

2022

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Recommended Citation

Hussain, Asif and Haley, Marie (2022) "Regenerative Tourism Model: Challenges of Adapting Concepts from Natural Science to Tourism Industry," *Journal of Sustainability and Resilience*: Vol. 2 : Iss. 1 , Article 4.

Available at: <https://digitalcommons.usf.edu/jsr/vol2/iss1/4>

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Publisher's Note: Journal of Sustainability and Resilience (JSR) (ISSN:2744-3620) is published bi-annually by the Sustainability and Resilience Institute (SRI) of New Zealand. The opinions expressed in this paper are those of the authors and do not necessarily reflect the official policy of SRI. SRI remains neutral about jurisdictional claims in published maps and institutional affiliations.

Regenerative Tourism Model: Challenges of Adapting Concepts from Natural Science to Tourism Industry

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Received: 31/12/2021

Revised: 15/01/2022

Accepted: 21/01/2022

Published: 14/02/2022

Abstract: The study proposes a regenerative tourism model. The application of the natural science ideas of regeneration needs to be clarified before the tourism industry can adopt a regenerative tourism model. Without such clarification, there is a high risk of ‘green washing’ and inappropriate adaption of a regenerative model. The borrowing of natural science to industry and its application in social sciences confuse the essence of the true concept of regeneration. In a regenerative agriculture context restoring a holistic system that mimics nature and includes social and economic spheres contributes to improving the whole system. When a social system aims to mimic nature, it needs to incorporate all elements holistically: inputs, outputs and positive and negative externalities. Tourism is a complex and multifaceted industry in nature it requires a self-organisation characteristic that transforms the evolutionary process of societal development. Therefore, it requires a dynamic model which embraces uncertainty, changing global trends and shocks and recommend policy options which are holistic and future proof. The proposed regenerative tourism models rely upon an open-minded exploration, and realistic impacts in the short, medium and long-term consequences on the tourism industry. Tourism by its very nature is an extractive industry. However, holistic decisions must recognise that all elements in natural systems are interconnected so as the tourism stakeholders. It is critical to pay attention to the indicators and characteristics of ‘regeneration’ as adopted by regenerative agriculture to apply them appropriately within the tourism context. This paper examines tourism as a partial-industrialised system using an adaptive cycle model as the key element of panarchy to explain a healthy social-ecological system. Based on this, a regenerative tourism model is drawn along with the indicators of regenerative tourism to measure the degree to which a tourism product is regenerative and sustainable.

Keywords: regenerative tourism model, adaptive cycle, Covid-19, panarchy, resilience, sustainability.

1. Introduction

The impacts of Covid-19 on tourism have been devastating. The strict restrictions on movement had significant impacts on the

global tourism industry (UNWTO, 2020a). Under these circumstances, individual travel confidence has declined (Cobanoglu, 2020; Hussain, 2021). The vulnerability of

the tourism industry has drawn attention to find ways to make the tourism industry resilient. In this regard, researchers are proposing regenerative tourism as an opportunity (Hussain, 2021; Hussain and Fusté-Forné, 2021a; Owen, 2007a, 2007b; Pollock, 2019) to mitigate the impacts of global shocks such as global pandemics (Hussain, 2021; Hussain and Fusté-Forné, 2021a). Some researchers argue that regenerative tourism can be seen as the evolution of sustainable tourism and the regenerative principles form the “root systems based on values, agreed rules, traditions and relationships” (Becken and Kaur, 2021, p.64)...[and] “providing an opportunity to manage tourism” (Becken and Kaur, 2021, p.62). However, it is pivotal to understand the basic factors which resulted in the linkages between natural and social sciences and the notion of borrowing terms such as ‘sustainability’ and ‘regenerative’ from natural sciences to social sciences, to avoid ‘green washing’ and lack of consumer trust.

