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Regenerative tourism as a post-disaster response: lessons from Cammino nelle Terre Mutate

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4 **Manuscript – anonymous**

5 **Title:**

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7 Regenerative tourism as a post-disaster response: Lessons from *Cammino nelle Terre Mutate*
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9

10 **Abstract**

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12 Disasters, resulting from natural hazards, have a profound impact on communities and places,
13 revealing vulnerabilities while shaping unique identities. Regenerative tourism offers promise
14 in aiding recovery and revitalization, supporting local economies, and fostering a transition to
15 alternative development approaches. Drawing on emerging conceptual frameworks in
16 regenerative tourism, this paper proposes their application in post-disaster contexts. It
17 explores walking itineraries as potential regenerative practices, embodying spiritual and
18 political acts of re-signifying place. Using the *Cammino nelle Terre Mutate* case study, which
19 traverses rural villages in central Italy struck by violent earthquakes in 2009 and 2016-17, the
20 study examines the application of regenerative thinking in post-disaster tourism practices. It
21 illustrates how walking itineraries, when guided by regenerative principles, can facilitate the
22 coexistence of humans and the environment, which includes natural hazards as intrinsic
23 components of a dynamic living system. This study highlights the role of communities in
24 enhancing system capacity, revealing the inherent potential of affected areas beyond recovery,
25 and paving the way for tourism as part of a regenerative process. However, tourism's
26 effectiveness depends on nurturing a regenerative mindset and harnessing transformative
27 capacities to stimulate local economies and imaginaries, prompting a re-evaluation of
28 tourism's role in local development.
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40 **Keywords**

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42 Regenerative tourism; post-disaster; regenerative thinking; walking itineraries;
43 community-based tourism; Italy; Central Apennines
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46 **1. Introduction**

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48 Natural hazards are an inherent aspect of the physical morphology of different regions,
49 and some areas are more prone to these hazards than others. While some hazards are
50 predictable and are a natural part of a region's history, others are exacerbated by climate
51 change and Anthropocene effects (Cutter, 2021). Interaction between natural hazards and the
52 human environment plays a significant role in shaping the spaces in which we live (Bakker &
53 Bridge, 2006). Natural hazards can result in catastrophic disasters, the magnitude of which
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4 depends, among others, on the interrelationship and coexistence of humans, communities, and
5 the environment. Thus, disasters are social constructs that have varied impacts on people and
6 places they affect, with deep-rooted causes that cannot be addressed solely through
7 emergency responses (Olori, 2023).
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10 Disasters include three phases: pre-disaster, which could last days or even centuries;
11 during disaster, which lasts seconds, hours, or days; and post-disaster, which could last days,
12 months, or even centuries and includes damage assessment, reparations, and resilience. These
13 three phases lead to a diverse collective understanding of the natural, social, and economic
14 dimensions involved. While media and analysis often focus on the immediate aftermath of a
15 disaster, the post-disaster phase is the least understood and can last for an extended period,
16 affecting the involved communities in diverse ways (e.g., lack of infrastructure, soil and water
17 contamination, long-term displacement, cultural identity, and misuse of resources). Therefore,
18 the post-disaster phase is a "complex physical, social, economic, environmental, and political
19 process" (Bevington *et al.*, 2011, p. 2034).
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26 Natural hazards such as earthquakes, which strongly impact the relationship among
27 humans, non-humans, and the built environment, can accelerate social processes. The level of
28 responsiveness and adaptability often depends on the prior state of development of the
29 affected region, such as whether it was experiencing growth or already undergoing crisis and
30 decline (Ciuffetti, 2019). Earthquakes, raise questions about human activities' impact on the
31 environment, significantly affecting the built environment with long-term implications for
32 affected communities.
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37 Two major earthquakes hit central and southern Italy in 2009 and 2016-17, destroying the
38 area's already fragile social and economic fabric.¹ The impacted area is characterised by small
39 villages that have been experiencing a process of depopulation and service reduction for
40 decades. The earthquake functioned as a trigger for either completely abandoning the area or
41 reacting to the process of a shrinking population, thereby turning the crisis into an opportunity
42 (Fantechi *et al.*, 2020). New actors appeared in this disruptive transition phase, who promoted
43 innovative projects and processes. We examined the case of the *Cammino nelle Terre Mutate*
44 a solidarity walking itinerary that emerged in the wake of the earthquakes, to explore the
45 healing potential of regenerative practices in tourism (Bellato *et al.*, 2024). This case provides
46 an opportunity to examine the role of a regenerative approach to tourism during post-disaster
47 phases. It highlights the potential of itineraries as regenerative practices, not only for tourists
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57 ¹ More information available at: <https://www.senato.it/4746?dossier=2208> [last access: 25.06.2024]
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4 but also for communities and places. Furthermore, this case prompts a broader discussion
5 about the relationship among humans, non-humans – including natural hazards – and the built
6 environment. Embracing a tourism approach rooted in regenerative thinking holds promise for
7 aiding local communities in their recovery from disasters while simultaneously reestablishing
8 their bond with the impacted environment and appreciating the distinct socio-ecological
9 systems inherent to each place (Pollock, 2019).
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12 We introduce the theoretical framework connecting regenerative tourism, post-disaster,
13 and walking itineraries in section 2. The methodological approach is explained in section 3,
14 and section 4 presents the *Cammino nelle Terre Mutate* case study. In section 5, we use the
15 observations and insights from the case study to build on regenerative tourism theories and
16 their replicability in the post-disaster phase. Finally, in the last section we present the
17 conclusions along with recommendations for future research.
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24 25 **2. Theoretical framework**

