Disaster impacts, resilience, and sustainability opportunities for Gili Trawangan, Indonesia: transdisciplinary reflections following COVID-19

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This paper contains transdisciplinary reflections from both scientists and local NGO (non-governmental organisation) managers on the international small island tourism destination of Gili Trawangan, Indonesia. These viewpoints centre on the impacts of, as well as the short- and long-term adaptation strategies and sustainability opportunities associated with, two disasters that occurred in rapid succession: the earthquakes that struck Lombok in 2018; and the COVID-19 pandemic that began in 2020. A brief review of the governance challenges facing Gili Trawangan sets up the analysis of the findings and the presentation of new empirical insights into how the island's communities have dealt with two unique disaster scenarios over the past three years. The paper draws on a community resilience framework premised on social capital and collective action theories to position the island's ability to transition towards sustainable tourism in the wake of the COVID-19 pandemic. It concludes by laying out sustainability opportunities going forward.

Introduction

Since the early 1990s, Gili Trawangan, a small island off the coast of Lombok, Indonesia, has expanded from a few pop-up bungalows to a world-renowned tourism destination focused on SCUBA (self-contained underwater breathing apparatus) diving at local coral reefs. Before COVID-19 struck in early 2020, the island was receiving up to one million tourists per year, supporting thousands of local livelihoods and hundreds of businesses centred on more than 30 SCUBA centres. The island has experienced numerous disasters in the past, including volcanic eruptions, but a couple of major earthquakes in August 2018 (Partelow, 2020) and the ongoing coronavirus pandemic have challenged the tourism economy extensively and called into question its viability in recent years. While the negative impacts of such events are many, there are also opportunities to rebuild and rethink the island's trajectory and governance strategies.

In this paper, community resilience (Faulkner, Brown, and Quinn, 2018) is examined in the context of recent disasters that have produced governance challenges and opportunities for sustainable development of the tourism sector. Globally, tourism development

on small islands, particularly those in the tropics, face unique challenges owing to the likelihood of isolation from mainland infrastructure and society (Peterson, 2020; Zhang and Managi, 2020; Walker, Lee, and Li, 2021). Collective action and community-centred development initiatives are often critically important processes to address basic problems and challenges, as well as to ensure that such tourism projects can meet livelihood needs while maintaining the cultural identity and environmental integrity that often attract tourists and ensure local well-being. As a result, scientific interest encompasses a wide variety of topics concerning sustainable tourism, with current efforts often employing inter- and trans-disciplinary approaches that work together with communities and local development endeavours to understand better and catalyse sustainability transformations (Hind et al., 2015; Glaser et al., 2018).

More specifically, community resilience is needed for effective disaster response and recovery in the absence of external aid from states, non-profit organisations, or private sources (Paton, 2003; Nakagawa and Shaw, 2004; Brown and Westaway, 2011; Berkes and Ross, 2013). Even when external aid is available for disaster relief, it cannot directly establish the social capital and emotive and cognitive foundation needed to rebuild well-being from within (Aldrich and Meyer, 2015; Sadri et al., 2017). Analysis of community resilience positions internal capacities as the core features enabling short- and long-term recovery geared towards sustainable development (Berkes and Ross, 2013; Faulkner, Brown, and Quinn, 2018; Partelow, 2020). By spotlighting Gili Trawangan, we intend to provide an accessible synthesis of existing research and practical experiences, along with an example that broadly reflects many other small island tourism destinations in Indonesia and emerging tropical economies around the world.

This paper fuses the main impacts of and opportunities presented by recent disasters on the island, and provides an overview of the factors contributing to community resilience (Faulkner, Brown, and Quinn, 2018). Our insights are derived from a review of the literature, empirical findings, and transdisciplinary collaborations with two local non-governmental and non-profit organisations working locally: the Gili Eco Trust[2] and the Indonesia Biru Foundation[3]. Our results are presented in two parts. The first describes in detail the disaster impacts and sustainability opportunities by topic and over the time frame of the two disaster events since 2018. The second analyses the five features of community resilience: (i) place attachment; (ii) leadership; (iii) community networks; (iv) community cohesion and efficacy; and (v) knowledge and learning.

Tourism development on Gili Trawangan, Indonesia

Effective place-based governance is a well-understood necessity for managing shared resources and provisioning public goods in a sustainable and equitable manner (Davidson and Frickel, 2004; Lemos and Agrawal, 2006; Partelow et al., 2020). Gili Trawangan is no exception. Management and governance challenges on the island include waste collection, processing, recycling, infrastructure building and maintenance (docks, electricity, moorings, roads, and water), coral reef and environmental health and habitat restoration, as well as the public health and safety of tourists and residents. Historically,

governance of these resources emerged through collective action among private tourism businesses and local government actors (heads of island and regional authorities) (Graci, 2013; Partelow and Nelson, 2018).

Since 2002, a local non-governmental organisation (NGO) called the Gili Eco Trust has assumed a key role in facilitating self-organised governance by local businesses by building trust, community networks, and institutions for collective action among the island's stakeholders. The Gili Eco Trust has developed and maintained rules, norms, and action-oriented projects linked to conservation and sustainability, including: community beach clean-ups; coral restoration projects; sea turtle protection and nesting awareness; ecotourism information sharing; animal welfare campaigns; and tree planting. In addition, it assists with the waste collection and recycling services led by another local Indonesian organisation called the Front Masyarakat Peduli Lingkungan – FMPL (Community Front for Environmental Care), coupled with advocacy and awareness campaigns targeted at recycling and reusable product consumption. The Gili Eco Trust is funded by public donations, project grants, and voluntary contributions from businesses that give their SCUBA diving customers the opportunity to donate a one-time amount (around 1.50 USD).