2. Challenges of adapting concepts from natural science

2.1. The linkages between natural and social sciences

To understand the global linkages between natural and social sciences it is vital to understand the natural systems which comprise diverse and interacting elements. The integration of scientific disciplines was acknowledged by the International Geosphere-Biosphere Program (IGBP) at the International Geographical Year in 1957-1958. This acknowledgement formally began in the mid-1980s which then resulted in the motivation to understand human impact on Earth systems through social drivers in the form of the Earth System Science movement, resulting

in IGBP program on Global Change and Terrestrial Ecosystems (Mooney, Duraiappah and Larigauderie, 2013). The program, Land Use Land Cover Change (LUCC) explicitly focused on human actions and their impacts on ecosystems (Turner, Moss and Skole, 1993).

Both natural and social sciences were originally hostile to each other where economists were blamed for destroying habitat, whereas economists resented ecologists interfering in commerce (Söderqvist et al., 2011). According to Mooney et al. (2013), the Millennium Ecosystems Assessment was a major step in bringing these two groups together by constructing a conceptual framework and execution of policy response and multiscale assessments. These assessments engaged social science in issues related to governance, economics, social and behavioural impacts. This collaboration was followed by a series of workshops which resulted in the publications and a trend of borrowing terms from each other. For instance, the emergence of concepts such as ‘Sustainability Science’ which was “an emerging field in research dealing with the interactions between natural and social systems and with how those interactions affect the challenge of sustainability: meeting the needs of present and future generations while substantially reducing poverty and conserving the planet’s life support systems” (Kates, 2011).

The term sustainability was borrowed from natural and applied sciences to business, as is ‘ecosystem’, but often without understanding the complexities of these terms in a natural environment. The essence of these terms is lost when translated to a business ‘environment’, which is artificial and controlled by humans through various forms of interventions (Ardichvili et al., 1998; Dou et al., 2021; Sharma, 2012;

Wiersum, 1997). The Sustainability Model has only a narrow window for being truly sustainable and is used to limit negative externalities without increasing positive externalities. It was designed as a model to create no negative externalities. Sustainability has largely been used in business to move towards low impact business, often small changes over long timeframes likened to using a bucket to put water on embers while the main fire burns. Thus, sustainability did not incorporate the full scale of elements that are needed to run a truly sustainable 'holistic' business, such as intergenerational succession planning, or the wellbeing of business owners and customers. Thereby, sustainability has quickly become the fad word and now the fading word as it was used as 'greenwash' by corporates aiming to increase marketability and revenue. The new fad word in business looks to be 'regeneration' but the concept has not been enough defined. The global movements to engage and give equal weight to natural and social sciences to address issues faced by Earth systems have shown the importance of understanding and adapting various elements to draw conclusions.

Businesses marketing and promoting their sustainability would often tend toward greenwashing (De Vries et al., 2015; Parguel, Benoît-Moreau and Larceneux, 2011; Pimonenko et al., 2020; Szabo and Webster, 2020), where they would spend more money on marketing their sustainability than working toward sustainability. Consumers becoming aware of greenwashing seek assurances from third-party certified programs, but these products often cost more and greenwashed logos and 'assurances' often look similar, creating consumer confusion and harming consumer trust in the products and services, and trust in the sustainability model (Furlow, 2010; Urbański, 2020).

Rhodes (2017, pp. 103-104) argues that "sustainable solutions are unsustainable over the long term if they are not also intrinsically regenerative. Hence, we need to embrace regenerative development, by adopting measures that implicitly drive the regeneration of soil, forest, watercourses and the atmosphere, in the contrast to the vexed policy of 'sustainable development' which essentially permits the vital elements to be maintained in conditions of inexorable degradation." Rhodes (2017, pp. 103-104) goes on to argue that "sustainability maintains what already exists, but does not restore (eco)systems that have been lost... the word 'sustainable' strictly means 'self-sustaining' but is often misunderstood, particularly in the media and by the general public, to merely mean 'able to last' or 'the capacity to endure'. On the other hand, 'regenerative' means 'the capacity to bring into existence again'; hence, if an item or the system is regenerative, it has the inherent capacity to bring itself into existence once more".

