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from an indigenous Pacific Islands perspective**

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1 **Conceptualizing Vulnerability and Adaptive Capacity of Tourism from an**
2 **Indigenous Pacific Islands Perspective**

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18 **Abstract**

19
20 Many tourism businesses are highly dependent on weather and climate. This makes
21 dependence on tourism both an asset and a risk especially in regions, such as tropical
22 Pacific Islands, which have been classified as climate change hotspots. This chapter
23 looks at some of the emerging alternative approaches in knowledge management,
24 tourism governance and policy that are based on indigenous systems, as an attempt to
25 increase the resilience of the tourism sector and the socio-ecological environment it
26 depends on. We do this by investigating two central concepts of resilience theory -
27 vulnerability and adaptive capacity, from an indigenous Pacific islands perspective.

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Introduction

Climate is one of the most decisive attraction and risk factors for the tourism industry as a whole (Scott & Lemieux, 2010) and weather is often the driving factor in tourism decision-making. Climate change will have significant impacts on destination choice as parameters change, for example, with respect to visitor comfort in terms of increased heat stress due to increased temperatures (Matzarakis, 2006), and changing seasonality with impacts on the potential range of available leisure activities (Yu, G., Schwartz, Z., & Walsh, 2009). Further, increases in the number of extreme weather events have the potential to alter tourists’ perceptions of ‘safe’ destinations, leading to a decrease in tourism arrivals for some areas (Jeuring & Becken, 2013), while extreme events can damage ecosystems that tourism depends on such as coral reefs (Nalau, Becken and Schliephack, 2017a; WMO, UNEP & UNWTO, 2008). Changes in weather and climatic conditions such as longer warm seasons can however also open up new areas and opportunities for tourism (Johnston, Stewart, Dawson, & Lemelin, 2012; Uyarra, Cote, Gill, Tinch, Viner & Watkinson, 2005). With such changes, the tourism industry at large is facing a somewhat uncertain operational environment within which they have to operate now and in the future. This means that the sector overall needs to plan and take into account changing environmental conditions and increase its resilience by investing in strategies, which enable it to continue to flourish including actions around climate change adaptation.

Tourism businesses especially in tropical island destinations are highly dependent on weather and climate. In the Pacific Small Island Developing States (PSIDS), tourism is the only economic sector to grow relatively consistently over recent years. In 2012 the sector peaked at 1.77 million international arrivals and, after a set back in 2013 due to severe tropical cyclones, rebounded in 2014 to 1.69 million arrivals (South Pacific Tourism Organisation n.d.). Sustainable tourism can be defined as ‘achieving quality growth in a manner that does not deplete the natural and built environments and preserves the culture, history and heritage of the local community’ (Edgell, Allen, Smith, & Swanson, 2008, p. 183).

Yet, SIDS are simultaneously highly vulnerable to climate change impacts including increases in extreme events, sea level rise, salt water intrusion, increases in

66 temperature, and subsequent land loss and inhabitability of islands (Nurse et al.,
67 2014). The unique characteristics of SIDS further increase their vulnerability as they
68 often include a large number of remote low-lying islands, rural-urban migration, high
69 population growth rates, and high dependency on external economic inputs including
70 remittances, international trade, and development aid (Hay, Forbes, & Mimura, 2013;
71 Kuruppu & Willie, 2015). Yet, tourism in the context of PSIDS occurs as part of other
72 social, political, economic, cultural and historical processes. Hence, to understand the
73 vulnerability of tourism in an indigenous Pacific Island context, governance bodies
74 need to pay attention to these contextual processes while simultaneously considering
75 the nature of place-based attractions in a broader sustainability setting.

76

77 Although much has been written about potential impacts of weather and climate
78 change (Aylen, Albertson, & Cavan, 2014; Dubois, Ceron, Gössling, & Hall, 2016;
79 Gössling, Scott, Hall, Ceron & Dubois, 2012; Lise & Tol, 2002; Rauken, Kelman,
80 Steen Jacobsen & Hovelsrud, 2010; Rosselló & Santana-Gallego, 2014), a gap
81 persists in assessing and examining tourism sector vulnerability and governance
82 within an indigenous context. This chapter examines some of the emerging alternative
83 approaches in tourism governance and policy that are based on indigenous
84 governance as an attempt to increase the resilience of the tourism sector and the socio-
85 ecological system it depends on. It aims to characterize vulnerability and adaptive
86 capacity to climate change - two central concepts of resilience theory - from an
87 indigenous perspective rather than from a purely economic sector-specific
88 perspective. Further, we provide a conceptual model that integrates indigenous
89 governance and knowledge structures and values for a more resilient and inclusive
90 tourism governance while using a Fijian context as a case study to demonstrate the
91 potential use of the framework.

