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Social Capital Contributions to Resilience in an Entrepreneurial Ecosystem in Nepal

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Abstract

Tourism is an important sector for many people in Nepal. There have been a number of damaging shocks in the last decade, including the 2015 earthquake and the COVID-19 pandemic, that have stopped the industry in its tracks. The effects of slow onset climate change are also impacting the industry and are forecast to get worse. An entrepreneurial ecosystem in Nepal has been established to foster resilience among participating businesses. This research addresses whether social capital contributes to the resilience of tourism start-ups in Nepal and whether an entrepreneurial ecosystem fosters that social capital. Further, it asks whether renewable energy and energy efficient practices have impacted resilience. And, finally, whether there is evidence of transformative change within the businesses studied. Results suggest that relationships generated through enduring historical shocks in the tourism economy in Nepal have fostered social capital, and that the entrepreneurial ecosystem has itself cultivated elements of social capital and resilience in the participating businesses. While firm conclusions could not be drawn as to whether transformative change has occurred in the businesses, the foundation for realising transformational opportunities has been established. This study suggests that resilience can be reframed from its historically ecological confines to be a more fluid and adaptable concept of human agency affected socio-ecological systems and may eventually allow, and be a driver of, transformational change in businesses participating in an entrepreneurial ecosystem.

Keywords: social capital, tourism, resilience, entrepreneurial ecosystems

Introduction

Nepal is highly likely to suffer from the effects of climate shocks and stressors (Adhikari et al., 2018). Nepal is a lower middle-income country with a population of 29.1 million (NBS, 2023), of which, 17.5% are described as multidimensionally poor (UNDP & OPHI, 2022). The need for adaptation, resilience and transformative practices to climate change effects are very real and of great importance. The aim of this research was to investigate if social capital (SC) affects resilience of tourism start-up businesses within an entrepreneurial ecosystem (“the ecosystem”) in Nepal. Further, whether there is evidence of transformative practices within the tourism start-up businesses as a result of participation in the ecosystem. While some literature exists as to the resilience of Nepali tourism in relation to shocks from the

Civil War 1996-2006 (Baral, 2014) and the earthquake of 2015 (Anup, 2017; van Strien, 2018; Min et al., 2020) there is no literature addressing the resilience of tourism start-up's to climate change or resilience to a global pandemic in Nepal. Individual SC benefits on tourism businesses have previously been addressed (Zhao et al., 2011), but no research exists on the effect of SC within an entrepreneurial ecosystem of tourism start-ups in Nepal.

This research asks:

- Question 1: What aspects of social capital have contributed to the resilience of tourism businesses in Nepal? (RQ1)
- Question 2: Has an entrepreneurial ecosystem fostered resilience through social capital for tourism start-ups in Nepal? (RQ2)
- Question 3: How do renewable energy and energy efficient processes affect resilience of tourism start-ups in Nepal? (RQ3)
- Question 4: Is there evidence of transformation in tourism start-ups in Nepal? (RQ4).

This paper is divided into five further sections, literature review, methodology, results, discussion and conclusions.

Literature review

Social capital is “the aggregate of the actual or potential resources which are linked to a possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition” (Kerr, 2018). Simply put, the strength and diversity of relationships between entities. SC has been categorised into three divisions: bonding SC – bonds between members of a defined community; bridging SC – connecting members of different communities; and linking SC – a connection between individuals and communities outside of explicit boundaries (Smith & Frankenberger, 2018). However, SC has previously been difficult to attribute to a single source or community, often taking multiple forms and pathways (Smith & Frankenberger, 2018). Social capital is a core tenet of sociological research, definitions are numerous, and a unifying framework is lacking. Yet “ambiguity is not a hindrance in so complex a notion; it is instead a help, for it enables us to avoid a protracted discussion on what social capital means.” (Dasgupta, 2021). To date, the contribution of SC and human agency to the field of resilience has been underestimated (Chen et al., 2020) or received inadequate attention (Tanner et al., 2015). Therefore, SC is important in the context of resilience theory.

Resilience theory describes a system's ability to adjust to shocks and stressors (Holling, 1973; Folke, 2006; Walker et al., 2006; Lockie, 2016). Holling (1973) introduced resilience as an ecological concept explaining the potential for natural systems to return to an equilibrium point after some change to a system. This theory complements complex systems thinking as it allows a holistic study of not only the processes but the relationships between and within systems. This gives rise to the idea that both human social systems and ecological systems are connected (Walker et al., 2004; 2006) and leads to the idea of the socio ecological system (SES).

One example of a SES is tourism (Becken, 2013). Tourism has been noted as containing elements of recreation, leisure and hospitality, while largely defined by spatial and temporal variables (Robinson, 2012). Tourism also ties different economic, social and environmental

factors together (*ibid*). As such, tourism represents an opportunity to study relationships between natural and human systems (Becken, 2013).

Tourism also has links to resilience theory (Cheer & Lew, 2017; Espiner et al., 2017; Ibanescu et al., 2020; Ruiz-Ballesteros & del Campo Tejedor, 2020) and research has demonstrated strong links between community based tourism and resilience (Ruiz-Ballesteros, 2011; Lew, 2014; Chen et al., 2020; Musavengane & Kloppers, 2020). Variables that may affect the resilience in tourism destinations are landscape, regime, niche and actors (Amore et al., 2018). Tourism is also a “key plank for economic development” (Cheer & Lew, 2017). Given the scale and impact of climate shocks and stressors, the ability to adapt and increase community resilience in the face of climate change is necessary within tourism sectors in Nepal and other developing countries.