26 27 **2.1. Defining regenerative tourism**

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32 Regenerative thinking broadens the scope of the built environment beyond mere
33 structures, encompassing the interplay among buildings, infrastructure, and natural systems,
34 as well as communities' socio-economic and political dynamics. This type of thinking goes
35 beyond sustainability, moving into a dynamic, interconnected world, aiming to symbiotically
36 reintegrate human and natural communities through development and design partnerships
37 (Mang & Reed, 2012b). Furthermore, regenerative thinking applied to tourism practices goes
38 beyond tourism' traditional role as an industry whereby its role is examined in relation to the
39 ecosystem (Pollock, 2019). The regeneration starting point is that healthy systems are
40 adaptive, self-organizing, and regenerative (Bellato *et al.*, 2022b). The concept has rapidly
41 developed in the last three years, mainly after the COVID-19 outbreak and its effects on
42 tourism and well-being (Hussain & Haley, 2022; Becken & Kaur, 2021; Brouder *et al.*, 2020).
43 While a universally accepted definition of regenerative tourism remains elusive, scholars and
44 practitioners advocate for a strong theoretical foundation in regenerative tourism research
45 (Bellato & Pollock, 2023). A systematic literature review conducted by Bellato *et al.* (2022a)
46 has introduced a conceptual framework that outlines seven foundational principles and five
47 design dimensions aimed at guiding the development of regenerative tourism. Regenerative
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4 tourism is gaining relevance in enhancing alternative development approaches for local
5 communities and environments (Pearson et al., 2024).
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7 McEnhill *et al.* (2020) link regenerative tourism to a place-based development
8 approach, emphasizing the need for a collaboratively co-developed, long-term strategy. This
9 involves enhancing collaboration among various stakeholders, including governments,
10 tourism providers, local authorities, destination management operators, host communities, and
11 tourists. Additionally, it requires building capacity within the community to adapt to a rapidly
12 changing world and contributing to the area's broader regeneration through ongoing
13 restorative actions.
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18 Regenerative tourism holds promise in fostering collaboration among small and fragile
19 ecosystems, allowing them to pool resources and cultivate proximity and integrated initiatives
20 (e.g., shared resources, joint initiatives) (Murray & Graham, 1997). These endeavours
21 prioritize community involvement over mass tourism influx, to sustain and protect fragile
22 territories. However, as interest in regenerative tourism grows, a concern arises over its
23 potential misapplication, often due to oversimplified interpretations (Bellato & Pollock,
24 2023). Therefore, this study aims to contribute to further understanding regenerative tourism
25 practices, by applying its principles to the post-disaster phase as an ongoing process, and
26 thereby reshaping tourism through regenerative development.
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33 34 **2.2. The complex relation between regenerative tourism and post-disaster** 35 36

37 While recognizing the complexity of condensing the extensive literature on natural
38 hazards and disasters, it is essential to note that the primary focus of this article lies in its
39 relationship with regenerative tourism. Consequently, this section is not intended to
40 encompass a comprehensive analysis of the entire body of literature on this subject. Instead,
41 we aim to elucidate the fundamental components, which are essential for grasping the
42 contributions of regenerative tourism development during the post-disaster phase: a pivotal
43 moment prompting a re-evaluation of socio-ecological relationships (Centemeri & Olori,
44 2023)
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50 The literature on natural hazards has significantly expanded over the past two decades,
51 focusing on the economic effects of related disasters on local economies (Xiao, 2011).
52 Though rarely considered, disasters have a geographically concentrated impact (Barone &
53 Mocetti, 2014).
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4 Disruptive events prompt places to activate response, recovery, and renewal actions,
5 primarily based on adaptive resilience capacities (Nilakant *et al.*, 2014). Disruptive events
6 like earthquakes, floods, volcanic eruptions, and droughts can exacerbate existing
7 vulnerabilities in communities. This is especially the case in mountainous rural areas or coastal
8 zones, which already face economic and social challenges or even poor planning, resulting in
9 vulnerable infrastructures, turning natural hazards into disasters (Bankoff *et al.*, 2004). On the
10 one hand, disasters amplify social vulnerabilities and highlight the malfunction of local
11 governance. On the other hand, disasters can also catalyse social cohesion and community
12 building (Mela *et al.*, 2017). Natural hazards are part of the identity of places and their
13 geographical and geological features, and there are increasingly frequent discussions about
14 the coexistence and co-evolution of human beings within the natural environment as a
15 response to disasters (Accastello *et al.*, 2021). This is why disasters are a standard test for
16 socio-economic systems' resilience to acute shocks and for measuring their ability to thrive
17 despite adversity (Pendall *et al.*, 2010).