92

93 Following this introduction, the next section summarises some of the main debates
94 regarding concepts such as climate adaptation, vulnerability, adaptive capacity, and
95 resilience. The third section introduces conceptual frameworks for knowledge and
96 governance integration for increased tourism resilience and adaptive capacity from the
97 Pacific Islands perspective, including a Fijian case study. To conclude the chapter, the
98 fourth section discusses some of the implications of the framework and draws some
99 recommendations for further research and policy considerations.

100

101 **Defining concepts in the context of tourism resilience**

102

103 The main concepts used to assess, describe and examine the ways particular sectors
104 are impacted by and can respond to climate change and sustainability issues are those
105 of vulnerability, resilience, adaptation, and adaptive capacity. Vulnerability, resilience
106 and adaptation in particular each have their own scientific communities and at times
107 pursue research in isolation from each other (Schipper & Burton, 2009). While, for
108 example, the Intergovernmental Panel on Climate Change (IPCC)'s Assessment
109 reports have aimed to provide more defined understandings of these key terms,
110 variety still exists in how they are approached and used in practice (Levina & Tirpak,
111 2006). In this section, we demonstrate some of this variety and pinpoint the need to be
112 clear what terms are used and how.

113

114 Vulnerability can be generally understood as the sum of interacting factors and
115 processes, which either strengthen or decrease a community's, individual's or
116 institution's capacity to respond to climate change. Yet, Ensor and Berger (2009) note
117 that vulnerability is often researched from different angles, which stem from a focus
118 on vulnerability reduction, resilience strengthening or ways to build adaptive capacity.
119 Authors also make a difference between start point versus end point vulnerability.
120 Those focused on end point vulnerability try to measure how effective a particular
121 adaptation option is in reducing negative impacts arising from a particular hazard
122 event (Ensor & Berger, 2009). Those focusing on start point vulnerability begin by
123 trying to understand which factors are currently responsible for increasing
124 vulnerability of communities. The start point vulnerability view underlines the
125 perception that we cannot understand adaptation processes without first understanding
126 the current context (Burton, 2009). Others, such as Warrick, Aalbersberg, Dumaru,
127 McNaught & Teperman (2011), define end-point vulnerability as biophysical and
128 start-point as social vulnerability, whereas Preston and Stafford-Smith (2009) in turn
129 make a distinction between whether vulnerability is the sum of climate-society
130 interaction or whether vulnerability emerges in the end due to current system
131 structure.

132

133 Resilience, just like vulnerability, is another concept, which is often understood and
134 used differently across disciplines, including in tourism (e.g. Becken, 2013; Espiner &
135 Becken, 2014). In a seminal paper on vulnerability, Nelson, Adger and Brown, (2007,
136 p. 396) define resilience as, ‘the amount of change a system can undergo and still
137 retain the same function and structure while maintaining options to develop’. A richer
138 understanding of adaptation, Nelson et al. (2007) argue, is to approach it through a
139 resilience framework. This is because socio-ecological system perspectives have the
140 ability to increase our understanding and conceptualisation of change. Moench (2009,
141 p. 257) in turn defines systems resilience as “the ability to adjust to shocks and
142 variability without fundamental changes in overall system structure”. In this view,
143 resilience is used to maintain current structures rather than transforming them.

144

145 Handmer and Dovers (2009) take a different approach and use a resilience typology to
146 examine three different dimensions of resilience, which drive the way institutions
147 respond to risks. The typology, further refined for climate change by Nalau and
148 Handmer (2015), shows clearly the boundaries of action, which each type of
149 management approach to resilience brings forth. Type I typifies a change resisting
150 approach that denies the existence of risk, and is focused on enabling the business-as-
151 usual management type to flourish. Type II is more accommodating of change, but
152 only in the margins: risks are acknowledged but there is no perceived need for large-
153 scale changes in management approaches. Type III in turn acknowledges risks, and is
154 focused on making changes in the structures of the system in order to fare better
155 through increased flexibility. In the climate change and sustainability context, the
156 three types of resilience differ in whether they deny climate change (Type I), accept it
157 and make some changes (Type II), or accept climate change as a significant driver and
158 adjust operations accordingly (Type III) (Nalau and Handmer, 2015).

159

160 The typology is tied to the notion of adaptive capacity, which is another core concept
161 in the adaptation literature. Adaptive capacity can be described as “the property of a
162 system to adjust its characteristics or behaviour, in order to expand its coping range
163 under existing climate variability, or future climate conditions” (Lim et al., 2005, p.
164 36). Here again several authors provide different approaches that one might take to
165 research adaptive capacity: one could focus on specific adaptive activity (sector-

166 specific adaptation approaches e.g. sea level rise planning) or generic adaptive
167 capacity (macro-scale improvements in education, health) (Handmer, 2009, p. 214).
168
169 Grasso (2010) in turn makes a distinction between end-point and starting-point
170 adaptive capacity: starting-point adaptive capacity describes the current factors, which
171 explain system’s ability to adapt, whereas end-point adaptive capacity is seen as the
172 sum of technological adaptations to future climate impacts. Adaptive capacity centred
173 on present-day vulnerability is “the set of resources available for adaptation, as well
174 as the capacity to use these resources for effective adaptations” (Grasso, 2010, p. 23).
175 Fresque-Baxter and Armitage (2012) also differentiate between subjective adaptive
176 capacity (people’s risk perceptions, perceived capacity to adapt) and objective
177 adaptive capacity (assets, political support, human resources). The psychological
178 dimensions relating to perceived adaptive capacity have also been recognised in
179 tourism related research (Becken et al., 2013; Shakeela & Becken, 2015).