Resilience theory has been applied with an economic lens to SESs (Holling, 1996; Spilling, 1996; Farley & Voinov, 2016; Roundy et al., 2017; Dentoni et al., 2021). Farley and Voinov (2016) further propose the idea that economics is “embedded in society, which is in turn embedded in the ecological, geophysical life-support system of planet Earth” (Farley & Voinov, 2016). This study therefore presents a confluence between ideas of SESs, resilience theory and economics which are all embedded in tourism.

The tourism businesses in this study exist in an entrepreneurial ecosystem. An entrepreneurial ecosystem represents a system that includes clients, investors, entrepreneurs, customers and support organizations with common intentions (Spilling, 1996; Roundy et al., 2017). Entrepreneurial responses are an “effective catalyst for business resilience in times of crisis” (Dahles & Susilowati, 2015). Given the extent of recent climate shocks and stressors in Nepal, there is an opportunity in the Nepal case to study the resilience of this entrepreneurial ecosystem of tourism businesses. This research has implications beyond Nepal as tourism is inextricably linked to climate change yet is key to economic development in much of the global South (Tanner & Horn-Phathanothai, 2014).

The concepts of resilience, SESs, and social and economic structure are encompassed by the idea of social resilience or adaptation. Adger’s definition of resilience is “the ability of groups or communities to cope with external stresses and disturbances as a result of social, political, and environmental change” (Adger, 2000). Studies indicate that social adaptation and SC contribute to the resilience of the tourism SESs (Ruiz-Ballesteros, 2011; Becken, 2013; Espiner & Becken, 2014; Espiner et al., 2017; Musavengane & Kloppers, 2020; Ruiz-Ballesteros & del Campo Tejedor, 2020; Uddin et al., 2021). Tourism as an SES can have both negative and positive impacts on SC and so must try to maximise positive impacts and reduce negative impacts to support community wellbeing (Moscardo et al., 2017). However, some differences between sustainability and transformation are yet to be reconciled.

Parris and Kates (2003) define sustainability as “a social choice about what to develop, what to sustain, and for how long” (Parris & Kates, 2003). Transition to more sustainable pathways is an urgent requirement to address complex interconnectedness of ecology, economics and human agency at all scales (Luederitz et al., 2017). This process of transformation draws upon the concepts of transformative and incremental adaptation. Here transformation is a process that seeks to address the root causes of an issue, including socio-economic structures that amplify inequity (Fedele et al., 2019; Kates et al., 2012). Feola et al. (2021) argue that business as usual or unlimited growth approaches are going to overshoot a proposed 1.5-degree limit to global warming, in their eyes, transformation is required. Avelino and

Grin (2017) detail not only the deconstruction of unsustainable practices, but also the opportunity to pursue reconstruction of more sustainable practices (Avelino & Grin, 2017). Feola et al. (2021) and Nightingale et al. (2020) are somewhat critical of this approach as they outline that some “theorizations of sustainability transformation are grounded in constructionist approaches while obscuring the process of deliberate deconstruction of unsustainable processes” (Feola et al., 2021). To simplify, does society focus too much on new sustainable solutions as opposed to dissolving unsustainable practices?

From a tourism perspective, recent studies suggest that the COVID-19 pandemic could provide opportunity for transformative change in the tourism industry (Hall et al., 2020) or even be seen as an “involuntary degrowth experiment” (Schaltegger, 2021). It is important to note that despite Hall et al. (2020) questioning whether change needs to come from inside or outside the tourism industry, foundational research on transformational change suggests that “change at smaller scales enables resilience at larger scales” (Folke et al., 2010). So, smaller scale ecotourism operations can foster sustainable development (Jones, 2005; Moscardo et al., 2017) and it might be possible then that smaller scale transformational change in the tourism industry may enable resilience at larger scales.

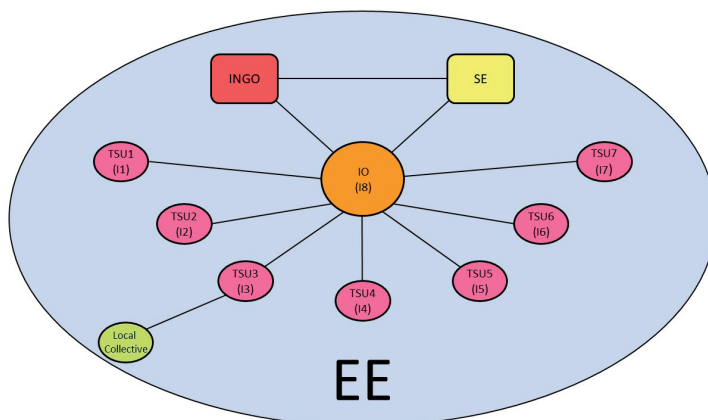
Method

The research questions (RQ) were developed to conduct inductive qualitative research (Bryman, 2016) through semi structured interviews. Data was collected by conducting semi-structured interviews containing sixteen primer questions. Semi-structured interviews allow for in-depth insight into participants perspectives (Al Balushi, 2016). While this style of research can be difficult to replicate (Bryman, 2016) semi structured interviews are regarded as social situations befitting of social data gathering (Rapley, 2001). COVID-19 themed questions allowed interviewees to compartmentalise their answers to the interview questions in terms of effects related to, and unrelated to COVID-19 so that data could be more easily refined during analysis. Research data was gathered via interviews with start-up representatives that took place either face to face, or over the phone during the period between March 2022 through to August 2022. Seven start-ups from eight in the ecosystem agreed to be involved in purposive case study analysis, a method that is considered as highly iterative and aligned with source data (Eisenhardt, 1989).