2.2. Regenerative model in agriculture

As trust in the sustainability model has declined regenerative agriculture and farming have surfaced as a new and revolutionary 'holistic' model, aiming to closely mimic nature to increase positive outcomes and reduce negative outcomes. The term regenerative has been associated with 'agriculture' or 'farming' since the 1970s (Gabel, 1979). However, the term 'regenerative agriculture' and 'regenerative farming' became part of mainstream research in the early 1980s (Giller et al., 2021). The term has gained popularity amongst activist and civil society organisations to revitalise the global food supply chain (Duncan, Carolan and Wiskerke, 2021; Giller et al., 2021).

Like sustainability, the term 'regenerative' was also borrowed from natural sciences. In

the agriculture context, according to Hutchins and Storm (2019), the term ‘regenerative’ means “creating the conditions for life to continuously renew itself, to transcend into new forms, and to flourish amid ever-changing life-conditions”. Rodale (1983) defines regenerative agriculture as “one that, at increasing levels of productivity, increases our land and soil biological production base. It has a high level of built-in economic and biological stability. It has minimal to no impact on the environment beyond the farm or field boundaries. It produces foodstuffs free from biocides. It provides for the productive contribution of an increasingly large number of people during a transition to animal reliance on non-renewable resources”. Based on this definition any activity, product or service must ensure: creating the conditions for life to continuously renew, transform, flourish in the changing environment, economic stability and minimum or no impact on the environment.

In regenerative agriculture, it is the soil that is the foundation of growth for the farming system (Hutchins and Storm, 2019). Regeneration is focused on regenerating the living conditions for microorganisms and all the benefits that bring, retention of water, an increase of micronutrients for plant growth, plant root depth and root volume. To understand the holistic nature of regeneration the whole farm is included in the regenerative planning, including farm succession planning as well as the quality of life of the animals being farmed, reduction in outside inputs such as inorganic chemical fertilisers, pesticides and herbicides (Colley et al., 2020; Pascale, 2005). Furthermore, the benefit to biodiversity on-farm also includes water quality, carbon and methane emissions and offsetting through setting aside marginal land that is better used by forestry or natural

regeneration (Gosnell, Charnley and Stanley, 2020; Kenne and Kloot, 2019; LaCanne and Lundgren, 2018).

Natural regeneration normally happens through a succession of forest species, often starting with the weedy plants that are nitrogen fixers, then moving to rapid recolonisation of faster-growing softwood early canopy and finally hardwood species that will grow to a mature forest in several hundred years (Toensmeier, 2016). This is an important point as regeneration can be a long process, allowing nature to re-establish itself at a natural pace, humans often try to speed up processes with mixed results. Therefore, it is important to understand a natural system of regeneration before considering regenerative tourism.

The perfect example of a ‘regenerative system’ is a forest where nothing is wasted and the product is 100% recyclable and improves the environment at the process of creation, during usage, recycling and other possible stages of its lifecycle (Rhodes, 2015, 2017). In a ‘regenerative agriculture’ context the “improved conditions might include the creation of habitat (including building soil), water purification, and the enhancement of nitrogen and carbon-fixing process in the soil, and so on” (Rhodes, 2017, p. 104). It is argued that the size of the system is also an important factor where small systems are more stable and fulfil the criteria and can be linked together to achieve multiple regenerative bubbles (Rhodes, 2015, 2017).

When a system (say business environment) aims to mimic nature, it needs to incorporate all elements, inputs, outputs and positive and negative externalities. The nature of engagement relies upon an open-minded exploration, and honesty to the short-, medium- and long-term consequences of the business. The holistic decision making recognises that all

elements in natural systems are interconnected, without the sun, rain, soil nutrients and microorganisms plants cannot grow, for these elements to be available in the correct amount there is a reliance upon the weather systems, the Earth's distance from the sun, the rotation of the moon and the water cycle. Even small changes in all these elements can create major differences in the plants that can grow and the ecosystems that this creates such as is being documented with impacts upon species due to climate change (Román-Palacios and Wiens, 2020; Cahill et al., 2013).