180

181 This short introduction to some of the key concepts has hopefully shown that the way
182 adaptation or vulnerability or resilience are framed has a direct impact on the way
183 research and policy processes get done and what are identified as priority outcomes
184 (Levina & Tirpak, 2006; Nalau & Handmer, 2015). Yet, many of these concepts have
185 been criticised as being Western-oriented and based upon predominantly Western
186 knowledge and historical conceptual constructions. This also relates to knowledge
187 construction processes where indigenous knowledge and experiences are bypassed
188 and not accounted for (Ford, Cameron, Rubis, Maillet, Nakashima, Willox & Pearce,
189 2016; Parsons & Nalau, 2016; Parsons, Nalau & Fisher, 2017). Next, we focus on
190 examining several conceptual frameworks, which aim to situate these concepts more
191 closely in the Pacific Island tourism context.

192 **Conceptual Frameworks**

193

194 In this section, we explore what a indigenous governance approach in a PSIDS
195 context could mean for a resilient tourism sector and its ability to adapt to change.
196 Many tourism destinations in SIDS are heavily reliant on particular landscapes and
197 ecosystems, such as beaches and coral reefs, which are often under customary

198 governance systems to begin with. This means that, in actual fact, the destination
199 features might not be governed by the private sector but through a broad array of
200 actors who need to cooperate in order to maintain the viability of the sector and its
201 activities (Nalau et al., 2017a).

202

203 In the Pacific, traditional calendars and the way people understand and conceptualise
204 time are based on values, which renders landscapes and the environment into
205 something more than mere biophysical contexts (Mondragon, 2014). In essence, local
206 knowledge is not just about the environment but it also relates to knowledge about the
207 social and political contexts within which people live (Lebel, 2013). The time frames
208 among indigenous communities can be quite different compared with those used by
209 Western scientists and evident in prevailing worldviews (Climate Traditional
210 Knowledge Working Group, 2014). These differences need to be considered in
211 adaptation and resilience planning from the outset.

212

213 Indeed, Kuruppu and Willie (2015) note that one of the main cultural barriers in
214 climate adaptation is the lack of attention paid to traditional knowledge (TK) and the
215 role that different ceremonies and cultural ‘ways of being’ contribute to how
216 communities respond to environmental change. Hence, it is conceivable that “the
217 trend in declining traditional knowledge is a barrier to adaptive capacity of
218 communities” (Kuruppu & Willie, 2015, p. 78). Next, we examine two frameworks,
219 which have been suggested to tie the concepts of vulnerability, resilience and adaptive
220 capacity closer to the Pacific context.