As the ecosystem in this research was a pilot programme, the interview participants and location data (Figure 2) were

Figure 1

Organogram of the ecosystem studied



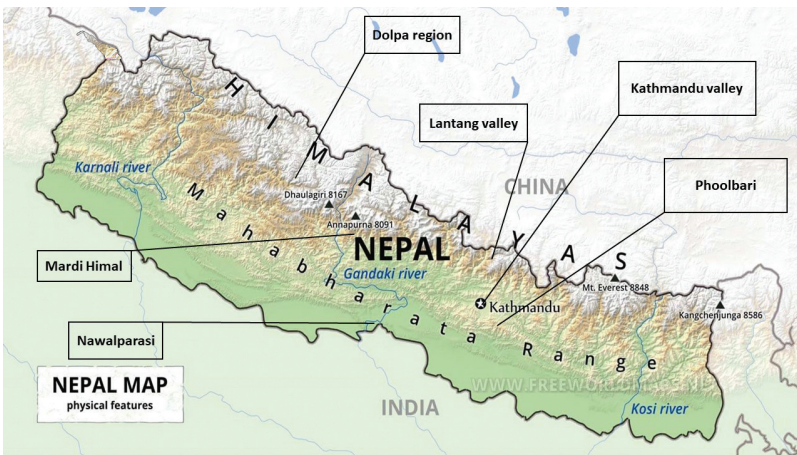
Note: EE = Entrepreneurial Ecosystem; INGO = International Non-Governmental Organisation; IO = Implementing Organisation; SE = Social Enterprise; TSU = Tourism Start Up (Interviewee number).

anonymised and assigned identifiers (Table 1) so that any contributions to this research would not impact potential participation in ongoing or future research. It should be noted that while the businesses were start-ups, many of the owner/operators had previous experience of running tourism businesses. Each of the start-ups was considered as a separate case study, but all operated under the umbrella of an entrepreneurial ecosystem in Nepal. The start-ups were backed by an international non-governmental organisation and a social enterprise. The ecosystem was administered by the implementing organisation (IO). Seven of these eight start-ups made themselves available for this research. Figure 1 shows the relationships between the start-ups researched and the ecosystem.

The start-ups involved in the study were all owner operated except for one, a cooperative (13). The cooperative managed a local tourism collective. The implementing organisation was backed by a for profit social enterprise and an international non-governmental organisation specialising as a learning and knowledge sharing centre. The ecosystem facilitated the transfer of hardware (tangible components), software (knowledge associated with use of hardware) and orgware (organisational frameworks involved in implementation) (Boldt et al., 2012) to the start-ups with a 2 Lakh (200,000 Nepali rupees) seed fund for energy efficient and renewable energy practices and masterclasses on business and financial planning, sustainability, and energy efficient and renewable energy.

Figure 2

Map of TSU locations.



Source: www.FreeWorldMaps.net (2022)

Table 1

Interviewee Codes and Attributes of Participants

Interview Code	Role	Business Type	Location	Gender
11	Owner Operator	Accomodation	Outside KTM Valley	Male
12	Owner Operator	Agro-Tourism	Outside KTM Valley	Male
13	Administrative Officer	Cooperative	Outside KTM Valley	Male
14	Owner Operator	Trekking	Outside KTM Valley	Male

15	Owner Operator	Accomodation	Outside KTM Valley	Male
16	Owner Operator	Accomodation	Outside KTM Valley	Male
17	Owner Operator	Agro-Tourism	Outside KTM Valley	Male
18	Director	Programme Implementor	Inside KTM Valley	Female

The start-ups' businesses dealt with different types of products and clients. In this study, it was found that accommodation businesses primarily deal with overnight lodgings and sometimes providing food for guests, agro-tourism businesses provide a combination of accommodation, restaurant hospitality and agricultural experiences, and trekking businesses provide walking tours (often multi-day) with accommodation in fixed and non-fixed locations with food. A final interview was conducted with the director of the implementing organisation (I8).

Data from the semi-structured interviews was coded and retrieved through NVivo12TM (Qualitative Data Analysis Software | NVivo, 2021). This allowed for a thematic analysis of the research areas based on the research questions. The themes used for analysis of interviews were relationships, SC, social and business resilience, energy efficient and renewable energy practices, adaptation, and sustainability. Interviews were coded by theme in NVivo 12TM. NVivo 12TM coding matrices were used to ascertain how each theme varied through the interviews and through the entirety of the data set. Matrices also correlated where two themes (or attitudes) overlapped. Each start-up was given two extra parameters to be coded by: business type and location. The four business types were accommodation, agro-tourism, cooperative and trekking. Location was divided into either inside the Kathmandu valley, or outside the Kathmandu valley. This was to gauge whether geographical separation from the implementing organisation, Kathmandu, and its associated infrastructure affected the responses to any of the themes in the research questions.

Some interviews were conducted over the phone with interviewees in remote locations. As such, two interviews were conducted over longer timeframes (90 minutes) due to the disconnection and reconnection of phone lines during interviews. In line with Nepal's COVID-19 regulations at the time, face-to-face interviews were conducted with face masks/shields, hand gel and outdoor meetings as required. All interviews were conducted in the English language.

Results

(RQ1) What aspects of social capital have contributed to the resilience of tourism businesses in Nepal?