National government public services have funded larger infrastructure projects such as a recently built solid waste processing facility, as well as roads, a pier, a local police facility, and a sewage system. The island has a mandatory ban on motorised vehicles, with single horse pulled carts (*Cidomos*) providing all transportation. Only when larger government projects are conducted are motorised vehicles brought on to the island, temporarily and if needed. Local government (regency level) is tasked with managing the daily operation of the newly constructed waste facility; as of October 2020, two people have been dispatched, which is currently insufficient for the workload. Similarly, the sewage system is built but not yet operational or managed by local government. As a result, tensions often exist between the self-organised efforts of local businesses, along with the Eco Trust, and the regional government. Governments have the finances and the authority to make decisions but may be disconnected and unable to understand what solutions will work locally and may lack incentives to act in a timely manner, whereas local stakeholders may know what needs to be done but often do not have the financial backing or authority to move forward on urgently needed projects. Local families involved in island politics have exercised substantial influence over island governance and island–government relations frequently linked to the success of their tourism businesses and stakeholder connections. Governance cooperation between all involved in a way that builds trust and transparency has been difficult, especially when many of the resident business owners (de facto; business partners in legal terms only) are foreign citizens who generate substantial tax revenue and employment, but receive little public investment in return or knowledge of where tax revenue is allocated within government spending (Partelow and Nelson, 2018) or whose practices could lead to disproportionate economic leakage from tourism (Smith and Jenner, 1992).

An evaluation of peer-reviewed literature examining tourism on Gili Trawangan indicates that social capital and informal community networks leading to self-organised

collective action and business–NGO–government partnerships have been important factors in shaping outlooks on marine space and waste governance, economic development (permits, taxation, infrastructure), and sustainability (Kamsma and Bras, 2000; Satria, Matsuda, and Sano, 2006; Graci, 2008, 2013; Bottema and Bush, 2012; Charlie, King, and Pearlman, 2012; Rianto, 2014; Hampton and Jeyacheya, 2015; Partelow and Nelson, 2018; Partelow, 2020). Waste governance has been a continual challenge with respect to how collection and processing should be organised, who should do it, and where the waste should go (Dodds, Graci, and Holmes, 2010; Willmott and Graci, 2012; Nelson, Partelow, and Schlüter, 2019), which has led to a shift in responsibilities and funding sources over the past decade. The ability to change behaviour to become more environmentally friendly through 'informational nudging' has been assessed with respect to reducing single-use plastic and decreasing reef impacts (Nelson, Bauer, and Partelow, 2021) and paying for marine conservation (Dodds, Graci, and Holmes, 2010; Nelson, Partelow, and Schlüter, 2019) and green hotel certifications (Nelson et al., 2021). Network research has revealed the island's social and ecological interconnectivity, including patterns of reef use (Eider et al., 2021) and business collaborations (Partelow and Nelson, 2018). Gili Trawangan is also experiencing landscape and coral cover changes, coastal erosion, and increased infrastructure development (Kurniawan et al., 2016a, 2016b). The cooperative recovery efforts following the earthquakes in August 2018 indicates a high level of community resilience following a short-term local disaster (Partelow, 2020). Moreover, numerous articles have been published about the island and cultural and economic impacts (Diah Sastri Pitanatri, 2018, 2019), critiquing ecotourism (Halim, 2017), breakwater protection (Pradjoko et al., 2015), and religiosity (Varga et al., 2018).

Methods

This paper's findings represent a synthesis of existing literature related to Gili Trawangan and new empirical research by the academic authors (Stefan Partelow and Marie Fujitani), co-produced with transdisciplinary partners in practice (Sian Williams, Delphine Robbe, and Raditya Andrean Saputra). Peer-reviewed literature was collected from Scopus and Google Scholar using search terms linked to the island (Gili Trawangan, Gili Matra, Gili Matra Marine Park, Gili Air, Gili Meno, Gili Islands). All of the articles found were scoped to exclude unrelated items, and then read (N=35) and inductively coded based on the main emergent themes on disaster and sustainability issues (see Table 1). When relevant, content was coded according to Faulkner. Brown, and Quinn's (2018) framework of five factors for community resilience: (i) place attachment; (ii) leadership; (iii) community networks; (iv) community cohesion and efficacy; and (v) knowledge and learning (see Table 2).