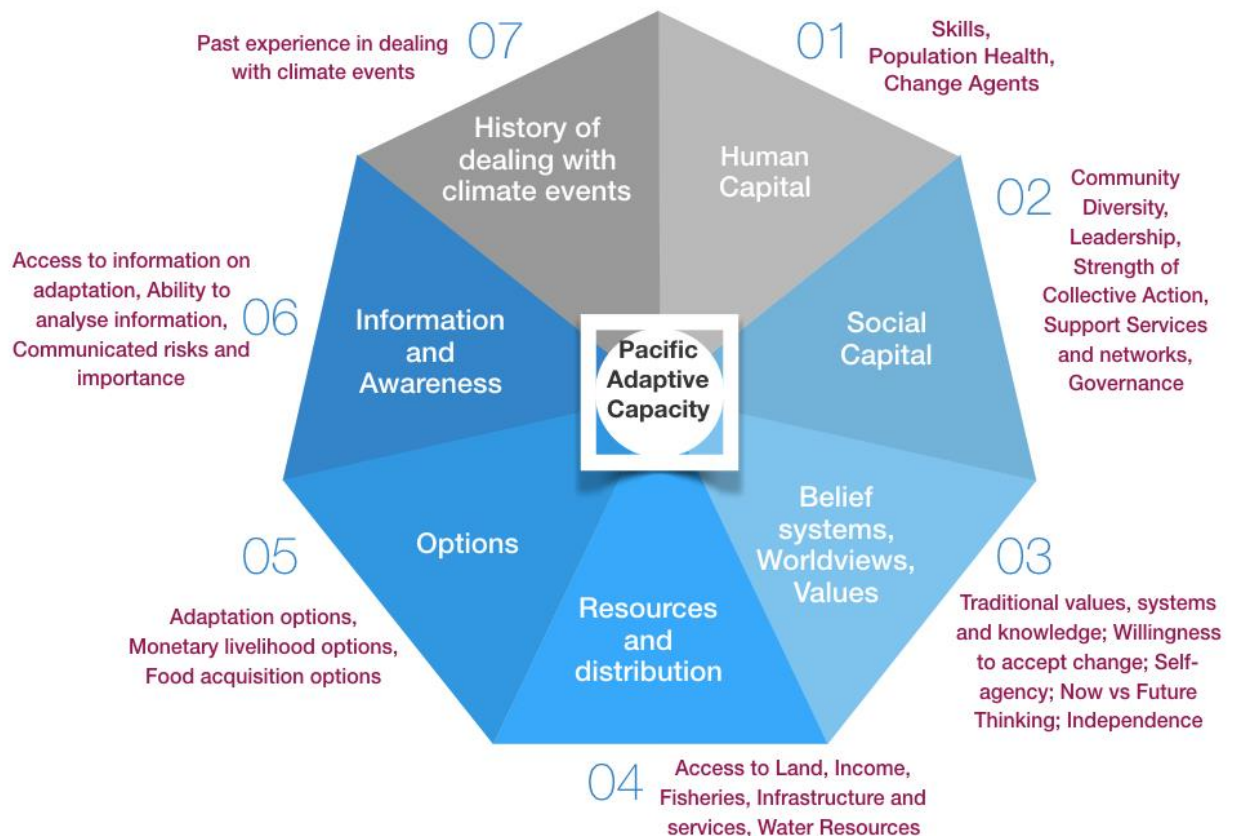
221

222 *The Pacific Adaptive Capacity Assessment Framework*

223

224 The roles of traditional knowledge and governance systems play a part in a recent
225 initiative to contextualise adaptive capacity in the Pacific context, the Pacific
226 Adaptive Capacity Assessment Framework (Warrick et al., 2017). The Framework
227 builds upon seven main principles (Figure 1). It seeks to establish some form of
228 guideline to delineate what adaptive capacity consists of in the Pacific context, with
229 the aim that eventually the framework could be used to assess and measure such
230 capacity in any given community. From a tourism governance perspective, Social
231 Capital (2), Belief systems, Worldviews and Values (3) and Resources and

232 Distribution (4) are important aspects of analysing the decision-making processes and
 233 the extent that a community is able to utilise the available resources. In this section,
 234 we analyse the framework based on our experience working in the Pacific and
 235 relevant literature.
 236



237
 238
 239 *Figure 1. Warrick et al.'s Pacific Adaptive Capacity Assessment Framework (Adapted*
 240 *from Warrick et al., 2017).*
 241

242
 243 Social Capital (Capacity 2) is an important part of adaptive capacity as the social
 244 networks and relationships partly determine what is possible in a particular context.
 245 This relates also to governance and decision-making processes within a community,
 246 who has a say in how particular decisions are made, and how the community as a
 247 whole then functions based on these relationships and governance arrangements.
 248 However, here it should be added that, in cases where family members have migrated
 249 overseas like New Zealand or Australia, many Pacific communities of place including

250 indigenous tourism operators have also social networks in other countries (Brown,
251 2015). What this means in terms of adaptive capacity and social capital, and relatedly
252 to Resources and distribution (Capacity 4), is that solely measuring a community's
253 capacity on the basis of geographical place (e.g. particular village on a particular
254 island in Fiji or Samoa) will not tell us the complete story. For example, in Samoa, a
255 major difference in how communities and indigenous tourism operators can cope with
256 extreme events lies in the extent of remittances coming from overseas (Brown, 2015;
257 Brown, Parsons, Nalau and Fisher, in press). The extended family, even if overseas,
258 also has a say in decision-making back in the villages and communities, and on
259 decisions on tourism operations and investments (Brown, 2015).

260

261 The framework does recognize the role of traditional knowledge and skills as part of
262 adaptive capacity (Capacity 3). Yet, the Pacific region itself is a dynamic and
263 historically adaptable context where missionaries, merchants, and Pacific peoples
264 themselves have continuously reinvented and reshaped what we see as 'the Pacific'.
265 Hence, the context in which climate change adaptation proceeds in the region is not
266 static, but builds on rich historical, political, and cultural roots that continue to evolve
267 over time. This means that approaches to manage change, including climate change
268 adaptation, need to understand specific types of Traditional Knowledge (TK) in the
269 contexts where adaptation options are being discussed and developed (CTKW, 2014).
270 TK is not however static and the changing environmental contexts also impact its
271 accuracy, for example, changing climate can impact weather indicator species (e.g.
272 movement of particular birds before extreme events, or flowering of plants) (Chand et
273 al., 2014).