Social capital outside of the entrepreneurial ecosystem

The SC most often referred to in the results were forms of bonding SC between the start-ups and their local communities. This was clear in the frequency that the words (and stems of) village, community and local that appeared, eight, twelve and sixteen times, respectively, in the 50 total references coded as SC and relationships - not related to the ecosystem. When referring to items coded relationships - not relating to the ecosystem, location was an important variable with 13 mentions by start-ups inside the Kathmandu valley, but 30 mentions by start-ups outside of the valley. SC references also featured in numerous themes of sustainability – these were sustainability of: waste management (I1, I5, I6); agriculture (I2,

17); and gender equity and economies (I3). This sentiment was encapsulated best as, “sustainability is most important thing, because if we can’t sustain in your business then we can do nothing [sic]” (I2). For several respondents (I1, I2, I5, I6, I7) the SC and relationships generated during previous shocks, such as the 2015 earthquake, presented opportunities to start their business (I7), or to galvanise communities in the light of ongoing shocks. Of the 2015 earthquake one participant said, “[in] that period one of the best thing that we were able to... is we formed our own community and we also formed the committee [sic]” (I6). Interviewees I1, I2, I5, and I7 expressed notions of being market leaders in sustainability practices, looking not only to spread their ideas within their local communities, but further afield, as one explains, “we do not want to limit it only in our farm, we want to promote it to the third world countries, the underdeveloped countries and still developing sort of countries” (I7).

Resilience through diversification

The theme of diversification featured in all but one interview. Diversification appeared often in interviewees’ responses as having a positive effect on bridging SC, an example of this was the “opportunities to focus on manufacturing as well” (I5). Bonding SC also featured, often because of agricultural practices (which are obviously a feature of agro-tourism businesses) but also occurring in other businesses (I3, I5, I6). A clear example of the benefits of this was when an interviewee said, “if I was sticking only in tourism business I would have gone back to my village” (I2). Diversification was particularly evident when the COVID-19 pandemic struck, causing the start-ups to rapidly pivot into other livelihoods, such as agriculture, “In two years’ gap where we have no business now, so we have to be completely dependent on the agriculture [sic]” (I6). Overall, however, diversification was a theme largely mentioned by accommodation and agro-tourism businesses (40 references) and only twice by the cooperative out of the 42 total references. COVID-19 also meant start-ups exploring other sources of income in the form of agriculture, shifting business focus to domestic clients, and the chance to join the entrepreneurial ecosystem in this study. Start-ups that already dealt partly in agriculture found dealing with the lockdowns in Nepal slightly easier as they did not have to look far to feed their families, for example “I didn’t have much difficulties during the COVID because I had my own productions to eat, to feed my childrens [sic]” (I2). For some start-ups that did not already participate in agriculture, it was a more difficult prospect, “we villages are completely dependent on the tourism” (I6). Another pivot due to COVID-19 that was common across start-ups was from international clients to exclusively domestic clients. COVID-19 meant a complete ban for both domestic and non-domestic tourists during parts of 2020 and 2021. Subsequent sporadic reopening of domestic travel routes, long before international routes reopened, represented a lesser income source for most start-ups and a complete stop for one, I4. Changing which customers they catered for varied in a number of ways, from changing menus (I2, I5, I7), changing product structure (I1), and changing the amount they charged (I1, I2, I5, I6, I7).

Climate change

Under climate change several sub-themes were identified by interviewees: changes in weather patterns, seasons and monsoon; drought or water shortages; flooding; warming; impacts on livelihoods. The number of these sub themes represent a wide range of climate change impacts perceived by the start-ups. Overall, there was a largely negative attitude about the perceived impacts of climate change, totalling 87.5% of the climate change references.

Climate change themes showed little direct correlation with themes of SC, but indirectly, evidence of relationships changing because of climate change became clearer. Businesses that did not have agriculture as a part of their model but have had to reconnect with agricultural practices because of shocks or stressors (COVID-19, 2015 Earthquake) found their relational SC with their local agricultural community affected, one interviewee commented, “when there is tourism the lodge owners will be completely busy at the work of the lodge. ... when they have the free times for the lodge owners they can mix up working with each others [sic]” (I6). Where agro-tourism businesses are concerned, climate change has a direct impact on their growing seasons, “sometimes it is very drought, sometimes it is a heavy rainfall, and you do not have, in the summer season, you do not have sun... this has all been affecting agricultural patterns [sic]” (I5). But no evidence was collected to show that these changes to growing seasons influenced their SC. One business had to change their trekking routes because of water sources drying up, thus decreasing relational SC for one community, but conversely, potentially increasing it for another, “the water resources are drying up... so if you don’t have water there then you need to walk to another camp” (I4).

(RQ2) Has an entrepreneurial ecosystem fostered resilience through social capital for tourism start-ups in Nepal? (RQ2)

Social capital within the entrepreneurial ecosystem

Relationships were coded into three directional categories: from the start-up to the ecosystem; between start-ups; and from the ecosystem to the start-ups. Of the three types of directional relationships coded during the analysis, two stood out. Firstly, between start-ups within the ecosystem (16 references). These relationships were idiosyncratic, but one start-up indicated a mutual level of sharing in saying “in most sessions we did share things that we did do and didn’t do, and things that went well and didn’t go well” (I1). Secondly, from the ecosystem to the start-ups which numbered 31 references and was typified by one interviewee saying, “they gave us very nice tips about the sustainability and the management of the company and then many things that we need in our business” (I4). However, some participants (I2, I4, I7) felt that COVID-19 restrictions prevented better connections between start-ups in the ecosystem, one participant saying that, “because of the COVID and the restrictions, we were not able to visit the other business sites, so that would have been very beneficial” (I4).

In terms of attitude, positivity about the ecosystem to the start-ups was the highest referenced attitude among the ecosystem relationships (Table 3). Minimal, mixed, and negative feelings were present, but these attitudes often related back to COVID-19 restrictions, not the relationships themselves. In terms of location, the ecosystem was much more referenced by start-ups outside of the Kathmandu valley than those inside the Kathmandu valley (Table 4 and Figure 6). In terms of business type, accommodation provider had the most references (Table 5 and Figure 7).