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26 Earthquakes are primarily studied as natural hazards which cause several simultaneous
27 scenarios: physical, socio-economic, political, and psychological (Lindell, 2013; Oteri &
28 Scamardi 2020). Overall, earthquakes have a significant potential for widespread impact, high
29 frequency, unpredictability can lead to secondary hazards (e.g., changes in environment
30 morphology, impact on river flows, structural collapse, and economic disruption). They affect
31 several regions worldwide, often causing long-term implications. Therefore, it is critical to
32 understand and address the aftermath of earthquakes in order to re-imagine the
33 interconnections between humans and the surrounding environment while reducing the social,
34 environmental, and economic toll of future seismic events (Marzo & Olcuire, 2019). In this
35 context, we identified a literature gap in connecting the healing potential of tourism through
36 the regenerative approach, specifically in the aftermath of natural hazards and resulting
37 disasters.

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45 The growing literature on tourism risk and disaster management (Ritchie & Jiang, 2019)
46 emphasises that the tourism industry and destinations are significantly exposed to disasters.
47 The resilience of destinations to disasters is highly interconnected with tourism development,
48 particularly in remote rural and coastal areas. However, a disaster impact assessment of
49 tourism destinations only marginally considers the micro-level (community) and regional
50 differences (Schmude *et al.*, 2018). Instead, communities in high-risk disaster regions face
51 difficulties in developing resilient and sustainable tourism economies and must undertake
52 adaptive responses (Tsai *et al.*, 2016). Overall, post-disaster conditions lead to discussions of
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4 a different approach to local development. Disasters can also trigger an increase or change in
5 the composition of local tourism (Faulkner, 2001). Cave and Dredge (2020) argue that the
6 vulnerability and resilience of tourism destinations could be enhanced by considering the
7 diverse economies framework, moving beyond the distinction between formal and informal
8 economies. Therefore, regenerative tourism practices have the potential to bolster local
9 resilience, foster coexistence with natural hazards, preserve identity, and promote socio-
10 economic regeneration in the area. Adopting a regenerative approach to tourism practices can
11 facilitate post-disaster beyond reconstruction and design human systems that can coevolve
12 with natural systems (Mang & Reed, 2012b).
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20 **2.3. Walking itineraries as a regenerative tourism practice**

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23 Walking itineraries, as slow tourism practices, could potentially be considered a
24 regenerative tourism practice in the aftermath of a disaster. In this phase, there is a lack of
25 alternatives, and reconstruction can usually take several years. Itineraries are based on the
26 fundamentals of local resources, landscape, and culture, and can reconnect communities with
27 the environment and local knowledge and operationalize intended systems effects (Bellato et
28 al, 2022). Walking itineraries are place-based projects able to mobilise local resources and re-
29 interpret them from an integrated territorial development perspective. They can bring together
30 territorial systems (Rodriguez *et al.*, 2012), engage a mix of formal and informal economies
31 in small peripheral destinations (Moscoso-Sánchez *et al.*, 2022), and provide a collaborative
32 space for local actors beyond administrative boundaries. However, while in most cases,
33 itineraries are not community-led initiatives, it is essential to engage local inhabitants in
34 preserving and maintaining them. Thus, through this approach, walking could be an
35 alternative and regenerative practice, both environmentally and socially, thanks to the
36 interaction with hosting communities (Kato & Prozano, 2017). From a tourist's perspective,
37 walking is the best approach to establishing a close relationship with local communities but
38 also with the landscape, as nature has a restorative effect on human beings (Sales *et al.*, 2018).
39 However, the rising popularity of itineraries may also pose the risk of oversimplifying slow
40 tourism as a regenerative practice without a universally accepted conceptual framework. This
41 oversight may lead to disregarding the regenerative approach to tourism potential to heal
42 ecosystems and cultivate an ecological mindset among visitors, hosts, and inhabitants.
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4 Our review aimed to establish the groundwork for comprehending the intricate interplay
5 between natural hazards, disasters, and regenerative tourism in local development. This lays
6 the basis for investigating the *Cammino nelle Terre Mutate* as a case in regenerative practices
7 to rethink tourism in the post-disaster phase. Thus, we ask the following:
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10 i) Can a regenerative thinking approach to tourism support healing systems in a
11 disaster's aftermath?
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13 ii) How can regenerative tourism's design dimensions and principles be reframed in the
14 post-disaster phase?
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18 Finally, we argue that regenerative thinking in tourism can enable resilience and well-
19 being and reduce vulnerability to disasters in places impacted by natural hazards. This leads
20 us to consider the role of regenerative tourism in the immediate post-disaster period,
21 interpreted as a potential transformational phase in development. To our knowledge, no
22 studies about this phenomenon have been done until now.
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27 28 **3. Method**