274

275 Many Pacific communities have also increasingly developed a wider variety of social
276 networks beyond their place of living, and hence it can be rare to find communities
277 nowadays where TK is the only source of information. An important aspect therefore
278 is to understand the kind of information people use to make decisions and where the
279 information is sourced from (Nalau, Becken, Mackey & Noakes, 2017b; Nalau,
280 Handmer & Dalesa, 2017c). Understanding the variety of knowledge sources in use
281 becomes highly relevant for the tourism sector, in particular when there is a change
282 towards more extreme weather events that have the potential to seriously undermine
283 sustainable development. Understanding and further developing information sources

284 is also important, as these determine whether and how people are being able to
285 prepare for extreme event and recover from their impacts (Nalau et al., 2017b).
286
287 Traditional Indigenous knowledge is much more than just ecological knowledge about
288 the weather and natural resource management as it also speaks to a holistic way of
289 living, which connects the community to its environment in a profound spiritual
290 manner (Parsons et al., 2016, 2017). Indigenous social systems are highly embedded
291 and comprised of complex, interconnected relationships to which indigenous
292 knowledge plays a key role in maintaining the functions and longevity of indigenous
293 systems. Indigenous knowledge, particularly in the Fijian context, is an integral part
294 of everyday life and is not confined to specific rituals and traditions. Instead, it
295 informs and facilitates all aspects of survival, which is often attached to sustaining life
296 in a given geographical setting. As such, indigenous knowledge pertaining to social
297 relations, environmental custodianship, governance and political systems are all part
298 of a larger social and ecological order of a particular community. Those working with
299 indigenous contexts therefore need to consider this broader cultural context and the
300 range of beliefs and values held by communities, and the historical trajectories of
301 power relationships (Parsons et al., 2017; Parsons & Nalau, 2016). All of these
302 aspects have ramifications on how tourism operations can be governed and the
303 perceptions around concepts such as a ‘resilient tourism sector’.

304
305 While the framework is very useful in providing specific examples of the kinds of
306 capacities that could be measured in the Pacific Islands context, it is largely silent on
307 issues such as gender. This is somewhat surprising given that women still largely
308 carry most of the workload and they often have highly differential access to, for
309 example, information and decision-making processes, and also the social ability to
310 participate in tourism. Men usually control these positions and hence this is
311 increasingly an important issue to consider in the region. However, this is slowly
312 changing. Particularly in tourism related communities in Fiji where women are
313 becoming more prominent in their communities because of their entrepreneurial
314 success and economic independence gained through tourism (Movono & Dahles,
315 2017).

316

317 The focus of the Pacific Adaptive Capacity Framework is at the communal level but
318 we suggest that it would also benefit from an indicator for environmental quality of
319 the resources that the community relies on. Given that the quality of the environment
320 in a destination is often the main basis for developing and marketing an attraction
321 (Edgell et al., 2008), this should be included in any assessment of adaptive capacity
322 and resilience. In coastal areas, such an indicator could for example rank destination
323 quality in terms of health of coral reefs, area of undisturbed environment (e.g. intact
324 forest areas), fresh fish abundance/availability and similar environmental qualities. In
325 this way, assessing adaptive capacity of the community and destination would include
326 both the social and ecological systems in the assessment. Next, we explore in more
327 detail a Fijian model, which seeks to combine all of these factors.

328

329 *Vanua Social and Ecological Systems and Resilience Model*

330

331 The term vanua refers to a sacred overarching structure which unifies multiple and
332 interdependent components under a single, internally and externally acknowledged
333 communal unit (Ravuvu, 1983). Seminal Fijian scholars have described the Vanua as
334 having physical (land, sea, air), social (customs, people, religion), economic
335 (employment, politics, wealth), and ecological (animals, birds, marine life)
336 components which are interrelated (Ravuvu, 1983; Nayacakalou, 1975). It is therefore
337 essential that from the outset, studies that examine resilience and adaptivity within a
338 community setting must employ research methodologies and approaches that are
339 suited to the complex nature of indigenous society (Movono & Dahles, 2017). The
340 apparent restricted use of post-modernist techniques in Pacific community research
341 has resulted in a body of knowledge that has fallen short of adequately delayering
342 communities and understanding the complex embedded social and ecological
343 constructs that influence vulnerabilities and adaptive capacities.