Business and financial planning

The general attitude of the interviewees towards the business and financial planning was optimistic with 85% of coded responses being positive (Table 3 and Figure 5). All but one of the interviewees specifically mentioned business and financial planning as a positive influence on them. The one start-up that did not positively mention this, consequently raised issues of time and geography that prevented them from fully participating in the sessions. In terms of

affecting resilience, the masterclasses were well received, for example: “good and effective... and concise and concretised about how to implement and plan” (14) or “we were very happy” (12) indicate that, along with existing research, that business resilience can be improved with financial planning (Adekola & Clelland, 2020). As a variable, location was proportionally relative to the number of start-ups inside and outside the Kathmandu valley (Table 4 and Figure 6). In terms of the type of business, trekking and agro-tourism raised business and financial planning themes more than proportionately (Table 5 and Figure 7).

Table 2

Attitude towards entrepreneurial ecosystem references

References	Negative	Neutral	Mixed	Positive
EN and RE	1	1	4	9
EE	0	0	4	11
Business and Financial Planning	0	0	3	11
TSU to the EE	0	0	1	2
Inter-TSU in EE	0	2	3	5
EE to the TSU	2	0	2	14
Seed Fund	1	0	1	2

Note: EN and RE – Energy efficient and renewable energy practices; EE – Entrepreneurial Ecosystem; TSU – Tourism start-up

Figure 3

Number of entrepreneurial ecosystem responses versus attitude

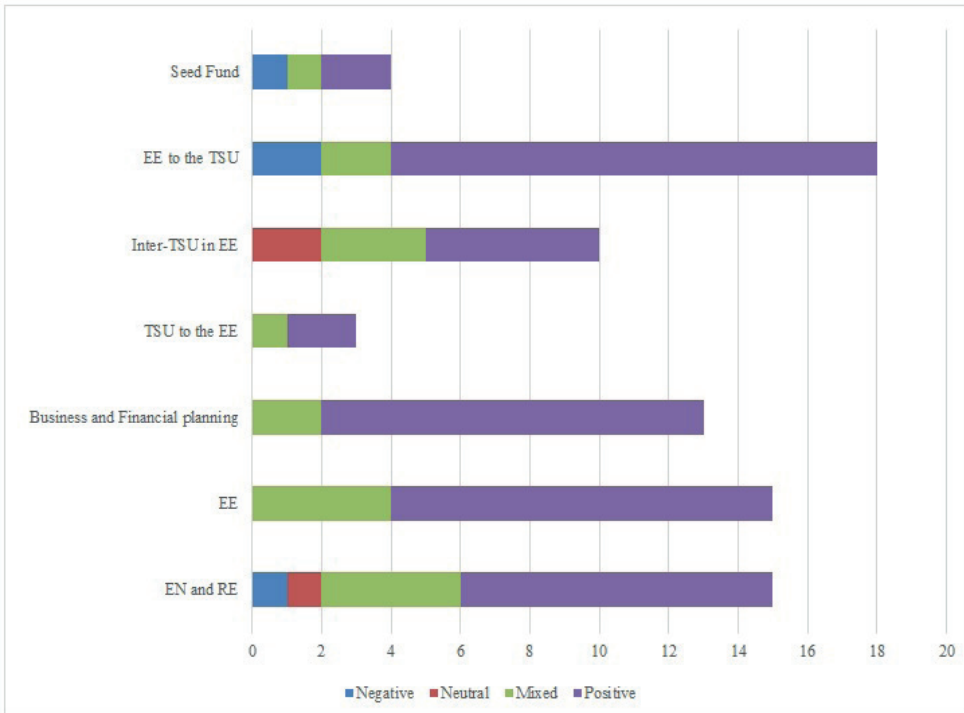
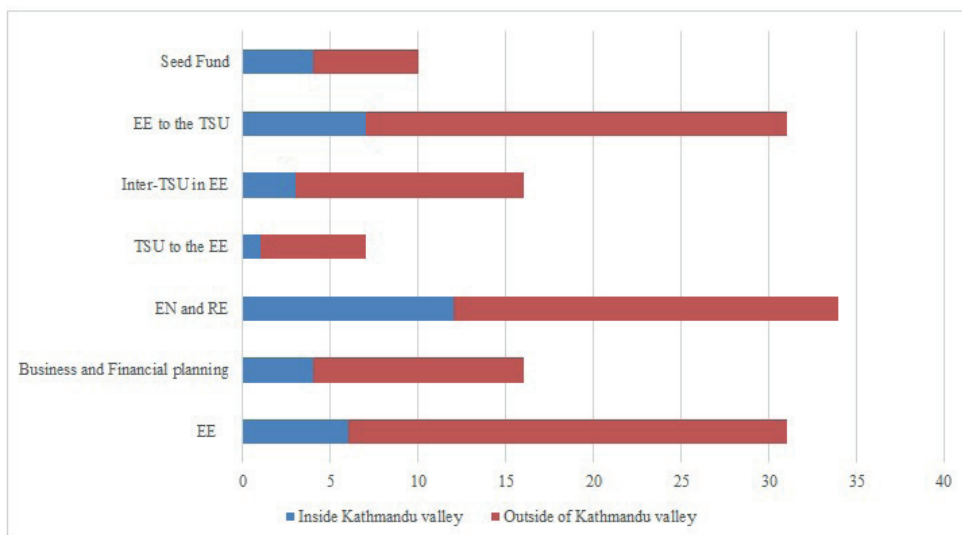