The paper also draws on insights from more than 100 semi-structured interviews conducted by Stefan Partelow during prior research on Gili Trawangan and the topics of sustainable tourism and resilience, in part regarding the aftermath of the Lombok earthquakes of 2018 (Partelow and Nelson, 2018; Nelson, Partelow, and Schlüter, 2019; Partelow,

2020). In addition, 11 key informant interviews were conducted between October and December 2020 with local business owners and community leaders who remained on the island despite the continuing economic hardship owing to a lack of tourism and a ban on international travellers entering the country (Stefan Partelow and Marie Fujitani). These interviews included follow-up questions and reflections on how individuals, the tourism community, and formal and informal governance structures responded and adapted to the impacts of the earthquakes and COVID-19 on the community. Interviews were conducted over the telephone due to travel restrictions. Interviewees gave prior informed consent, and all interviews were recorded, transcribed, and coded to capture emerging themes pertaining to the effects of COVID-19, challenges to (and the strengths of) economic, environmental, and social sustainability, and governance-related issues (see Table 1). Qualitative data analysis software, MaxQDA (20.2.2), was used to organise the coding process. Nonetheless, performing interviews remotely comes with its own set of challenges, including scheduling, time changes, and difficulties in establishing a connection between Indonesia and Germany, as well as the inability to read facial expressions and body language that can influence the interpretation of statements on both sides. Trust is also needed to speak, often with people one has never met in person, about personal topics related to hardship and loss. However, there are also advantages, such as high-quality recording, advanced scheduling, and flexibility over a period of time that may be longer than in-person fieldwork travel.

Insights are also derived from transdisciplinary partners (and co-authors) with the Gili Eco Trust and the Indonesia Biru Foundation. Transdisciplinary research refers to research co-produced by academic and non-academic partners, and is increasingly recognised as important in generating locally relevant and practically applicable findings (Max-Neef, 2005; Lang et al., 2012; Thompson Klein, 2014; Polk, 2015). The partners in both organisations have decades of experience of living and working on the island and in the region addressing sustainable development challenges as practitioners. The partnerships include multiple ongoing projects, including this synthesis of disaster and COVID-19 impacts. Synthesised insights in this paper were co-generated and co-written as part of a joint activity. The purpose of the current activity is to generate place-based insights from science and local knowledge that are locally meaningful and grounded in practice. Nonetheless, as authors, our positionality plays a role in our engagement in the case study area, understanding of the challenges and opportunities, and ability to make any authoritative statements about the island, its history, the diversity of people, and the potential trajectory. The academic authors (Stefan Partelow and Marie Fujitani) are citizens of the United States and are employed at German higher education institutions. The co-authors (Sian Williams and Delphine Robbe) have European backgrounds and have lived on Gili Trawangan, working on direct conservation and development initiatives, for well over a decade. Raditya Andrean Saputra is an Indonesian national, living and working on Lombok on marine conservation issues, and with several years of experience of marine conservation on the Gili islands.

A core purpose of such research partnerships is to link different perspectives. Although no position is bias-free, being close to a topic always risks potential biases due to personal

attachment that needs to be reflected on as knowledge is co-produced. These issues are well-known in transdisciplinary sustainability science, which has an expanding pool of literature on the roles and processes of self-reflection on researcher and practitioner positionality, as well as the positive aspects of internal and local agenda-setting (Wittmayer and Schäpke, 2014; Horlings et al., 2020; Breckwoldt, Lopes, and Selim, 2021).

Results

Disaster impacts and sustainability opportunities

Five major themes emerge as important when synthesising disaster impacts and sustainability opportunities on Gili Trawangan following the earthquakes of August 2018 and COVID-19 (see Table 1 and Figure 1). First is the responses and adaptive strategies of the local Indonesians, who are perhaps the least studied, academically recognised, and understood social group on the island. While there are an estimated 200 local Indonesian households on Gili Trawangan, more than 2,000 local Indonesian employees commute from Lombok to work in the service sector. Informally, the impact of the Gili Islands on the north Lombok economy is perhaps as the primary employer beyond fishing and farming. The 2018 earthquakes shattered this income opportunity, as tourism was shut down and most people returned to Lombok for family and community grieving and rebuilding activities. However, COVID-19 mobility restrictions have posed a larger long-term challenge to tourism livelihoods. Many businesses, as during the earthquake closures, continued supporting employees on payroll, but this could not be done indefinitely during the pandemic. Many locals who were principally employed in tourism reportedly shifted to fishing or farming on family land as an adaptive livelihood strategy. Such a move was not an option, though, for foreign employees and business owners.

The second theme involves the responses and adaptive strategies pursued by people working in the tourism sector, with a focus on day-to-day operating businesses. The tourism sector is largely owned and managed (de facto) by Western nationals, many of whom have been living and operating on Gili Trawangan for more than a decade, although there had been an increasing number of East Asian businesses and Indonesian investors (non-local) up until the arrival of COVID-19. Small hotels and retail services continue to require foreigners to be in a partnership with cooperatives or Indonesian Micro, Small, and Medium Enterprises (Usaha Mikro, Kecil, dan Menengah, or 'UMKM'), whereas full foreign ownership of high-end resorts and some categories of large businesses had become possible as of 4 March 2021 (Presidential Regulation No. 10 of 2021 on Investment Business Sectors). However, these legal developments are too recent to be relevant to the time frame of the current study. The requirement for foreign partners to run businesses only in cooperation with Indonesian partners who retain formal ownership applied to the businesses during this study, and may have contributed to the sense of control and belonging experienced by de facto foreign business owners throughout the disasters. The earthquakes left many businesses needing repairs, but the physical damage was mostly short term, although many individuals incurred psychological trauma. Nonetheless, 2019

saw a near return to full tourism after successful self-organised efforts by remaining locals and business owners to rebuild, clean, and prepare the island for reopening between two and three months later. COVID-19 has been different: the social capital and local self-organisational capacity was less helpful in buffering against international travel shutdowns, which closed 90 per cent or more of the businesses. As of June 2021, after 14 months, tourism on the island remains at peak lows with only domestic travellers occasionally utilising the few open services.