344

345 Research practice must also consider localized research paradigms and lean on the
346 knowledge and experience of indigenous researchers to complement the largely
347 western body of literature (Nabobo-Baba, 2008). In this inclusive way, indigenous
348 people are better placed at the center of research ensuring that empirical pursuits are
349 tailored specifically to match the context of a particular community. This then allows
350 for concepts such as adaptive capacity and vulnerabilities to be researched in terms of

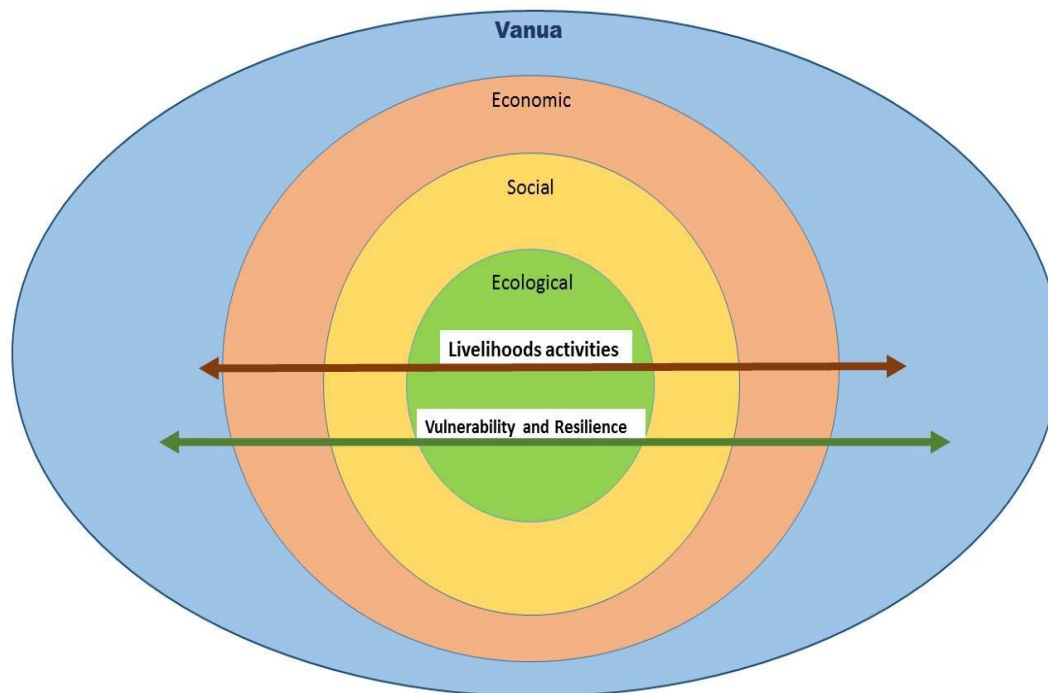
351 indigenous ideologies, traditions, and social processes (Gallopín, 2006). Having an
352 indigenous approach to research methodology further paves the way for
353 understanding how traditional knowledge is linked to custodianship roles and daily
354 practices, thus providing attention to how people live. Employing a comprehensive,
355 bottom-up research approach has significant implications for understanding localized
356 manifestations of the various processes, relationships and governance structures
357 within indigenous communities. Immersion, the inclusion of indigenous methodology
358 and local expertise opens doors for the adequate delayering of community constructs,
359 focussing on the intricate issues relating to gender, minority groups and communal
360 dynamics that would otherwise be overlooked (Movono, Dahles & Becken, 2017).

361

362 Recent studies conducted in a tourism-related community in Fiji (Movono, 2017),
363 have shown that communities are complex, social and ecological systems (SES) that
364 have multiple elements embedded within what would normally be considered as a
365 homogeneous village. Employing Holling's (2001) SES constructs, Movono (2017)
366 using indigenous methodology, draws attention to the links between culture,
367 livelihoods activities and their influence on the overall resilience of Fijian
368 communities involved in tourism. Movono's findings show that the introduction of
369 the tourism system at the livelihood level has created socio-cultural and economic
370 shifts within other system elements affecting levels of community resilience.

371

372 In his study of tourism in the Coral Coast of Fiji, Movono (2017) links the
373 construction of the Naviti Resort to the replacement of pre-existing ecological
374 resources and specific livelihoods practices attached to those resources. He argues that
375 the construction of resorts on communally owned land replaces specific trees, nesting
376 grounds and ecosystems, which have certain cultural and spiritual significance to
377 locals. The replacement of natural resources with the physical resort structure replaces
378 specific totems and the customs, traditions and livelihoods activities and traditional
379 knowledge attached to those resources (Movono, 2017). With these change processes,
380 resilience is affected due to reduced diversity of knowledge and livelihoods activities,
381 which may now be centrally focussed on the new tourism system. His findings have
382 provided an empirical basis for the use of the Vanua Social-Ecological Systems and
383 Resilience model (Figure 2) as a means to conceptualize a tourism destination
384 community as a system.



386

387 Figure 2. Vanua Social and Ecological Systems and Resilience Model

388 (Movono, 2017, p.293).