Table 3*Location of entrepreneurial ecosystem responses*

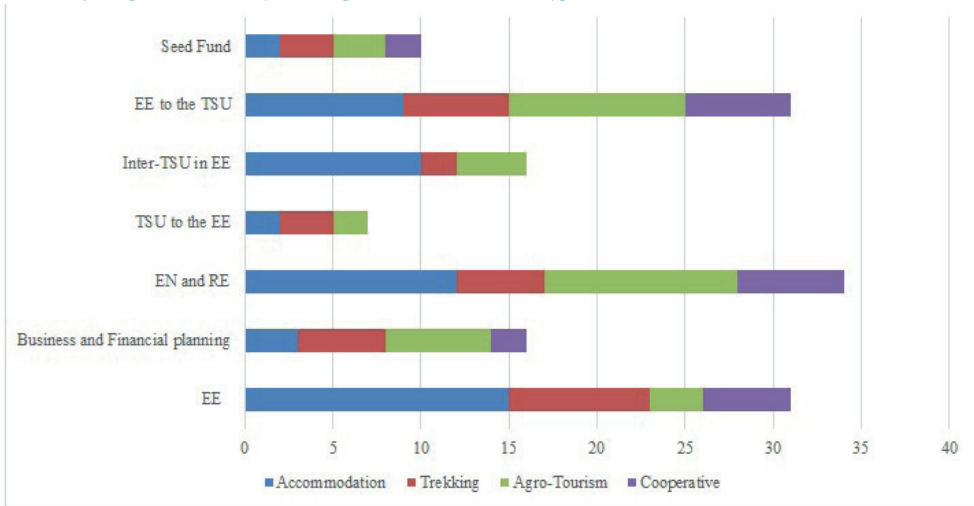
Responses	Inside Kathmandu Valley	Outside of Kathmandu Valley
EE	6	25
Business and Financial Planning	4	12
EN and RE	12	22
TSU to the EE	1	6
Inter-TSU in EE	3	13
EE to the TSU	7	24
Seed Fund	4	6

Figure 4*Number of entrepreneurial ecosystem responses versus location***Table 4***Business type and entrepreneurial ecosystem responses*

Responses	Accomodations	Trekking	Agro-Tourism	Cooperative
EE	15	8	3	5
Business and Financial Planning	3	5	6	2
EN and RE	12	5	11	6
TSU to the EE	2	3	2	0
Inter-TSU in EE	10	2	4	0
EE to the TSU	9	6	10	6
Seed Fund	2	3	3	2

Figure 5

Number of entrepreneurial ecosystem responses versus business type



(RQ3) How do renewable energy and energy efficient processes affect resilience of tourism start-ups in Nepal?

Nine of fifteen of the total responses were positive in regard to energy efficient and renewable energy practices (Table 5 and Figure 7). The spending of the seed fund on energy efficient and renewable energy choices varied between start-ups, five out of seven opting for some form of solar energy solution (one yet to install), one for a biogas solution and one for a power audit and wiring solution. In terms of business type, all mentioned energy efficient and renewable energy practices, but proportionately less by accommodation providers and more proportionately by agro-tourism, trekking and cooperative start-ups (Table 5 and Figure 7). When comparing location of the businesses there are twelve references from the two inside the Kathmandu valley and 22 from the five outside the Kathmandu valley. (Table 4 and Figure 6). The start-ups had differing viewpoints on how energy efficient and renewable energy practices affected resilience. Some outside the Kathmandu valley (I3, I5, I6) sighted an ineffective national grid as an issue, but for many the reduction in costs from the energy efficient and renewable energy seed fund was key (I6, I4, I3, I2). One start-up framed their energy efficient and renewable energy application in terms of increasing their resilience against competing businesses, “if you walk another half an hour there is another lodge ...so they have the better lodges with the lighting systems” (I6). Customer experience was also mentioned by the same interviewee, “without the charging systems of the cell phones, the people can’t stay at the places” (I6). This theme was reiterated as well as adding a layer of sustainability and cost reduction, “before we were operating on battery... now we can operate all of them, so we can use the water filtration machine, which consumes less power” (I5). This reinforces the idea that reducing costs can increase the resilience of businesses (Dahles & Susilowati, 2015).

(RQ4) Is there evidence of transformation in tourism start-ups in Nepal?

Incremental adaptation effects on SC attitudes were largely positive, but mixed feelings were felt by two start-ups outside of the Kathmandu valley (I4 and I5) because of development of

Discussion

(RQ1) What aspects of social capital have contributed to the resilience of tourism businesses in Nepal?

Social capital outside of the entrepreneurial ecosystem

The SC most often referred to in the results were forms of bonding SC. Existing ties that start-ups have with local communities appear to be strengthened when short term shocks (such as COVID-19) hit, but also when longer term stressors such as climate change affect them. Overall, bonding SC (outside of the ecosystem) corresponded most often alongside themes of diversification, COVID-19 and sustainability. Given this, there is at very least, suggestive evidence between the strength of structural SC a start-up has with their community, and the resilience that they gain from these connections. Locations outside of the Kathmandu valley also exhibited stronger ties to their communities, suggesting that rural communities in Nepal may be more closely knit than urbanised ones. SC also exhibits partial ties with several other themes, representing the wide-ranging effects of human agency within an SES. As well as being devastating for several reasons, shocks and stressors also show signs of increasing SC and resilience for start-ups and individuals after they experience them.

