaptive nature of Indigenous peoples are often left out of most academic narratives, yet are essential for better understanding the complexities involved in tourism development.

The 2000s: realisation, adaptivity and coming full circle

Following Fiji's third and fourth coups in 2000 and later in 2006, villagers witnessed and were imparted with an appreciation of the volatility of the tourism industry and vulnerability of their livelihoods situation. As their dependence on tourism and disengagement from traditional activities peaked in the late 1990s, Fiji was thrown into political turmoil following the May 2000 civilian takeover of government. This was the most stressful coup for tourism in Fiji, leading to a 25% decline in visitor numbers, and forcing the Naviti Resort to scale back its operations and lay off many hotel workers from the village (Harrison & Pratt, 2010). Participants were forced to return to the land and the ocean for sustenance, a process best described by Seveni, an assistant bar manager:

> When the coup happened, we were not too discouraged because we knew we have our land and fishing grounds to fall back on. However, when we returned to the village, we realized that we didn't even have any tools such as forks, spades knives, and fishing gear.

Their vulnerability and lack of livelihoods security were exposed by political perturbations and their experience with natural events (Coetzee et al., 2016). Having experienced also tidal surges in 2011 and Cyclones Kina and Bebe a few decades before, villagers were prompted to reflect on their livelihoods situations and lifestyles. Apete, a retired hotel worker, states that:

> by the late 1990s, it was clear to us that we were not planting the right crops at the right time, and we had lost touch with the land … after experiencing Cyclone Kina in 1992, we were left to rely on handouts from the government and hotel because we did not have enough yams or smoked fish, things our forefathers relied on during the cyclone season.

In essence, the experienced natural and political stresses provided realisation and appreciation of villagers' situation (Coetzee et al., 2016). Discussions that followed can be interpreted as internal feedback loops (Holling, 2001) within the system, raising questions about why and how they had "strayed from the lifestyles of their forefathers". These awareness-raising discussions were fuelled further by the high prevalence of diabetes, high blood pressure, heart disease and other lifestyle-related deaths that were occurring in their village during the 1990s (Bolabola, 1980). Participants reveal that towards the end of the last millennium, the community could not ignore the clear extent to which tourism impacted on their "lifestyles and health". Vatuolalai village recorded a total of 25 diabetics since 1991, of which 20 were former hotel workers. Beni, a diabetic and a retired hotel worker, attributes his condition to the "switch" made in adapting to the modern way of life. He states that "we were earning money, which allowed us to live a good life, which to us meant having the freedom and the means to eat 'good' food … however, only now do I realise that the better food was what our forefathers ate". By the late 1990s, villagers had reached a saturation point where they had established the cause and effect of changes occurring within their community. Through deep engagement with the cohort, respondents conveyed their awareness of various changes occurring around them, indicating their yearning for improvement.

Discussion and conclusions

The operationalisation of SLA and complex systems theory has provided sound theoretical support with which to carry out examinations within the tourism-related Indigenous Fijian community (Holland, 1992). By paying attention to how people live and utilise different types of assets, and how various livelihoods strategies and resources are connected has provided useful insights into the complex consequences of tourism development. This study is not without its limitations. The 120 days spent in the community has yielded rich information which can only be further enhanced if the study were to be conducted over a longer period of time. Using specifically tailored methods, this study acknowledged local contexts, culture, and belief systems that facilitated a greater depth of engagement with the cohort. Having a people-oriented research approach has provided unique access to the inner workings of an embedded community, allowing for the critical examination of tourism development regarding how people live (Folk et al., 2003; Shen et al., 2008). Complex systems theory complements

the SLA by drawing attention to the intricate and interconnected processes prevalent within the complex layers of an Indigenous Fijian community (Collier, 2015). This study adds value to the current SLA and CAS discourse by highlighting the longitudinal responses of a complex and adaptive system to a significant perturbation such as tourism development. Although not as sudden, or as abrupt as, for example, natural disasters, tourism development is profound in its ability to stimulate ecological changes and spur further cultural and societal impacts that hinder sustainability in the longer term. The literature on the environmental impacts of tourism developments is rich; so is the socio-economic impact of tourism – both negative and positive. However, very few studies have looked at the interrelationships between ecological and social change (Diedrich & Aswani, 2016; Liu & Lu, 2014). Therefore, the changes observed in this village are not necessarily directly linked to having a job in a hotel (although these are important too), but they are of an indirect nature in that the whole system of livelihoods, culture, traditions and identity changes. As indicated in the findings, these changes are profound and have never been analysed in this manner.

This research raises questions about the use of tourism as a tool by which long-term prosperity and sustainable development can be attained (Ayres, 2000; Harrison & Prasad, 2013; Rao, 2002). This study has shown that although resort-based opportunities were enthusiastically received by villagers, over time tourism replaced traditional livelihoods activities, along with the knowledge and skills that accompany them (Derrick, 1957; Ravuvu, 1987; Scott, 1970). The findings also indicate that tourism development occurring in one part of the system creates a plethora of ecological changes capable of disrupting the broader and highly embedded Indigenous Fijian sociocultural system (Holland, 2006; Holling, 2001). The current study has demonstrated that Indigenous Fijian communities are novel, complex social and ecological systems that are multifaceted, interrelated, and which affect each other (Collier, 2015). As shown in previous sections, over time, Indigenous Fijian communal systems are subject to multiple adaptive cycles to which people continually adjust to cope with the incremental development-related changes. This study provides valuable lessons for other tourism-related Indigenous communities in the Pacific who face similar challenges of trying to maintain their unique cultural identity while simultaneously pursuing economic development.