Third, coral reefs and near-shore health remained resilient to earthquake impacts. A few reefs incurred cracks and other damage due to physical shaking, but reported increases in marine life attributed to the absence of heavy boats and SCUBA traffic, which would otherwise be present all day, year round. Furthermore, the more than year-long removal of tourists and boats owing to the COVID-19 pandemic has resulted in increased anecdotal observations of marine megafauna on and around Gili Trawangan, including nesting sea turtles. Informal reports of more abundant marine life have been accompanied by increased reports of fishing and egg poaching by unemployed locals, however. Well-established coral restoration projects continue to run on the island's eastern shore. Although the short-term damage to reefs means that they may be getting a much-needed break from human pressure, long-term concerns include increased sea surface temperature, driving coral bleaching, which the local reefs faced in 2016 and 2017.

Fourth, public health in the wake of the 2018 earthquakes through to the COVID-19 pandemic has remained a perennial concern. As a small island, few supplies and clinics are directly available on Gili Trawangan. During the earthquakes, immediate first responder aid was pieced together and provided by residents with prior medical and first-aid training, who needed to evacuate those with serious injuries off the island. During the pandemic, the island remained case-free for most of 2020, although reports of infections emerged in 2021. Although few have been reported, partly to enable reopening as soon as possible, testing frequency and treatment centres in the one clinic that has remained open raises public health concerns, particularly among the most vulnerable local households with less ability to access needed resources as compared with foreign nationals, for example, in Bali or Mataram. In addition, few standard operating procedures exist to deal with disasters such as earthquakes, beyond learned experience. Local schools have worked with children to overcome trauma, but few services exist in other regards.

Fifth, community cohesion and social capital are an essential component of the island's functionality owing to the self-organised nature of governance and problem-solving that materialised from its early development until today. Nonetheless, this has increasingly fractured into subgroups over the past decade. Now there is a different group of foreign nationals than in the 1990s, often with different viewpoints, motives, and investment strategies (personal and financial). During the earthquakes, local Indonesians almost exclusively fled to Lombok. Many foreigners also left for either Bali or Lombok (to provide support in terms of supply acquisition and fundraising) or went back to their country of origin permanently. Importantly, joint collective action among those who stayed on

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Table 1. Synthesis of disaster impacts and sustainability opportunities on Gili Trawangan following the 2018 earthquakes and COVID-19*
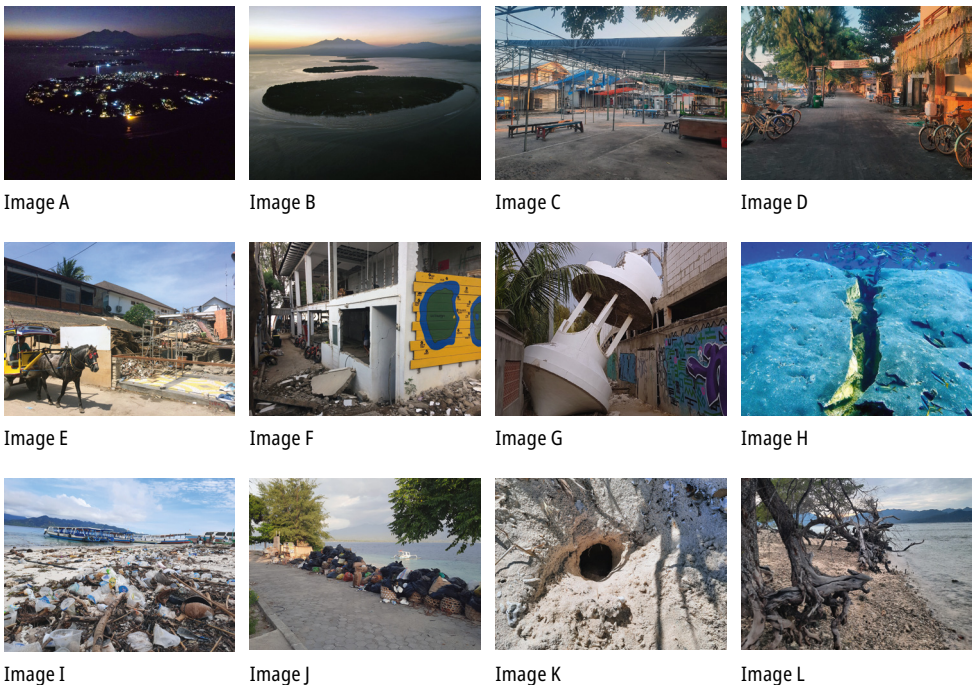
Focal areas	Impacts of the 2018 earthquakes	Lessons learned from the 2018 earthquake	Impacts during and owing to COVID-19	Opportunities for sustainability
Timeline	August 2018	2019	2020–21	Future
Local Indonesian livelihoods	Some 2,000 local jobs impacted for between one and three months; some never returned from Lombok. Many working with businesses to rebuild and prepare for the return of tourism.	Tourism is still a viable employment sector. Aid received from Indonesia's central government and international organisations, allowing for quick recovery of tourism.	Difficult for many of the 200 or so local households impacted; more fishing and farming. Some 2,000 Lombok commuter jobs affected; more work on farms and in small shops.	Income diversification needed. Less short-term tourism work, more long-term work. Local governments start job programmes for sustainable fisheries, monitoring, and conservation.
SCUBA and tourism businesses	Tourism closed for between one and two months. Rebuilding for many. Local employees left. Excavators and trucks rented. Many foreigners left permanently, some businesses too. Collective action by many for revival.	Dive operators and the local community can work together to promote tourism safety. Experience gained, and social capital built for the future. Community networks are stronger.	Ninety per cent of businesses closed for more than one year. Foreigners (some 2,000 pre COVID) on the island reduced by around 85 per cent day to day. International tourism blocked, domestic tourism remained very low.	Fewer businesses will lower competition, increase water safety, and decrease transaction costs of communication. Fewer businesses will reduce environmental impact on the island, making cooperation easier.
Environment and coral reefs	Cracks and landslides at several dive sites. Increased reef life presence. Short-term reduction in noise pollution from boats and diver impacts. Less tourism waste but disaster rubble.	The reefs are resilient. There is no significant change in coral cover and the abundance of reef fish.	More fishing by some locals. More biodiversity on some reefs with fewer boats. More turtle landings and nesting sites. Increased turtle egg poaching by unemployed locals.	Reduced SCUBA pressure on reefs (presence, noise). Less waste being produced, including wastewater management. Regular beach clean-ups. More awareness efforts. Fewer businesses will lower pollution. Established waste collection system.
Public health and education	Both locals and expatriates developed trauma. Some cases were severe, resulting in them leaving the country. The primary school on Gili Air closed for more than three months. Teachers and parents did not want children under unstable roofs. Piles of rotten food from hotels and restaurants, and so more rats and risk of disease.	No standard operating procedure for before, during, or after the disaster. No mitigation plans prior to the event, such as safe building rules. Teachers spent between two and three months mitigating trauma among local children. School mitigation protocols.	All small unofficial medical clinics and pharmacies closed. Main legitimate clinic closed for more than one year. One clinic opened for the island with a part-time registered doctor; one with corona testing. Many fear catching COVID-19 in hospital or from doctors.	More buildings with an earthquake-friendly design; local styles adopted: wood/bamboo structure and a light roof. Government funds for sustainable buildings. Information campaigns for waste reduction, nightlife safety, and animal welfare. Protocols for disaster response.