For a business environment to be regenerative it needs not only the elements for life, but also the interconnections of the social, economic, and environmental pillars within the sustainability model (United Nations General Assembly, 2005). While the old sustainability model tended to only consider three factors (social, economic, and environmental) in the immediate term, they need to be incorporated into planning and decision making in the short, medium and long term as outcomes. In a business model, the long-term outcome may vary from a year, 5 years, 10 years or 20 years. However, in a natural setting, this can take years, decades or generations to play out.

While a small percentage of farmers have embraced regenerative farming as a model to change the planning of their farms with a holistic and interconnected approach there has been a backlash from traditional farmers and scientists refuting their claims of success. Regenerative farming requires the restoration of natural resources employing natural ecological services (Jones, 2003). The aim is to improve soil health and encourage a symbiotic relationship of water quality, vegetation, minimising tilling, and growing green manure, composting, mulching and crop rotation with reduced artificial inputs such

as fertilise (Rhodes, 2015, 2017). But as the new wave of regenerative farming becomes more accepted and moves towards mainstream the term regenerative farming has been adopted by farmers who take little or no action (Rhodes, 2015, 2017) to change the impacts of the farm but claim to be regenerative, or to have always farmed regeneratively, heeding the first warning signs of greenwashing the regenerative term (NZ Farm Life, 2021).

2.3. Challenges to adapting concepts from natural science into tourism systems

Tourism by its very nature is an extractive industry and is not easily controlled due to its ubiquitous nature. Traditional tourism relies upon the movement of people to destinations incorporating long and complex supply chains including transport, accommodation, hospitality and entertainment as well as host community infrastructure services, environmental services and social services. These complex interlinkages and interdependencies make tourism a complex phenomenon. According to the Australian Treasury (1977, p. 1212) "the tourism industry is defined, not in terms of the production of a particular type of goods and services, but in terms of the circumstances in which goods and services are consumed".

To understand the complexity of tourism, Leiper (1979) came up with a partially industrialised phenomenon of tourism where the elements of the tourism industry are discussed in terms of the degree of industrialisation. Leiper's Tourism System comprises of the tourist, geographical features (departing travellers, tourist transition region, returning travellers) and tourism industry (Leiper, 1979). All these elements are interconnected which makes tourism systems complicated. To understand the impacts and performance of an element, the component must be

explored within the context of the wider tourism system. Researchers have acknowledged partial industrialisation of the tourism industry (Firth, 2002; Hall, 1998; Maior, 2005; Stear, 2002; Tremblay, 1998) and the challenge of tourism policy making (Hall and Jenkins, 1995). However, partial industrialisation in tourism is not recognised by wider tourism academics because of the conceptual challenges of mainstream ideas of tourism as an industry and the lack of systemic and reliable methodology to measurement industrialisation in tourism systems (Leiper et al., 2008).

The tourism system is open and vulnerable to local, regional, national and international catastrophes. The global pandemic (Covid-19) has exacerbated its very volatile nature, where every single component of the tourism industry has been, both directly and indirectly, affected by the global pandemic. Travel restrictions, lockdowns and uncertainties have impacted the travel confidence of tourists one way or the other (Cobanoglu, 2020; Hussain, 2021). International travel has shrunk by over 80% (UNWTO, 2020a). Governments either encourage tourists to travel locally or urge people not to travel to contain the spread of various new strains emerging.

Tourism academics are now focusing on alternative ways of travel and concepts such as ‘regenerative tourism’ are gaining popularity. A google scholar search (December 15, 2021) of ‘regenerative tourism’ between ‘2020-2021’ showed 5,140 results in ‘one year’. The preposition of regenerative tourism is an opportunity for the recovering tourism industry to mitigate the impacts of global shocks such as global pandemics (Day et al., 2021; Hussain, 2021; Hussain and Fusté-Forné, 2021b). This paper focuses on incorporating holistic and interconnected

decision making into an extended timescale for a regenerative tourism model that mimics natural systems. To be sustainable the system, business, community or individual must be resilient to shocks and change. This has been demonstrated through the Covid-19 pandemic, businesses that have not invested in their long-term financial resilience or those that could not withstand persistent market uncertainty have not sustained operation.