Resilience through diversification

Diversification was a clear strategy when the COVID-19 pandemic struck, causing the start-ups to pivot rapidly into other livelihoods, such as agriculture, resulting in bonding SC between the start-ups and local pastoralists. However, while this strengthened this type of SC, the established relationships within the tourism industry appear to have suffered. Whether this outcome is an overall net gain or loss for SC is dependent on the perceptions of each individual business, and how quickly they can return to tourism or, in ecological resilience terms, how rapidly can the state of the system return to equilibrium. Although, what equilibrium point the start-ups may return to might be governed by the size of the shock. In respect to the positive aspects of COVID-19 it can be said that as a catalyst, the pandemic has driven bonding SC into linking SC, evident in the diversification detailed by most interviewees. Start-ups that did not already deal in part with agriculture, had to rely more on bridging SC to survive during the COVID-19 pandemic. However, in many rural Nepal settings, agricultural is a part of life (Adhikari et al., 2018). So, the pivot away from tourism towards agriculture was a relatively straightforward decision for some start-ups. However, relying more on agriculture meant that some start-ups were increasingly exposed to perceived changes in climate that affected crop patterns. Another change in orientation by the businesses commonly found in the study was to domestic clients. While this often represented difficult operational and financial decisions, it allowed most of the start-ups to continue existing through a period without international travellers and subsequently a large portion of income. The ecosystem aided in this transitional process and contributed to the resilience, primarily through business plans of the participating start-ups during COVID-19. In future this may make the TSUs more resilient in similar events that stem the flow of transnational tourism.

Climate change

The participants in this research are victim to both slow climate change stressors, such as snow melt and seasonal changes, as well as fast acting climate change impacts, such as

flooding and landslides. There is a wide intra-sector variability of perceived climate change effects in tourism. Indicating that the tourism industry could be the canary in the coal mine of climate change effects on start-ups and business in the future. This study shows that SC of start-ups does change with climate change effects. The businesses generally have been dealing with the effects of climate change prior to the inception of the ecosystem. But what the ecosystem has done is enable the start-ups to better take advantage of situations that change the way relationships are formed and galvanised during times of stress. While it was outside of the scope of the ecosystem to address individual effects of all climate impacts, the ecosystem was able to equip the businesses with the ability to deal with slow climate stressors through masterclasses and energy efficient and renewable energy practices in their businesses. In terms of increasing the resilience towards climate change stressors, there does appear to be suggestive links between the ecosystem and the hardware, software and orgware transferred with the perceived increased resilience to climate change effects of the participating businesses.

(RQ2) Has an entrepreneurial ecosystem fostered resilience through social capital for tourism start-ups in Nepal?

Social capital in the entrepreneurial ecosystem

Evidence of relationships formed in the ecosystem were clear. During the relative isolation of COVID-19 lockdowns, similar business types in this study appeared to gain more from similar businesses in the ecosystem, for example, accommodation providers benefiting from understanding and being connected with other accommodation operators. The effect being that SC bonds could be described as bonding within the ecosystem, but also bridging as these businesses may have not otherwise been connected, exhibiting the very nuanced nature of human agency and relationships. Relationships have exhibited the ability to improve resilience through connecting entrepreneurs via this ecosystem and perhaps laying the foundations for transformational change (Kates et al., 2012). What is not known is how much more benefit the start-ups would have gained from being able to meet in person. The connections made in the ecosystem have likely contributed in some way to the adaptive capacity of the businesses. Increasing the SC, adaptive capacity and resilience in this instance may prove to lead to transformational change at some point in the future, where previously resilience has been seen as a barrier to transformation (David Tabara et al., 2019). SC effectively creating a support mechanism that builds adaptive capacity until such time as transformation has been achieved. The start-up's perceived resilience is likely increased because of participation in the ecosystem, but at most points it was difficult to delineate the separation in benefits between previous shocks and stressors and the effects of the ecosystem. This may indicate how difficult it is to understand the effects of human agency on resilience (Lockie, 2016).

The implementing organisation also hoped to bolster resilience and sustainability through establishing more efficient business models. The positive attitudes expressed towards business planning indicates that some start-ups were operations with some informal processes that benefitted from the masterclasses. Educating the start-ups through the ecosystem appears to have increased their adaptive capacity to shocks and stressors and increased their resilience. The effects of the business planning on start-ups that had more complex operations dealing in accommodation, agriculture and trekking also show to have benefited. This may indicate a proportional relationship between the degree of resilience a start-up could gain in an

entrepreneurial ecosystem with that of the complexity of the businesses model.

(RQ3) How do renewable energy and energy efficient processes affect resilience of tourism start-ups in Nepal?

Establishing energy efficient and renewable energy practices was a core feature of the ecosystem. The approach from the implementing organisation led to the start-ups to being able to tailor energy practices specifically to their differing needs. This personalisation worked well for one accommodation provider that already had solar installed, allowing them to invest in biogas facilities. The introduction of additional energy efficient and renewable energy practices meant that start-ups were less reliant on local infrastructure in most locations. However, in locations further away from Kathmandu, electricity supply seemed to be more problematic than those businesses within the Kathmandu valley, so increasing resilience against poor infrastructure may have spatial differences in Nepal. The energy efficient and renewable energy solutions increased adaptive capacity in varying ways, from lowering electricity costs and reliance on the national grid to making some businesses more competitive in crowded marketplaces.

(RQ4) Is there evidence of transformation in tourism start-ups in Nepal?

Several influences both from within and outside of the ecosystem that affect the ability of a start-up to adapt are present, these are shocks and stressors and the teachings and funding from the ecosystem. There does appear to be suggestive evidence linking SC and adaptation to agriculture within the tourism industry in Nepal. The strengthening of this link was likely catalysed by the COVID-19 pandemic, but it was difficult to define whether there was a net benefit to the start-ups. This is because the benefits of growing linking SC outside of existing networks may not be able to be realised until some point in the future. Most of these influences class as incremental adaptation, but what about transformative adaptation?