Focal areas	Impacts of the 2018 earthquakes	Lessons learned from the 2018 earthquake	Impacts during and owing to COVID-19	Opportunities for sustainability
Community cohesion and social capital	Most locals first fled to Lombok, leaving local businesses and the island with few people. Remaining survivors self-organised supplies, rebuilding and coordinating future plans. People living day to day.	Tourism came back, only about three months after. Global tourism demand remained high despite aftershocks for months. Trust gained in working together. Place attachment high, aiding collective action.	Many foreign owners/employees left, some permanently. Limited domestic tourism hurt the diving industry. Some local warungs (small family-owned business) spared due to Lombok tours, but most closed. Living week by week on an empty island.	Less crowded and smaller communities to rebuild the economy and resolve governance issues. Higher bonding and bridging social capital, less conflict. Long-term investors with place attachment.

Note: * Overall, each presents challenges for cooperative governance. Each focal area is an action arena for institutional development and change to address sustainability goals and issues.

Source: authors.

Figure 1. Disaster impact images from Gili Trawangan*

Image A

Image B

Image C

Image D

Image E

Image F

Image G

Image H

Image I

Image J

Image K

Image L

Notes: * (A) Sunrise, lighted Gili Islands, north Lombok coast and Mount Rinjani pre pandemic; (B) Sunrise, dark Gili Islands, north Lombok coast and Mount Rinjani during the pandemic shutdowns; (C) Empty night food and night market during the pandemic, a central gathering place; (D) Empty main street on the east side of Gili Trawangan; (E) Earthquake rubble and horse cart following the 2018 earthquakes; (F) Damaged building after the 2018 earthquakes; (G) Toppled mosque spire post-earthquakes; (H) Cracked coral head off Gili Trawangan following the earthquakes; (I) Plastic litter covering the beach; (J) Waste piles gathering on the shore; (K) Signs of turtle egg poaching during the pandemic; and (L) Coastal erosion, a continual problem.

Source: authors.

the island or in the region created social capital, between local Indonesians and foreign nationals. This further fostered belief in the ability of the community to work together and resolve its own problems, although these events were not without distress and disagreement. Cooperation during the pandemic has been different. Dire outlooks, coupled with a lack of a sense of control or a foreseeable end, left many businesses closed (permanently so in the case of a likely high but unknown number).

Beyond COVID-19: sustainability opportunities via community resilience

Community resilience on Gili Trawangan is an interactive and fluctuating phenomenon, with locals and foreign nationals drawing on prior experience to provide leadership and adaptive strategies to address new problems. Translating the relatively high level of community resilience built after the 2018 earthquakes into dealing with the COVID-19 pandemic has been challenging. Furthermore, how the island will adapt going forward to tackle new and recurring sustainability challenges is unknown. Nonetheless, adaptive learning on the island over the past decade provides an opportunity to merge empirical findings and practical experiences with a theoretical lens of community resilience. This allows insights to be drawn about how the context of Gili Trawangan matches more general features that enhance or decrease resilience in the literature, to transfer and reflect on lessons learned. We situate our synthesised findings in the five capacities of community resilience identified by Faulkner, Brown, and Quinn (2018): place attachment; leadership; community networks; community cohesion and efficacy; and knowledge and learning (see Table 2). Direct quotes from the interviews are provided below the synthesis of each capacity.