2.4. Regenerative tourism – a call for a symbiotic relationship

In the natural environment, there are an array of relationships between individuals and species; predator pray, where one preys upon the other; parasitic where one feeds on another without killing it immediately; and symbiotic, where both benefit from the interaction. Tourism could be seen at times and in some places as parasitic, where it would extract value from a host community, culture and environment without giving back much or anything in return. Regenerative tourism aims to mimic nature more closely by becoming symbiotic; when one benefits others benefit, creating a win-win situation. To become symbiotic, tourism needs to carefully assess and measure all of its impacts and create host community buy-in, environmental improvement, biodiversity restoration, cultural enhancement and economic wellbeing and resilience. In a tourism context, the ‘regenerative’ was first used by Owen (2007a, 2007b). According to Hussain (2021, p. 5), “regenerative tourism works in the same principle where conditions are provided for the industry to be reborn and continuously renew itself and transcend into a new form without much human intervention”. In this context, both visitors, destination and tourist generating regions are part of an ecosystem and interconnected and actively participate and

give back to the land (destination) and the people (host).

While regenerative tourism can transform tourism it brings significant challenges. The multifaceted nature of the tourism industry suggests that tourism operations are reliant upon the natural environment for operating. For instance, if our natural environment changes beyond the current largely stable climatic conditions many tourism operations will not be able to operate or will be vastly different (Kaján and Saarinen, 2013). Tourism operations reliant upon elements of the natural environment such as viewing or interacting with native species must ensure that this interaction is sustainable in the long term to withstand shocks. Changes in nature and natural systems can happen quickly, dramatically and irreversibly so that external pressures can create the conditions for a dramatic decline in the species being viewed and the environment (Román-Palacios and Wiens, 2020; Cahill et al., 2013), and thus the satisfaction of tourists.

3. Social-ecological system and panarchy/adaptive cycle

Tourism is a complex and multifaceted industry in nature that requires a self-organisation characteristic that transforms the evolutionary process of societal development. Therefore, a dynamic tourism model is required which embraces uncertainty, changing global trends and shocks and recommend policy options that are holistic and future proof. A five year “Resilience Project” was the first project to explore multidisciplinary research where international groups of ecologists, economists, mathematicians and social scientists collaborated to expand the theory and its implications (Gunderson and Holling, 2002). The outcome of the

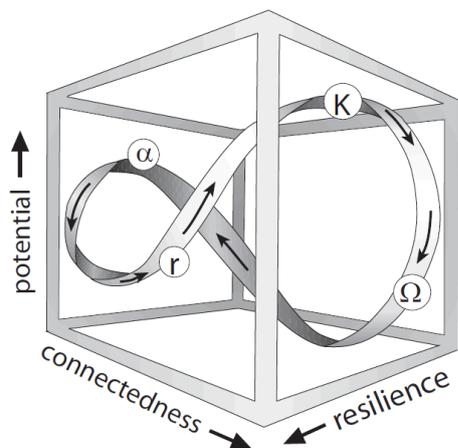
research was published in the form of a book and coined a term ‘panarchy’ which is “the hierarchical structure in which systems of nature, and humans, as well as combined human-nature systems and social-ecological systems, are interlinked in never-ending adaptive cycles of growth, accumulation, restructuring and renewal” (Holling, 2001, p. 392).

The fundamental understanding was that the world systems are complex and multiple outcomes are possible based on the self-organisation characteristics of individual “and the transformations that can occur during the evolutionary process of societal development’ (Holling, 2001, p. 391). The evolution of new systems needed to be co-managed as they are interlinked and explained by social-ecological systems (Berkes, Colding and Folke, 2008; Folke, 1998; Ostrom, 2009). The social-ecological systems are co-evolved systems of management (Folke, 1998) illustrated in “never-ending adaptive cycles of growth, accumulation, restructuring and renewal” (Holling, 2001, p. 392). These levels of the dynamic hierarchical system are termed as ‘adaptive cycles’ which generate and test innovation expressed in terms of potential, connectedness and resilience (Holling, 1986, 2001). These adaptive cycles are critical to understanding the positive changes and vulnerabilities of social-ecological systems to ensure system resilience.