29 As mentioned, emerging conceptual frameworks for regenerative tourism require further
30 exploration to determine how they can be adapted to the post-disaster phase, focusing on
31 natural phenomena. The guiding reflections for this research are as follows:
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34 ▪ Regenerative tourism practices emerging in the immediate post-disaster phase could
35 (i) heal the local socio-economic system, (ii) regenerate the relationship with the local
36 environment, and (iii) foster stakeholder cooperation (humans and non-humans)
37 through a coevolving collaborative approach.
38
39 ▪ The post-disaster phase could activate 'tourism of transitions' (Tucker *et al.*, 2017) and
40 change the relation between communities and tourism.
41
42 ▪ , Theoretical models must adjust to places and communities to support regeneration in
43 the post-disaster phase.
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45 ▪ Post-disaster natural phenomena differ from those caused by humans (e.g. wars) as
46 they entail a coevolving relationship with the environment.
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51 To account for the specificities of the post-disaster phase, we adjusted the regenerative
52 tourism design, dimensions and principles (Bellato *et al.*, 2022a).
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54 Through qualitative research methods, we identify how regenerative tourism principles
55 are applicable in a post-disaster context. To evaluate this approach, we use a case study to
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4 describe regenerative tourism in the post-disaster phase as an emerging phenomenon
5 (Eisenhardt, 1989). The selected case is the *Cammino nelle Terre Mutate* (CTM). *Terre*
6 *Mutate* stands for 'moulting lands', meaning that these lands are undergoing a process of
7 change, which has been accelerated by the disaster, and is altering their shape but not their
8 nature (Sgarella, 2019). Walking through abandoned and destroyed places to support the
9 regeneration of local communities is a political act that can reconfigure the relationship
10 between humans and the environment. Seven years after its inception, CTM is now a 250 km-
11 long green social infrastructure comprising 14 stages across four regions (Marche, Umbria,
12 Lazio, and Abruzzo), 15 municipalities, and involving over 150 local partners (businesses,
13 public authorities, NGOs and citizens).
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16 Our study highlights the key factors that can turn a tourism infrastructure, such as walking
17 itineraries, into a regenerative practice of development and facilitate coexistence with natural
18 hazards such as earthquakes.
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21 During fieldwork, between August 2020 and February 2023, we used a combination of
22 ethnographic tools, including participant observation, semi-structured interviews, workshops,
23 and document analysis, to gather in-depth qualitative data (see Figure 1). The coding of the
24 interviews is provided in Annex 1 as additional material.
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26 27 28 29 30 31 32 <Figure 1 About Here - "caption"> 33

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35 The selection of the case study was based on three main criteria:
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- 37 ▪ CTM is a tourism development activity founded as a solidarity response to a disaster.
- 38 ▪ CTM is located in an already transitioning area due to depopulation and lack of
39 infrastructure and services. It refers to the relationship between space, place, and the
40 environment in a fragile context.
- 41 ▪ CTM can serve as an example for other destinations sharing similar characteristics
42 and affected by disasters stemming from natural hazards.
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49 Next, we describe the case study with the data collected during the fieldwork, focussing on
50 desk research, semi-structured interviews and co-creation workshops with CTM economic
51 operators and activists, to describe the territorial context and CTM's history and evolution. In
52 section 4.1, we incorporate quotes from interviews to include the voices of individuals
53 actively involved in implementing and maintaining the CTM, while living in the affected
54 area.
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4 All participants were informed about the study. We told them that participation was
5 voluntary. Moreover, they could withdraw from the study at any time if they chose to do so.
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8 **4. Situational context for discussions: the case study**

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10 **4.1 An itinerary of ruins and resistance**