Place attachment

This is a strong driver of collective action among those who stayed after the earthquakes to rebuild faster and with deeper social connections. Similarly, in the early months of the pandemic, many businesses stayed and supported staff at a financial loss. Many feel a strong connection to the island and a commitment to see things through. Some saw place attachment as an opportunity to leave the island for something new, while others could no longer afford to stay. Long-term unknowns are simply economically demanding and require external forces beyond self-organised collective action to resolve. Although place attachment can create over-optimistic attitudes that undermine acceptance of harsh realities or practical strategies going forward, conversely, it is a motivating factor for adaptation. Those who stayed have a deep attachment and financial, personal, and social investments. They hope that the island can recover and forge a better tourism economy with longer stay, place-based tourism.

> Some businesses that grow big . . . they have managers running their businesses here, those are normally the ones that could easily sack everyone . . . because they are not emotionally [involved] . . . they're not there, the ones that are sticking through (Indonesian business owner).

Table 2. Capacities for decreasing or enhancing community tourism resilience on Gili Trawangan*

Community resilience capacities	Description of capacity	Factors decreasing resilience	Factors enhancing resilience
Place attachment	Affective, cognitive, and material relationship with place	Conflict among expatriates and local people, with large economic and cultural gap. COVID crisis is too long and people are losing trust in tourism resuming. Overcrowding, loss of local sentiment, and negative press on pollution and crowds.	Fair business and investment climate. Education level of local people. Working together on decision-making and governance. Cooperation and trust gap smaller since earthquake rebuilding.
Leadership	Leaders, organisations, characteristics, roles, and actions that affect outcomes	Lack of government leadership and communication. Lack of enforcement of rules/regulations for safety. Businesses with different motivations. Lack of transparency and trust in decision-making. Elite families and owners having non-transparent political power. Government buildings left without management; locals not allowed to help.	Self-organised leadership is strong. More power to enforce laws. Increased cooperation, communication, and transparency among stakeholders. Strong place attachment among leaders and local knowledge of history and recurring issues. Custom *awig-awig* (local rules) governance among local families.
Community networks	Bonding and bridging ties enabling collective action	Short-sighted individual actions among the communities for profit or market advantage. Past conflicts never resolved. Trust decreases with a lack of transparency in decision-making.	Strong informal networks; small island. Most people know each other and have a common goal of thriving tourism and believe that they can be successful.
Community cohesion and efficacy	Ability to act together; belief, trust, and empowerment in performing and managing situations	Within-group conflicts and disagreements about funding and strategies. Pride and past mistakes blocking discussions on and decisions for a better future. Lack of ability to formalise community agreements and enforce them removes a sense of self-control of governance.	Disasters fostering cooperative relationships and quick responses by members of the community increases confidence in ability to manage crises (clinic, excavator, trucks, schools). Fewer people and tourism brought local and foreign communities together through stronger engagement.
Knowledge and learning	Individual and group capacity to respond to local needs and issues through learning and social memory	Lack of learning facilities (learning centres, teachers, teaching materials). Tourists coming from all cultures and countries, different norms. Lack of investment in and incentives for cooperative governance and transparency.	High-quality learning centres. Information and outreach by local NGOs. Communication networks for sharing information and transparency (such as for disasters, business start-up, infrastructure). Government, NGO, and business communications better. Effective use of technology (Facebook/ WhatsApp).

Note: * Community resilience capacities adopted from Faulkner, Brown, and Quinn (2018).
Source: authors.

The expat community only really started leaving after like, a couple of months . . . there's no support networks . . . but it's kind of kept this community vibe going. But at the time, they were thinking that they were just going home and forget their money, have a little break . . . and just come back in two months' time . . . when people really started to leave then it got strange, and now loads of people have left (Local NGO manager 1).

Leadership

Local within-community leadership was critical during the earthquakes, as many individuals rose to the occasion, using personal skills and financial and informal social capital to foster collective action among residents. Cleaning, repairing, fundraising, outreach, and hosting isolated residents were tasks wilfully taken on by many and embraced by nearly all who could help. The pandemic requires a different form of leadership. Consolidation of the economy, participation in decision-making, and the politics of reopening, advocating for the use of public funds to rebuild and regenerate tourism, require engagement by government and community stakeholders in the region's tourism political economy, which has historically faced communication and transparency challenges. The recent dual disasters have brought into focus who in the community is dependable in terms of support and mobilising action in a crisis. The identification of strong leaders is an important predictor of collective action and resilience moving forward.

They are the ones that are the most actively engaged . . . I would call them the hardcore ones that are still here . . . there's always a handful of us, the main five or six shops that have been here the longest. I really agree with them and we call it mini GIDA [Gili Indah Dive Association], basically you know if something comes up and you've been asked to deal with it, and you're not really sure how to do it, as the head of GIDA, you could sit down with these six people, it's not really Mafioso style, its more to support you than the other way around, but yeah, they are the elders (Foreign SCUBA business owner 1).