The key of panarchy is the ‘adaptive cycle’ (figure 1 below) explained in terms of its potential – a system which sets its limits, connectedness – which determines the controllability of within a system, and resilience – which determines vulnerability of a system (Gunderson, Holling and Light, 1995; Holling, 2001). Figure 1 represents four ecosystem functions (r , K , Ω , α). Arrows show the speed and direction of the

system). Y-axis represents potential, x-axis represents connectedness and z-axis represents resilience. Where r =exploration, K =conservation, Ω =release and α =reorganisation. According to Holling (2001, p. 398), “the panarchy is a representation of the ways in which a healthy social-ecological system can invent and experiment, benefiting from innovations that create opportunity while it is kept safe from those that destabilise the system because of their nature or excessive exuberance”. The phase from Ω (release) to α (reorganisation) is crucial as this change is rapid and encourages reorganisation, providing the conditions to perform experiments which lead to innovation. The adaptive cycle shows the systems ecological resilience expands and contracts.

Figure 1. Adaptive cycle.



Source: Gunderson and Holling (2002) and Holling (2001).

3.1. A regenerative tourism model

The interconnectedness and change in the phases of the adaptive cycle in a regenerative tourism context is challenging. The fact remains that tourism is a partially industrialised industry and the characteristics of regenerative agriculture

may not necessarily fit well in a tourism context. However, there is a possibility that regenerative tourism may exhibit partial characteristics of regenerative agriculture. This can be explained with the degree (i.e. Likert scale 1-10) to which a tourism product is regenerative based on certain characteristics and indicators.

The proposed regenerative model incorporates the ‘adaptive cycle’ by Gunderson and Holling (2002) and Holling (2001) is incorporated into the ‘tourism system’ model by Leiper (1979), the concept of ‘regenerative agriculture’ by Hutchins and Storm (2019), and ‘livelihood framework for transport infrastructure development and tourism’ by Hussain (2019) (see figure 2 below). The key elements of the regenerative tourism model are; a) access and availability of capitals, and b) experiments and innovation. The essence of the successful operation of the tourism industry is determined by the degree to which an ‘adaptive cycle’ performance at every stage of tourism product creation and consumption processes.

3.1.1. Access and availability of capitals

The access and availability of capital are fundamental to the existence of the tourism industry at any destination, tourist generation region and during transit. Capitals are means by which people can engage more fruitfully and meaningfully with the world, and most importantly, the capabilities to change the world” (Morse and McNamara, 2013, p. 30). This paper adopts the Department of International Development grouping which includes; human, social, natural, physical, financial and institutional capital (DFID, 1999) along with ‘location: as meta capital’ proposed by Hussain (2019). Hussain (2019, p.189) argues that location capital incorporates other capitals present in a geographic area

which can be defined as “characteristics embodied in a specific geographical location which warrants/demand distinct attention in terms of a variety of development activities that are location reliant and context-specific.”

The impacts of tourism on livelihood at a tourist destination, tourist generating region and during the transit is different both at macro and micro levels as noted by Hussain (2019). He argued that resource availability and access is the crucial factor that will test the vulnerability and resilience context at the experimental phase α controlled and managed by institutional arrangements. Similarly, the phase from α to r , r to k and k to Ω is also determined by resource availability and access in an adaptive cycle at a tourism destination, transit and tourist generating region. Based on access and availability of resources, the phase from α to r (exploration) will provide options to improve potential and connectedness. However, as the potential and connectedness increase, the resilience is at its minimum. At k (conservation) stage the system is vulnerable to exogenous impacts despite increased connectedness and potential, which is why it releases the pressure and comes down to Ω (release) phase.