Despite the difficulties, villagers continued to evolve and adapt by making deliberate attempts to "rescue" their way of life and to improve their sociocultural conditions (Holling, 2001). Women increased their collective action, ventured into their small tourism businesses and diversified their interests to include livestock and fishing boats to gain more income (Movono & Dahles, 2017). The men and youths reinvigorated their involvement in community projects, strengthening special interest committees that oversaw development, conservation, education and health. Villagers collectively sought advice in their attempts to cope with the stresses of tourism, and in 2001, improved environmental custodianship through the Fiji Locally Managed Marine Areas Network. In 2002, a ban on all marine resource extraction was put in place for three years, after which an area of 1.6 hectares was established as a marine protected area. The lead author of this paper was also approached in 2009 by a concerned villager to consider exploring tourism impacts in their community, prompting initial research involvement and a long-term relationship with the community (Movono et al., 2015). Further, as a result of internal collective discussions, hotel workers started re-planting their individual gardens, rearing livestock and investing in alternative livelihoods sources to supplement tourism income. However, participants note that progress has been slow, stating that although the new millennium has given them an impetus to address the realities in which they live, they still feel trapped within the new SES shaped by tourism. Despite ushering in economic prosperity, long-term tourism involvement has replaced their totems, disturbed their natural resources, weakened the transference of traditional knowledge systems and altered the Fijian way of life.

More importantly, the current paper demonstrates that Indigenous communities are not mere spectators in tourism development, but are conscious and active participants who are aware of occurring changes and who deliberately adjust to cope with tourism-related stresses. Their reflexive nature is demonstrated in how they have consistently adapted to the many changes experienced through tourism involvement. Villagers have come full circle, from euphorically embracing tourism and adapting to new lifestyles to now seeking ways to preserve their way of life. Discussions raised in

previous sections question the definition and measurement of the accepted costs of tourism development and recommends that government policies focus on the often ignored, yet highly entrenched and locally valued, Indigenous systems. Tourism development policies in Fiji and the Pacific must expand the planning and development approaches to consider both communities and resorts as key parts of a geographically defined complex and adaptive, social and ecological system.

This attention to the complex nature of communities will allow for their situations and aspirations to be acknowledged and dynamic, and multi-levelled action taken to restore and re-establish lost elements of society or nature. This opens new opportunities for the resort to integrate local perspectives in planning and operations and to improve its overall custodianship role as the main driver of change within the system. This can lead to increased synergies between public policy, the resort and the community, thereby further improving consultation, harmonising interests, and taking specific collaborative actions to improve overall sustainability and resilience with the SES. There is hope yet in the people of Vatuolalai, who have great pride in their culture, traditions and identity. Despite experiencing loss similar to tourism-related communities in other parts of the world, the people of Vatuolalai are aware of their transition and custodianship roles and will continue to adapt and react to the increasingly complex challenges of the future. With cooperation and collaboration between key stakeholders, tourism development can be planned, designed and operated to ensure symbiosis and successful coexistence is established, thus allowing all elements within the system to thrive. Much yet remains to be done.

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Disclosure statement

Notes on contributors

Apisalome Movono has an undergraduate background in Marine Affairs and Tourism Studies, and gained his MA degree from the School of Tourism and Hospitality Management, The University of the South Pacific, where he also holds a position as an assistant lecturer. His master's thesis on tourism's social and economic impacts on Indigenous Fijian communities established his passion for examining issues that affect Indigenous Fijian communities. He is currently studying at Griffith University, where he is a PhD candidate with the Department of International Business and Asian Studies. His PhD research draws on postmodernist techniques and seeks to improve understanding about complex systems, resilience, sustainable livelihoods and tourism development amongst Indigenous Fijian communities. Apisalome is the co-founder of the Laucala Beach Sustainability Society which works in partnership with iTaukei Trust Fund Board, National Trust of Fiji and Fiji Museum in the restoration and protection of the Laucala Beach Ring-Ditch Fortification site.

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Appendix

Participant names (pseudonyms)	Age	Position within the community	Frequency of exchanges
Aminiasi	70	Village elder and former lay preacher Also worked in hotel construction	2
Eleni	67	Clan matriarch and handicraft operator Pioneering businesswoman Former hotel worker	2
Etonia	46	Former public servant Diploma & Bachelor's level Qualifications	3
Ana	62	Female entrepreneur and former hotel maid Long-serving hotel worker, among the first involved	3
Setaita	45	Methodist Deaconess	2
Ilimeleki	72	Clan leader and former hotel worker Also worked in hotel construction	4
Emori	32	Village chairman and technical trainer (Fiji National University)	4
Avitereki	69	Elder and longest serving village headman Former hotel worker, among the first to leave hotel work for service to the community as headman	5
Marica	56	Pioneering female entrepreneur and spa operator	2
Seveni	42	Assistant bar manager Multiple in-house training and bachelor-level education	4
Apete	65	Retired hotel worker Worked in various positions at the hotel, from groundsman to laundry	6
Beni	67	Diabetic and retired hotel worker	2
Mereoni	48	Front desk manager Diploma-level qualifications	3
Emeri	45	Hotel worker (Laundry) Former tradesman	4
Selestino	57	Tradesman and local contractor Previously employed by the resort, now running own business	5