A lot of people panic, in any situation, which a lot of people have done, you know, some financially, some emotionally, some because they can't handle it . . . and we've learned a lot from the earthquake, then a lot of looking after each other watching each other's backs [within the core community] . . . I suppose we've just been trying to spread the wealth of that. . . . But we've spoken quite a lot, a lot of the big boys on the island, I think it could be an amazing reset for the island. . . . There was too many people here, people have just paid the right people to be able to come in and do whatever the hell they want, build whatever the hell they want. Those sort of people, and it just can be a wonderful reset (Foreign SCUBA business owner 2).

Community networks

Earthquake recovery made many community networks stronger, and some disagreements among subgroups clearer—yet, it was positive overall. Community networks, formal and

informal, have helped many to overcome the social-psychological difficulties of lost livelihoods and vibrant social connections that characterised daily life on a small tourism island before the disasters. Those who remain to see reopening after the pandemic will probably emerge with strong networks, building on both disaster experiences in the future.

> *The community you get to know a lot more people . . . so that's a good side of it for everyone here . . . the main of the community is still definitely here . . . when you pass them on the street, there's still lots of hellos and smiles and stuff. So that's good . . . [if] I'm having a bad day, my mate pulls me out, and then vice versa. It's proving to me that it's gonna take a lot to crack the community* (Foreign SCUBA business owner 1).

> *My friends are all managers and owners of hotels and restaurants and bars here. So you're all one community together, here [in GIDA], we are the dive centres, all forced to sit with each other so that's why everyone connects with each other one way or another. So I think because of that everyone is kind of connected more* (Foreign SCUBA business manager 1).

Community cohesion and efficacy

The immediate response after the earthquakes demonstrated that the community can act quickly, cohesively, and effectively to meet severe challenges. Tourism growth since 2010 and reopening quickly after the earthquakes gave the island's residents and employees a sense of self-control, reaffirming that collective local investments can lead to prosperous tourism recovery. Cohesion and efficacy, coupled with previous successes with bottom-up collective action, have spawned sentiment that increased empowerment through recognition of decisions of local collective choice mechanisms could enhance adaptive capacity (Ostrom, 1990) as well as increase management autonomy. COVID-19 has left many questioning the future of the island, undermining this opinion, and revealed vulnerability to a wider range of challenges linked to sustainable development. Yet, consolidation and scaling down can also be positive for social cohesion, cooperation, and environmental impacts if the efficacy of reopening and rebuilding is a community building activity rather than an individual one.

> *Yeah, 100 per cent. [Once the pandemic hit] everyone kind of worked. Everyone kind of went okay. No worries. Like, I think everyone just jumped to it. Because I think we're so used [to disasters]. In regards to like learning, like from the earthquake, I think we, I think the island, did well to still kind of come together* (Foreign SCUBA business manager 2).

> *I think people are trying really hard [to stay positive during the pandemic]. There's a lot of community spirit, people take it together. This can be quite a lot of partying. . . . So this part is going on for them. But I'm assuming that's normal. But I think it's also a way for people to come together . . . I think it's a grateful island. It's a cool place. And I have only positive things to say about the expat community. I mean, since we've experienced this only being really positive* (Foreign tourism business owner).

Knowledge and learning

Learning throughout both disaster events has been continuous, but in different ways. Recovering from the earthquakes was known to be possible, and lessons learned were practical and clear: standard operating procedures, enforced construction codes, place-based building techniques and materials, medical supplies, and global support are needed to be resilient to future events. Communication channels were opened between different groups that were not previously in regular communication (including government, NGOs, and businesses), utilising technology (Facebook and WhatsApp) effectively; these channels remained open and were critical to the spread of knowledge during the pandemic. The social memory of the cohesive and collective response to the earthquakes influenced actions by members of the community at the onset of COVID-19. However, as the pandemic drags into its second year, learning has turned introspective, and become long term and social–psychological: what is the island's future? What will tourism economies be like afterwards? How can I create a good future for myself and the island? Local knowledge and experience, and the passing on of that knowledge to new residents and its application to new situations, have played a continual and important role in the island's past prosperity. It is unclear if post-pandemic development will be a step to the side or backwards or provide a fresh set of insights into how tourism development will continue going forward.

> But we know we've learned so much in terms of common collaboration and working all together to make the island better during the earthquake. So let's set up those things [again] (Foreign environmental NGO manager).

> This is a reset button if we can prove that . . . different concepts of tourism, better tourism, exclusive tours . . . [are] better. Yeah. This is a first experiment. Maybe we can have different policies in tourism. Now, we have a chance to actually take data . . . then maybe we can learn we can restructure tourism (Indonesian conservation NGO manager).

Discussion

Transdisciplinary approaches have proved useful here in gaining place-based knowledge that is co-produced and contextually embedded for rapid assessments of community disaster resilience. The Gili Trawangan community has embraced disaster as an opportunity, continually reconfiguring its social and governance organisation to adapt to new challenges. However, the question of 'who governs the island?', formally and informally, remains contested and politically sensitive, and entails a daily learning and relearning process among all involved. The Gili Eco Trust has been a consistent self-organised endeavour throughout the many changes and challenges on the island, driving much of the maturation of the community resilience capacities outlined above. Nonetheless, the end of COVID-19 is not yet in sight and international tourism has not returned to pre-pandemic levels (as of April 2022), and the consolidation of the island's businesses

and tourism flows have paused many environmental impacts but also threatened all reliant livelihoods. One major question is whether the race to reopen tourism and reboot the economy will catalyse or undermine cooperation efforts among businesses, NGOs, and local government to address vital environmental and social welfare issues. This paper shows that the island's current capacities for community resilience are maturing, and at the very least provide a set of enabling conditions built on past experience that can contribute to sustainable development in the future.