3.1.2. Experiments and innovation

At α stage potential and resilience is at maximum and connectedness of a system is at minimum. The α stage “provides the potential for subsequent growth, resource accumulation, and storage” (Holling, 2001, p. 395). The tourism industry has transformed rapidly since the beginning of global pandemic (Covid-19). For instance, airlines advertising their advance technology of filtering air or digital boarding passes (Norwegian, 2020) and on-site Covid-19 test (Emirates, 2020; United, 2020). Also, thermal cameras use on tourist

resorts (Schulz, 2020), event centres offering hybrid conferences (online and on-site), use of robots in robotic kitchens (Fusté-Forné, 2021), use of drones to deliver food (Cobanoglu, 2020) and tours offering regenerative tourism experiences (The Seventh Generation, 2021) or virtual reality tours (Cobanoglu, 2020). However, the disturbance (pandemic) is such that the change occurred to the tourist destinations, transit and tourism generating regions simultaneously. The experimentation at every stage occurred because the system-wide failure was minimal, generating new opportunities despite of the low connectedness. However, the conditions for developing future options were high because of high resilience factor.

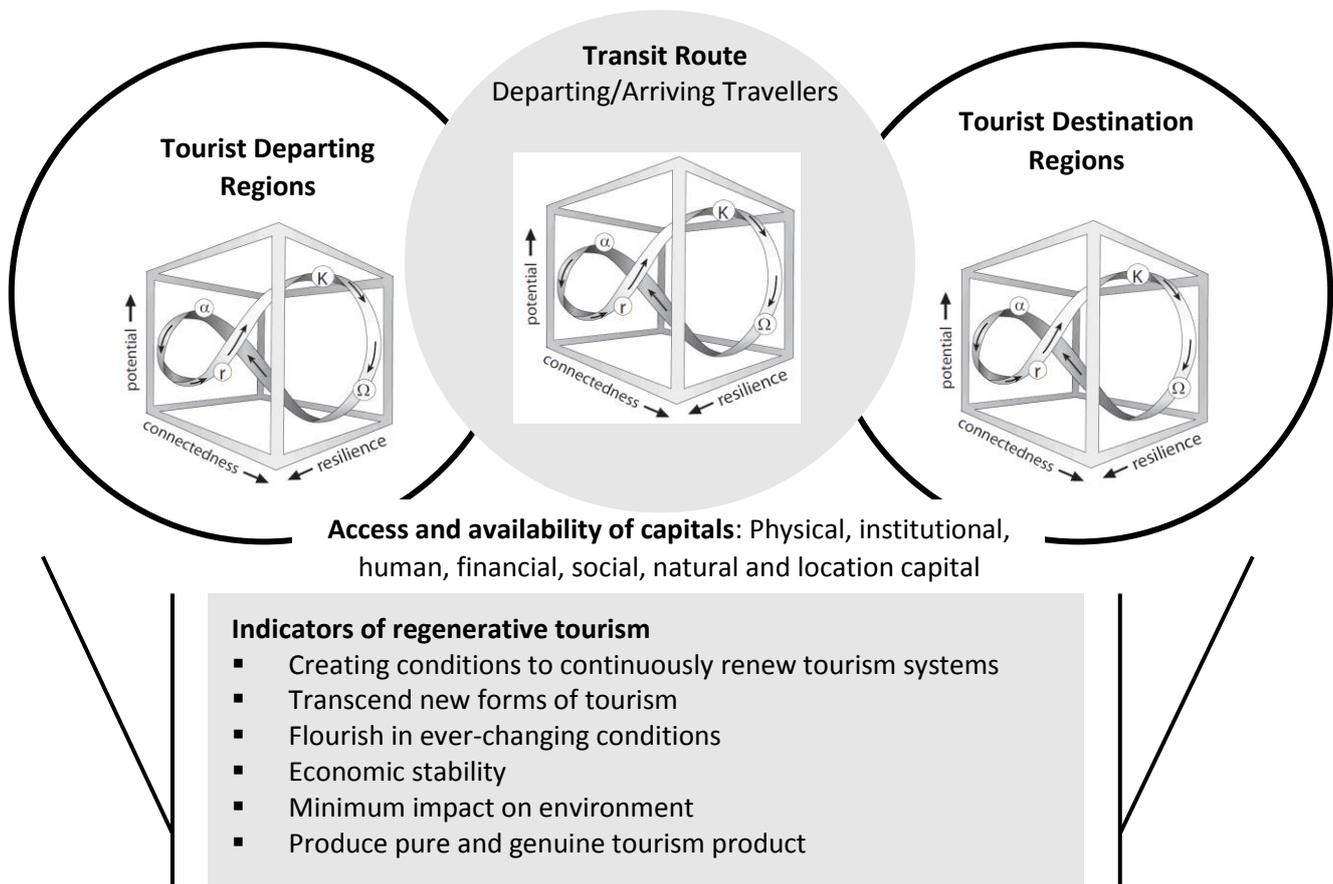
The phase from Ω to α is crucial as this change is rapid and encourages reorganisation, providing the conditions to perform experiments which leads to innovation as discussed above. To perform the experiments, regenerative tourism, in this case, the adaptive cycles need to look at the indicators in correlation with the tourism system. A true ‘regenerative agriculture’ must create the conditions for life to continuously renew, transcend life into new forms, flourish in ever-changing life conditions, economic and biological stability, minimal to no impact on the environment and produce foodstuffs free from biocides. Therefore, true regenerative tourism must incorporate the characteristics of the term ‘regenerative’ in a tourism context. Based on the discussion on regenerative agriculture and farming the profound characteristics concerning tourism can be termed as; creating conditions to continuously renew tourism systems, transcend new forms of tourism, flourish in ever-changing trends, economic stability, minimum impact on the environment, produce pure tourism products. These themes contain terms such