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12 The case study area covers a huge portion of the Central Apennines, an area in
13 continuous transition. Thus, it includes towns and villages at various stages of
14 development and a diverse relation with tourism.
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18 *'Mutate'* means that something has changed in those places. The force of
19 nature has produced changes in the land, architecture, and people; it has
20 generated stories, protagonists, and projects of rebirth worthy of being lived and
21 told. It is an invitation to visit them and co-create with the local communities a
22 regeneration opportunity through slow, sustainable, and responsible tourism."
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27 (*Interview 5*)
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29 CTM is a grassroots initiative that began as a solidarity movement and not as a tourism
30 project. It emerged in response to the slow reconstruction following the devastating
31 earthquake in L'Aquila and its surrounding areas on April 6, 2009, resulting in 294 deaths.
32 This event marked a clear 'before' and 'after' in the area's collective history. The l'Aquila
33 earthquake became internationally known as a case of dark tourism (Wright & Sharpley,
34 2018). In 2012, a protest walk named the *Lunga Marcia* was organized by the Movimento
35 Tellurico movement, starting in Rome, and ending in L'Aquila, to draw attention to the latter
36 city's sluggish reconstruction and express solidarity with its residents. The event has since
37 grown into an annual solidarity movement involving approximately sixty participants each
38 year.
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41 Starting in August 24, 2016, another series of earthquakes struck a large area in central
42 Italy affecting mostly small mountain villages. Strong tremors followed in October 30
43 (epicentre in Norcia) and January 18, 2017 (epicentre in Campotosto). Overall, the affected
44 region spans over 8,000 squares kilometres of the Central Apennines, home to nearly 600,000
45 people. These earthquakes impacted over 140 municipalities across four regions, 84% of
46 which having populations of fewer than 5,000 residents. According to government
47 reconstruction data, the seismic activity resulted in 299 deaths, displaced 48,000 people, and
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4 generated 2.5 million tons of rubble. As a result, more than half of the built environment was
5 destroyed or rendered uninhabitable.
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7 In the meantime, Movimento Tellurico was joined by two other organizations based in
8 Rome: APE Rome and Federtrek. In 2017, they organized another march, this time starting
9 from Fabriano, the municipality furthest affected by the 2016-17 earthquakes, and ending in
10 L'Aquila, which became the symbol of the earthquake's impact on Central Italy. In 2019, the
11 solidarity march evolved, leading to the official establishment of *Cammino nelle Terre Mutate*
12 as a walking itinerary, accompanied by the release of an official guidebook.
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15 Over the last five years, at least 2,500 people have walked through the ruins of Central
16 Italy thanks to CTM. Although the numbers seem modest, they are within the carrying
17 capacity of such severely affected areas (Candela & Figini, 2012). Local operators perceive
18 CTM walkers as highly educated individuals with a strong interest in local history and
19 contemporary events in the post-disaster context. In this sense, walkers contribute
20 significantly to rebuilding the local identity. Three books have been published talking about
21 walking and meeting communities through 'Terre Mutate.' During interviews it emerged that:
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29 When pilgrims arrive [at the stage], a relationship is created. Something
30 changes. They tell you their feelings [about what they have seen during the day]
31 because these people who walk are also on a journey within themselves. And we
32 find the byte that connects in our perceptions. *(Interview 3)*
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36 Each year, we welcome between 250 and 400 visitors, which is
37 significant for our small village, considering we only have 15 beds available.
38 This level of support and interaction is invaluable to us. Meeting people who
39 inquire about our well-being and life here is a unique support to us. *(Interview*
40 *21)*
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45 There are a lot of stories through books, blogs, articles, and podcasts by
46 people that walked the CTM. There is the willingness and need to talk about the
47 itinerary for those who undertook it. *(Interview 12)*
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50 CTM aims to connect isolated places and communities, which were not
51 connected before, and create an informal network. *(Interview 18)*
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54 Walkers who complete the itinerary are given the 'testimonium' as 'partisans of the Earth',
55 recognizing their contribution to local development and support to inhabitants still living in
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4 those places. CTM's primary aim was not to create an additional walking itinerary but rather
5 to (re)activate the communities spread across the Central Apennines to stay and react to a
6 significant shock and to have a collective bottom-up monitoring of reconstruction. Mostly it
7 overlaps with already existing hiking paths. Two-thirds of the whole itinerary are included in
8 the Monti Sibillini and Gran Sasso & Monti della Laga national parks. In some cases, CTM
9 contributes to the recovery of abandoned paths, and has enabled the activation of a soft
10 infrastructure for territorial maintenance through collaboration with local actors.
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17 CTM is changing business operators, such as local cafes. As many walkers
18 came here, they started to offer additional services such as lunches and dinners
19 for groups. In general, there is a change in the mindset towards what hospitality
20 means as a reciprocal exchange with visitors. (*Interview 8*)
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25 The CTM highlights the importance of tourism practices in regeneration 1) of the
26 individuals who undertake the journey; 2) of the communities they traversed, and 3) by
27 focusing attention on the importance of regenerating coexistence with the physical
28 environment, especially its characteristic features, which highlight its seismic nature.
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32 A geologist came after the earthquake and [...] explained to us the origins of
33 the phenomenon and said that the beauty of the Apennines comes with its essence
34 of being a rather young mountain chain. That is why it is characterised by
35 continuous movement. It made me rethink my relationship with the earthquake
36 and the mountains I so deeply love. (*Interview 4*)
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42 The CTM is significant for reshaping tourism in the area, indirectly contributing to the
43 preservation of accommodation facilities previously characterized by seasonal tourism and
44 second homes. Moreover, it has bolstered the network of trails, which had previously been
45 neglected. The project has facilitated the emergence of new activities, such as the
46 establishment of the '*Terre Mutate*' Environmental Education Centre in Accumoli and has
47 promoted widespread hospitality initiatives. Additionally, it has empowered residents to act as
48 contact persons, offering continuous support to walkers and serving as community liaisons.
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50 In places like Fabriano, the CTM is instrumental in shaping the area's identity during its
51 post-industrialization phase. Furthermore, upon reaching L'Aquila, the CTM intersects with
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4 other itineraries, propelling the city towards a new narrative of post-disaster regeneration and
5 positioning it as a hub for slow tourism routes.
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8 I have learned with CTM that walking extends time and shortens space.