One issue on deciding whether a process is transformative or not tends to be an issue of either temporal or geographical scale – scales that this ecosystem and research is not currently involved in. However, since transformative goals applied to programmes anticipatorily can conflict with the notions of risk costs and benefits (Kates et al., 2012), this is not surprising. The often-protracted spatial scales that transformation can work at (ibid), as well as considering that a collective group of incremental adaptations can become transformational (ibid), might yet mean this ecosystem has some transformative aspects to it. In order then for success of the ecosystem to be defined by transformation, further studies on the ecosystem would need to be carried out.

Adaptation practices can be considered as creating sustainable solutions (constructionist) or stopping unsustainable practices (deconstructionist). Constructionist approaches have historically underpinned sustainability in SESs (Feola, Koretskaya & Moore, 2021). In the ecosystem several constructivist approaches were employed. Expert seminars along with renewable energy and energy efficient practices were seen to help the start-ups become more sustainable through introduction of new practices. What is less clear though is whether the information led to the deconstruction of unsustainable practices. One participant outlined how they had completed an energy audit and rewiring project, which could be potentially defined as reconstruction (Avelino & Grin, 2017). If there has been no deconstruction of unsustainable practices then this backs up studies suggesting that more effort needs to be applied to removing unsustainable practices in order to achieve transformation (Feola et al.,

2021). Importantly, the ecosystem provided a safe space for start-up development and a framework for change while not defining an outcome, a tenet to transformational change (Ajibade & Adams, 2019).

Entrepreneurial ecosystem boundaries and limitations

At the time of the COVID-19 restrictions in Nepal, the implementing organisation could not arrange meetings in person between the participating start-ups. This issue was raised by three of the businesses as something unavoidable, yet ultimately undesirable. This was also a geographical issue as well. As per Figure 2, the businesses in the ecosystem were spaced all over the central regions of Nepal so even when travel was possible, meeting up was not always logistically straightforward. More face-to-face connections may have improved the SC in the ecosystem. The ecosystem also had expert advisors come in to run seminars. One such advisor was unable to run their class in the Nepali language and therefore ran the seminar in English. This was questioned by several participants as to why a Nepali speaking expert could not have been sourced.

Interviews with the supporting social enterprise and international non-governmental organisation entities were not able to be conducted. This might have provided additional context and insight into the reasoning for initiating the ecosystem as well as its potential continuation.

Conclusion

RQ1 findings were that SC bonds that were established outside of the ecosystem, within local communities, likely contributed to the resilience of start-ups in the study. Existing relationships developed by participants throughout their professional careers have meant stronger SC bonds within the tourism industry. The frequency that shocks, such as COVID-19 or the 2015 earthquake, have had on individuals in Nepal over the last decade have meant that participants have relied on these relationships (professional and personal) to survive. Suffering through these shocks may have increased resilience of these businesses – further studies might look to compare similar start-ups to gauge differences in resilience gained from short term shocks.

Diversification experience also plays a key role in resilience building of start-ups during these shocks – it allows them to provide for their families, while placing their business income on hold until tourists return. SC appears to help the affected start-ups pivot and reach out to their support networks, regardless of the shock or stress. Ultimately it appears that increases in resilience outside of the ecosystem have tended to stay within the bounds of traditional ecological resilience, in that they allow the start-ups to return to a point of equilibrium after a shock has occurred.

In relation to RQ2, findings indicate that the ecosystem appears to have been able to foster linking and bridging SC that increases in resilience in several ways. Firstly, through software in the form of masterclasses, allowing the start-ups to connect with experts in business and financial planning, energy efficient and renewable energy practices, and sustainability. Established relationships with experts are also likely to continue beyond the scope of the ecosystem. The orgware delivered by the implementing organisation contributed to linking SC in establishing the relationships between start-ups and the ecosystem during the programme. This finding builds on Dahles and Susliowati's (2015) research, that

entrepreneurial responses are not only catalysts but maintainers of resilience and grow resilience in the tourism industry.

The findings for RQ3 were that resilience is likely increased through introduction of energy efficient and renewable energy hardware and software via the seed fund. The Start-ups found that less reliance on the public infrastructure in Nepal was a positive factor, both for the supply in electricity and the lowering of costs associated with buying electricity. Less reliance on the national grid also meant that start-ups were hopeful about indirect benefits such as improved customer experience from greater access to consistent electricity.

In terms of RQ4, there is little to no evidence that the ecosystem has achieved transformation in the participating businesses, but this is not to say that they are not already on the path to transformation. This is not surprising given the larger scales involved in achieving transformation, even though the foundation for realising transformational opportunities has been established by the implementing organisation in this ecosystem.

The entrepreneurial ecosystem is a humancentric approach to building resilience through relationships, ideation, incubation, and technology transfer. It is important then to characterise the social capital effects rather than just tally them (Levine, 2014) while applying this same characterisation of resilience of the businesses within the ecosystem. Where resilience theory may have previously described a system that might become stuck at a certain point an unable to go through transformative change, this study indicates that SC may elasticize the idea of resilience. This research details how tourism start-ups can not only increase resilience through participation in an entrepreneurial ecosystem, but increasing their SC through the ecosystem also makes the start-ups more able to adapt with change and survive in the longer term. It is possible then that the ecosystem has nurtured businesses that over time, may come to be viewed as adapting in a transformational way. This leans to suggestive evidence of a link between resilience, social capital and transformation.

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Conflict of interest

The author declares no conflicts of interest.

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