389

390 The Vanua Social and Ecological Systems and Resilience Model shows that a
 391 community consists of multiple systems or elements that influence how people in a
 392 Fijian community typically live. Within one community, there are many elements and
 393 institutions ranging from the church to communal land, each element simultaneously
 394 interacting (and being manipulated/managed) at multiple levels in order to meet an
 395 objective of villagers. Whether it be an economic push to raise funds for a church
 396 event, or a presentation of food, mats, and money as contributions for a village
 397 members funeral, the elements within the Vanua are ‘mobilized’ to meet their short-
 398 term and long-term needs. These embedded elements of a Vanua are often out of view
 399 from outsiders and their importance as building blocks to successful resilient
 400 communal development in the Pacific is often misunderstood.

401

402 Like other indigenous communities in the Pacific, Fijians have legally and
 403 customarily recognized social processes and political structures that not only reflect
 404 traditional patterns of social organization but also indicate the interdependence
 405 between humans and the biosphere (Movono, 2017). The Vanua SES and Resilience
 406 Model provides a pathway for communities to be examined holistically and various

407 levels of investigation can also be conducted in terms of both starting point adaptive
408 capacity and end point adaptive capacity. This is possible because the ecological and
409 social aspects of adaptive capacity are considered within an appropriately defined
410 complex adaptive system, having locally acknowledged social, ecological and
411 economic components (Holland, 2006). In this case, the Vanua Social and
412 Ecological Systems and Resilience Model shows the multiple layers within the
413 community and provides pathways where a community can be examined in terms of
414 women's empowerment, social capital, social and ecological change, vulnerabilities
415 and resilience.

416

417 Using ethnographic techniques based on immersion and in-depth engagement with the
418 cohort, Movono (2017) was able to weave himself into the community and uncover
419 the various components within the community. These components and their
420 interconnectivity were identified and meticulously examined through genuine
421 engagement with the cohort, deep immersion, participation in daily life, relationship
422 building and gaining the trust and confidence of community members. Trust and the
423 respect of participants was critical in yielding rich information from conversational
424 interviews. The level of immersion facilitated understanding about how certain socio-
425 cultural and ecological elements are dependent on one another and are linked through
426 the wide combinations of livelihood activities employed by community members to
427 sustain life. The various resource utilization combinations and options selected by
428 community members, in turn, affects levels of vulnerability and resilience and its
429 examination is therefore essential if adaptive capacity is to be determined.

430

431 The Vanua SES and Resilience Model also capture the transitional and complex
432 nature of indigenous communities. It holistically pays attention to the different
433 elements (social, economic, ecological) and actors in the community, from the
434 influential leaders to the most marginalized in the community as part of an
435 interconnected system. This holistic approach provides a clearer picture of resource
436 implications, political structures and the strengths and weaknesses of the system in
437 terms of resilience (Gallopín, 2006; Holland, 2006). In essence, managing resilience
438 is facilitated by assessing human interaction with each other and the biosphere and
439 provides a focus on the elements of a system that need to be strengthened in order to
440 increase adaptive capacity (Holling, 2001). For instance, after experiencing 40 years

441 of tourism, people in the Coral Coast of Fiji are now turning back to their traditional
442 skills, reverting to fishing and farming in order to lessen their reliance on tourism
443 income. This turn of livelihood approaches demonstrates reflexivity and growing
444 local awareness of changes in and around the community. Researching these
445 processes in indigenous communities highlights the adaptive nature of their systems,
446 and ultimately a sense of managing resilience.

447

448 Indigenous society is highly reflexive, and its non-homogenous components have the
449 potential to self-organize as it adjusts to the initial disturbances brought about by
450 tourism. As such, a holistic approach to research is imperative to understanding the
451 dynamic and fluid nature of indigenous people as they respond to tourism-related
452 change. More importantly, Movono (2017) acknowledges that tourism itself may not
453 lead to a loss of resilience. The indigenous community's resilience can be reduced by
454 the diminishing attention to traditional values and indigenous knowledge over the
455 long term, but this situation could be mitigated through cultural preservation,
456 increased awareness and retention of traditional livelihoods activities, and might be
457 recoverable with proper restoration and reinvigoration of traditions and customs
458 (Movono, 2017). Micro-level influences such as tourism employment can stimulate
459 profound changes and adjustments in the overall system, leading to both increasing
460 wealth and affluence but also leading to a decline in traditional activities which can be
461 detrimental to food security and traditional indigenous knowledge. Therefore, with a
462 tailored approach to research, indigenous communities must be examined as complex
463 adaptive systems as opposed to being regarded as homogeneous and mere spectators
464 in the tourism development process.

465

466 **Discussion and Conclusion**

467

468 In this chapter we have examined different concepts related to social and
469 environmental changes such as adaptive capacity (Ensor & Berger, 2009; Warrick,
470 2011), resilience (Handmer and Dovers, 2009; Nalau & Handmer, 2015) and
471 vulnerability (Nelson et al., 2007) and how they could be situated better in a regional
472 context such as the Pacific. We have also presented examples from the Pacific region

473 where several recent frameworks (Movono, 2017; Warrick et al., 2017) were used to
474 situate such concepts into a more culturally differentiated context that makes these
475 more relevant within the region. Such frameworks are well placed to provide
476 alternative approaches to understand how tourism is governed, the extent of adaptive
477 capacity in tourism systems, and the way associated policies are developed in
478 indigenous contexts.