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10 In everyday life where time is shortened and spaces are widened, walking has
11 a regenerative effect on people, on their souls, and on the places they walk
12 through. Places become protagonists of the walker's time. (*interview 1*)
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15 However, insights gleaned from the fieldwork highlight manifold critical issues. There is
16 a heavy reliance on the three associations that initiated the itinerary, and a lack of clear
17 governance regarding its maintenance and development. Furthermore, insufficient
18 infrastructure and facilities, including substandard accommodation and transportation,
19 constitute challenges along much of the route. This scarcity is exacerbated by limited
20 available space for reconstruction following the earthquake. Certain areas, such as Fiastra and
21 Norcia, experience high demand during the summer months, leading to overbooking.
22 Moreover, the diverse array of destinations along the itinerary complicates the development
23 of cohesive understanding of the initiative. The accommodation sector shows limited
24 awareness of walking itineraries' tourism often failing to meet the specific needs of walkers,
25 as "it is difficult to change the local culture towards tourism" (*Interview 7*).
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33 Through its tourism practices, CTM has helped communities along its route recognize the
34 inherent potential of the places, fostering an understanding of their nature, particularly about
35 continuous land movements. However, there remains a need to transition towards an
36 ecological mindset, developing the capabilities of community members as part of tourism
37 living systems to catalyse transformations. In this regard, CTM serves as a crucial connector
38 in re-imagining tourism within post-disaster development efforts, bringing together a diverse
39 range of stakeholders with shared interests in the well-being of the Apennines as a living
40 system.
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46 **4.2. The Apennines as transformative lands**

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49 The Apennines, the mountainous ridge that runs longitudinally down Italy, is one of
50 southern Europe's characterising peninsular ecosystems. For centuries, these lands were areas
51 of interaction and exchange. The local economy was based on available resources and
52 community-based activities.. However, since the 1950s, these areas have declined due to
53 centripetal forces pulling the population towards cities and industrial districts.
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4 Industrialization, lack of services in rural and mountain areas, and the decline of the
5 traditional economy based on agriculture, farming, and pastoralism have fuelled this
6 abandonment (Ciuffetti, 2019). Peripherality, with respect to the main hotspots of services
7 and job opportunities, has caused a slow and continuous migration towards more attractive
8 centres.
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11 The Apennines are characterized by frequent seismic events, which influence its
12 environment and the area's identity and development. This progressive population loss puts
13 the conservation of both tangible and intangible heritage of various Italian historical centres
14 at risk, transforming them into long-term left-behind areas (Morettini & Compagnucci, 2024).
15 The act of abandonment, particularly when related to a disaster, significantly affects the
16 transfer of knowledge about the relationship between humans and the environment and leads
17 to the erosion of essential practices and necessary capabilities for inhabiting mountainous
18 regions. Furthermore, it results in the loss of local identity and cultural heritage, paving the
19 way for speculation, resource extraction, and the homogenization of local cultures.
20 Additionally, abandonment impacts the provision of ecosystem services and the maintenance
21 of fundamental local resources such as water, forests, and primary resources.
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24 The Apennines's have historically witnessed devastating seismic activity, although during
25 the last century the frequency of earthquake has increased. The vast extent and fragmentation
26 of the affected area in 2016-17, intersecting with damage from the events of 1997 and 2009,
27 coupled with the extremely low population density and territorial fragility, indicate that
28 material reconstruction alone would not yield meaningful results without a parallel process of
29 social, ecological, and economic regeneration. Thus, preventing the abandonment of rural
30 lands is essential to mitigate catastrophic events and preserve ecosystem services (Daily &
31 Matson, 2008).
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34 The distinctive character of the Apennines, a relatively young mountain range
35 characterized by ongoing geological activity, underlines the necessity of nurturing inherent
36 potential and local capabilities to address post-disaster crises effectively. Additionally, the
37 tourism's potential contribution to these endeavours warrants consideration. In this context, the
38 *Cammino nelle Terre Mutate* could emerge as a crucial component in post-disaster
39 development initiatives to rejuvenate affected areas. The CTM is renowned for revitalizing
40 local micro-economies and fostering connections among various small and isolated
41 communities, institutions, and economic entities. It plays a pivotal role in reconstructing a
42 shared identity for the Central Apennines region through collaborative efforts.
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4.3 Different spaces, connected places, a shared ecosystem