as renew, new forms, ever-changing, stability, impact and genuine which help to measure the relative and absolute resilience of the tourism system in a partially industrialised industry.

Furthermore, stochastic events such as a ‘global pandemic’ overwhelm the adaptive cycle and the system may collapse. This was witnessed in the case of tourism where destinations dependent on tourism have either collapsed or at the fringe of

collapsing (Fernandes, 2020; Haley and Hussain, 2021; Hussain, Fusté-Forné and Simmons, 2021; Lapointe, 2020; RNZ, 2021; Sigala, 2020; Spalding, Burke and Fyall, 2021; UNWTO, 2020b; Zaki, 2020). Understanding the complex ecological systems in a tourism context, required a dynamic framework that embraces uncertainty, changing global trends and shocks and recommend policy options that are holistic and future proof.

Figure 2. Regenerative tourism model: Adaptive cycle of tourism system and indicators of regenerative tourism.



Source: Adapted from Gunderson and Holling (2002), Holling (2001), Hussain (2019), Hutchins and Storm (2019) and Leiper (1979).

4. Conclusion

Human interventions have been a significant factor in the operations of

tourism systems where ‘tourist decisions’ are influenced at every stage of planning, execution and during transit. Tourism is a

long and complex supply chain. These complex interlinkages and interdependencies make tourism a multifaceted phenomenon. Tourism systems are open and vulnerable to local, regional, national and international catastrophes which we have noticed amidst the global pandemic (Covid-19). Human interventions are significant factors in the operations of tourism systems, where concepts are borrowed from natural sciences, to minimise the negative impacts of tourism, these concepts are often not fully understood.

As tourism is a complex and multifaceted industry in nature it requires a self-organisation characteristic that transforms the evolutionary process of societal development. Therefore, it requires a dynamic framework that embraces uncertainty, changing global trends and shocks and recommend policy options that are holistic and future proof. This paper outlined the indicators of regenerative tourism to measure the degree to which a tourism product is regenerative. These indicators are crucial to every stage of planning, execution and transition of tourism products and destinations. Elements of the tourism industry needed to be co-managed as they are interlinked and explained by a social-ecological system that tests innovations to understand the challenges, vulnerabilities and resilience of a tourism system.

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Author profile



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Author profile



Marie Haley is the founder and guide of The Seventh Generation. She was born and raised on Banks Peninsula, a seventh-generation direct decedent of Akaroa's first French settler. She grew up on the family farm following her Grandfather's footsteps and his Grandfather before. From the age of six, she knew that she would devote her life to the conservation of native species and protect the incredible beauty of New Zealand. In her work as a wildlife ranger and Wildside coordinator, this dream has become a reality. With The Seventh Generation, she wants to share her passion and knowledge with other people to provide a deeper understanding and local connection to her special place's history and nature.