479

480 These frameworks may also help to move from a perspective that indigenous
481 communities are ‘impacted’ upon by tourism, to one where locals are seen as active
482 agents who are an essential part of forming their own future (Movono et al., 2017).
483 For example, the Vanua Social Ecological Systems and Resilience model starts with a
484 focus on culture and its links to livelihoods and examines how these interact with
485 tourism activities and the tourism sector overall (Movono, 2017). Using the
486 framework to understand historic development and the status quo then helps towards
487 transitioning from a less-than-perfect system to one that integrates tourism as one of
488 several sustainable livelihoods that are embedded within the socio-cultural context of
489 local communities. Particular attention needs to be paid to how natural resources are
490 governed, how (and by whom) decisions are made, where investment flows are
491 coming from, and who the beneficiaries are. These types of analyses then help
492 determine the extent that international tourism is boosting or decreasing communities’
493 adaptive capacities in a particular locale (Movono and Dahles, 2017).

494

495 In the Pacific Islands context, governance is a very diverse concept given that there
496 are several stakeholder groups who can claim ownership of particular assets and
497 landscapes (Brown et al., in press). For tourism resilience and governance this means
498 that while a resort might physically reside in a particular location and own activities
499 within the resort area, the perceived ownership of the land still often remains with
500 indigenous communities regardless of signing of land sale documentation with the
501 resort owner (Brown, 2015). Hence, when considering what makes a Pacific Island
502 destination resilient, one cannot consider such concepts as ‘adaptive capacity’ or
503 ‘vulnerability’ without truly understanding the myriad social networks and groups,
504 which all inhabit the same physical space (Brown et al., in press; Movono, 2017). As
505 such, a consideration of indigenous communities as complex adaptive systems and
506 their appropriate examination becomes relevant. Ultimately, it also raises the question

507 of what exactly is encapsulated in the notion of ‘resilient tourism’ – the tourism assets
508 and key stakeholders (e.g. hotels) or the wider communities and environments in
509 which they operate in and depend on.

510

511 International tourism is now, even more than before, a complex phenomenon given
512 that it relies on international aviation and other forms of resource consumption to
513 bring the consumers to the attractions. This is in particular problematic in Pacific
514 Island Nations, such as Fiji, Vanuatu, and Samoa, where a growing informal sector is
515 relying on international tourism arrivals. Yet, as has been seen with Cyclone Pam in
516 Vanuatu in 2015, extreme events can bring the whole industry to a shutdown due to
517 one single event, with long-term consequences to destination image and recovery of
518 the sector (Nalau et al., 2017c). In a climate change context, this means that
519 destination resilience is a combination of the efforts in the formal and informal sectors
520 to understand the risks that are impacting tourism (Becken, 2013). Product
521 diversification can increase the resilience of the sector in particular in places where
522 other impacts, such as coral bleaching, can eventually make some sites unviable for
523 particular types of tourism.

524

525 Vulnerability of tourism infrastructure also needs to be considered given the projected
526 impacts of climate change (Nalau et al., 2017a; Shakeela and Becken, 2013). In the
527 Pacific, as in many island destinations, much of this infrastructure has been built
528 directly on the beach or adjacent to beaches. Although hard infrastructure solutions,
529 such as seawalls, remain popular quick solutions to such issues as coastal erosion,
530 storm surge and flooding in the tourism sector, there are emerging alternative options,
531 such as ecosystem-based adaptation (EbA) strategies. EbA focuses on using
532 ecosystems in helping communities to adapt to climate change (Munang et al., 2013),
533 such as using coastal forest buffer zones and re-vegetation to protect hotel
534 infrastructure and coastal villages (Mustelin et al., 2010). Such approaches are seen as
535 increasing the resilience and adaptive capacity of both ecosystems and humans, and
536 they can also increase the aesthetics while providing storm protection and increase
537 sand retention on the beach. A resilient tourism governance is likely to combine a
538 diversity of options and stakeholders in the management of adverse impacts in a
539 manner, which secures business continuity and distribution of benefits (Movono,
540 2017; Movono and Dahles, 2017).

541

542 There are also global frameworks, such as the Global Sustainable Tourism Dashboard
543 (<http://tourismdashboard.org>), which could be scaled to a regional, country and
544 community levels and enable a better understanding and tracking of the sustainability
545 of the tourism sector on the ground. This could be helpful for decision-makers and
546 policymakers to start building a better understanding of the sustainability and
547 resilience of a tourism destination and the destination community. Granted, in the
548 Pacific context some of these indicators might have to be tailored to local indigenous
549 contexts, but with the existing work and refinement of frameworks, this will be an
550 excellent area of future research and policy work.

551

552

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