Despite cultural and social similarities, our study area encompasses different socio-economic development processes, particularly concerning tourism (see Figure 2). Earthquakes have impacted these four distinct areas in the Central Apennines in recent years and are now undergoing post-disaster recovery.

<Figure 2 About Here - "caption">

The first area, encompassing the municipalities of Fabriano, Esanatoglia, Matelica, Pioraco, and Camerino, is where initial signs of the earthquake's effects are evident. After a de-industrialization phase, the region experienced economic decline due to insufficient post-deindustrialization measures, resulting in a lack of a solid financial foundation. Recently, stakeholders have viewed tourism as an alternative for economically and culturally revitalizing the area. There has been a concentration of cultural events and promotion of walking itineraries in this area, which also hosts the *Università del Cammino* as a social institution. Camerino, the most affected municipality in this area, still has an uninhabitable city centre. Historically known for its university, Camerino is now considering slow tourism as an option for revitalization, utilizing its natural surroundings and offering alternative pathways. The area experienced an average population decrease of -7.80% from 2011 to 2019, despite being the area with the highest capacity in the accommodation sector and the least affected by the earthquake.

The second area, comprising Fiastra, Ussita, Preci, Norcia, and its hamlets Campi and Castelluccio di Norcia, has a tradition of winter tourism and ski facilities, along with second-home tourism characterized by temporary residency. However, the earthquake has allowed diversification into more culturally oriented tourism. Although the population decrease during the same period was slightly lower (-7.45%), the impact on tourism infrastructure was significant. Ussita, one of the most affected municipalities, saw a drastic reduction in tourism accommodation, going from 12 facilities with 1862 beds in 2013 to just one facility with 12 beds in 2020. The earthquake prompted a reassessment of the area's tourism structure towards responsible and community-led tourism connected to other locations along the CTM, including the opening of a hostel in the small hamlet of Campi.

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4 The third area, comprising Arquata del Tronto, Accumoli, and Amatrice, bore the brunt of
5 the earthquake's devastation, experiencing widespread damage across the whole area. Situated
6 between the national parks of Monti Sibillini and Gran Sasso & Monti della Laga, this region
7 has a rugged mountainous terrain that historically had limited ties to tourism, except for
8 Amatrice. Recognized as part of Italy's "Most Beautiful Villages" network, Amatrice boasts a
9 reputation for wine and food tourism. The CTM initiative presents opportunities for economic
10 diversification and slow travel within this area. It offers more than just pathways and hiking
11 routes; it fosters the creation of a territorial identity threatened by ongoing depopulation. With
12 an average population decline of -13.41%, this area experienced the highest number of
13 fatalities and considerable damage to tourism infrastructure. Despite the emotional challenges
14 posed by the destruction, it catalysed a rediscovery of the landscape, underscoring walking
15 itineraries as a pathway to renewal and establishing a revitalized territorial identity.

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23 The fourth area, involving Campotosto, the hamlets of Mascioni and Collebrincioni, and
24 culminating in L'Aquila, is also undergoing a process of rebirth after the earthquakes.

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Campotosto serves as the gateway into Abruzzo and the L'Aquila area, which endured
most earthquakes in 2009 and 2016-17. As the epicentre of the January 18, 2017 quake,
Campotosto experienced one of the highest population declines (-17.41%), alongside Arquata
del Tronto, rendering much of the village uninhabitable. Campotosto, renowned for being the
largest artificial lake in Italy and second in Europe, offers a unique experience rooted in the
tradition of wool textile craftsmanship, exemplified by an artisan who is also the focal point
of CTM on the stage.

Towards L'Aquila, CTM transitions from the rural landscapes of villages and mountains.
Once synonymous with dark tourism, L'Aquila is now a beacon of urban regeneration in the
aftermath of disaster. This transformation has sparked discussions on speculation and changes
in land use, making it an emblematic and discussed case of urban development. In this
context, CTM presents an opportunity to reimagine development beyond the borders of the -
built environment, effectively bridging the gap between urban and natural landscapes using
walking itineraries as physical and emotional connections.