Community resilience remains an important conceptual framing for examining the success of short- and long-term disaster relief and recovery processes. The factors enabling successful preparedness for, responses to, and recovery from disasters are increasingly recognised as internal, derived from and shaped within communities (Adger et al., 2005; Brown and Westaway, 2011; Berkes and Ross, 2013; Aldrich and Meyer, 2015). However, external factors also mould community resilience on such a small island, including social media coverage, international donations, and support and aid from local and national governments. For example, Gili Trawangan's extensive network of past foreign travellers provided financial donations and awareness during disaster events, yielding much needed aid and motivating local mobilisation. Importantly, disasters can be framed as opportunities and catalysts for sustainability transformations because they can reconfigure approaches to local governance challenges, strengthen community social organisation and capacity, and/or realign local development towards sustainability goals. On Gili Trawangan, COVID-19 will allow for reconfiguring who is on the island, who is involved in politics, and who invests in the island's future. Those who remain throughout the Coronavirus period will be part of the island's community who have faced a new challenge and emerged from it with a new sense of resilience. The pandemic also offers a chance to reimagine the island's development trajectory, downscaling and reorienting business and governance cooperation strategies, which can allow for a more sustainable and resilient future.

Transdisciplinary partnerships can help to bridge the gap between academic findings and what is needed in practice for creating change processes that fit local contexts (Lang et al., 2012; Polk, 2015; Lawrence, 2020). This is particularly helpful when formulating insights that can align with local political, cultural, and contextual realities, so they can be taken up better. However, it is not without challenges. Engaging in transdisciplinary partnerships positions researchers more firmly in the systems being studied, as subjects of change themselves, necessitating ethical and methodological reflections on the positionality of all engaged.

Significantly, this analysis only examines Gili Trawangan, one of three neighbouring islands, all situated within the broader political economy of tourism in the Lombok and Bali region. The islands are located in the Gili Matra (Meno, Air, Trawangan) Marine Park, a zoned multi-use marine protected area designating tourism, conservation, and fishing areas. The area, established in 2009 under Decree of the Minister of Marine Affairs and Fisheries Number KEP.67/MEN/2009, is managed by the Ministry of Marine Affairs and Fisheries (Kementrian Kelautan dan Perikanan), and locally by the National Marine Protected Areas Agency (Balai Konservasi Kawasan Perairan Nasional) Kupang.

The purpose of the area, though, is to motivate stakeholder participation and management and integrate it into daily use and conservation. Despite the common protected area, each island has its own distinct development issues and local leaders (all through cooperation and influence crossover in some cases); cooperation among local leaders, NGOs, businesses, and government has not always been transparent or smooth. What the three islands have in common is their physical disconnection from the mainland, and local government oversight by the North Lombok Regency, which is directly in charge of overall government issues. However, the national government is also involved directly in infrastructure development on the island. Arguably, the islands are viewed as oases of revenue and employment, in contrast to the mainland areas in the Regency, which can be largely characterised as rural and agricultural, with low development standards. Providing government services on offshore islands is difficult, and is probably not viewed as a priority by local officials. They have seen near constant tourism and revenue growth on the islands with minimal inputs; public funds may be better directed at meeting crucial economic and infrastructural needs on the mainland. As the island is a very large source of revenue and economic prosperity in an otherwise underdeveloped region, corruption remains an issue that is mentioned regularly and likely exists across a variety of issues, from land allocation and business permitting to tax revenue use and political and economic leverage by officials and influential business owners for personal gain. Navigating and improving governance processes in this context is necessary in many parts of the world, to address an issue that is often unseen but influential in the processes of transitioning towards more sustainable systems.

Conclusion

Change is now inevitable on Gili Trawangan, but its direction is uncertain. Many of the actors who stay are likely to have an experience-based and mature sense of what makes the island's interrelated communities more resilient. As the COVID-19 pandemic continues, governance will evolve, as will community goals, relationships, and networks. The matter of 'who governs' can be paired with the question of 'what governs the island?'. Development on Gili Trawangan is immanent; it appears to have evolved from the aggregation of everyone's collective activities, rather than being interventionist and externally driven, for example, by state programmes (Morse, 2008). Place attachment and knowledge and learning processes play strong roles. They exemplify how governance and resilience are embedded features of social systems, constantly evolving and adapting to what is happening. Networks and community cohesion are the fabric of social activities and beliefs, and leadership can help to steer them towards taking more sustainable actions. However, leadership is also shared and iterative in relation to who has influence over who, an active political ecology with historical power dynamics.

We believe this analysis provides a baseline assessment of community resilience, and highlights some of the main factors influencing the island of Gili Trawangan's ability to cope with and emerge from the COVID-19 pandemic.

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Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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² For more information, see http://giliecotrust.com/ (last accessed on 31 October 2022).

³ For more information, see https://indonesia-biru.com/ (last accessed on 31 October 2022).

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