5. Observations and insights from the case study application

Manifold observations can be made by applying the design dimensions proposed by
Bellato *et al.* (2022) to post-disaster regenerative tourism practices. In this section we use
information extrapolated from interviews, workshops, and participant observation.

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4 *Regenerative mindset:* The post-disaster phase needs an ecological worldview made of
5 interconnections as a collaborative nested system and coexistence with natural hazards to
6 prevent disasters. Various stakeholders participated in the itinerary design, including local
7 villagers, walkers, tourism operators, associations, and NGOs. If external actors played a
8 crucial role in reactivating communities and engaging in a regenerative process, it is
9 challenging to promote a regenerative mindset in the post-disaster phase. This is a factor that
10 opens discussion on how to support a regenerative mindset and a locally-based pedagogy
11 grounded in an ecological worldview without relying on external knowledge. Among the
12 design dimensions, regenerative mindset is currently the most critical one.
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19 *Inherent potential:* Following disasters, the recovery phase needs a reacquaintance with
20 the affected places and communities. Thus, the process aims to assess the current situation:
21 identifying losses, activating available resources, and comprehending the histories of the
22 communities. Nourishing a walking itinerary in mountainous areas hinges on relationships to
23 the humans presence. The itinerary served as a means of implementing a gentle intervention,
24 leveraging existing resources, and stimulating local creativity, intending to reinstate
25 individual presence within the ecosystem.
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30 *Systems capability:* The post-disaster phase needs active collaboration with local
31 inhabitants. The initial editions of *Lunga Marcia* enabled the local micro-systems to use the
32 itinerary as infrastructure for collaborative development. It began as a movement to gather
33 perspectives from marginalized local communities. The transition from a protest movement to
34 a community-based development opportunity supports the revival of rural cultures and land
35 reclamation, countering speculation on reconstruction through a healing approach. However,
36 this transformation does not occur uniformly throughout the entire itinerary due to the diverse
37 initial statuses of the places involved.
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44 *Intended system effects:* The itinerary supports people's motivation to stay despite losing
45 their homes and difficulties of living with the lack of services. The communities' presence is a
46 form of resistance to prevent speculation and further abandonment of lands. CTM seeks to
47 revitalize and promote the area's social and cultural revival, aiding affected communities in
48 redefining their identities. This entails recognizing the interdependency of tourism systems in
49 providing land, transportation, and other infrastructures that mutually benefit the community
50 and walkers.
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4 *Tasks and resources:* The itinerary relies on competencies and infrastructural
5 development to cultivate a mutually beneficial relationship and create experiences that enrich
6 the visitor, community, place, and host. CTM stakeholders facilitated the implementation of
7 short-term, low-budget accommodation options along the itinerary and promoted peer-to-peer
8 exchange of hosting practices. Additionally, they facilitated transportation to and from
9 accommodation facilities and, occasionally, collective pathway maintenance. This
10 transformation altered the relationship not only between tourism hosts and guests but also
11 among the actors along the itinerary and with external agents supporting the CTM design.
12 There was no funding or infrastructure provided, as the entire initiative was bottom-up and
13 guided by the experience and expertise of the external agents that stimulated the process.
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16 While the CTM did not initially emerge as a project led by regenerative tourism experts,
17 its activation and journey incorporate numerous elements that align with the proposed
18 principles and design dimensions. To highlight the transformative potential of the itinerary
19 and its role as a healing system, it is essential for tourism operators and residents along the
20 route to develop an awareness such tourism approach' potential and foster a regenerative
21 mindset (Bellato *et al.*, 2024).
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24 To summarize, Figure 3 provides a proposal for applying Bellato *et al.* (2022a) principles
25 and design dimensions to the post-disaster phase, including additional reflections and specific
26 questions.
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6. Conclusion

In this study we applied regenerative thinking to tourism within a post-disaster context, seeking to elucidate how this unique situational backdrop, coupled with regenerative principles, could prompt a re-evaluation of tourism practices and broader area development. Our research contributes to the regenerative tourism scientific debate, connecting it with post-disaster local development conditions and using, for the first time, a walking itinerary as a case study. In doing so, we underline the importance of the transformation potential of regenerative tourism in post-disaster recovery for communities and their relationship with the environment, including natural hazards.

The responsiveness to disasters is a crucial aspect of the ongoing discourse surrounding the growing frequency of natural hazards globally. Such events necessitate profound and transformative responses. Consequently, tourism can play a significant role in co-creating regenerative places and communities. To this end, we have introduced the latest advances in the academic discourse surrounding regenerative tourism, alongside critical discussions concerning natural hazards and resulting disasters in relation to tourism. This exploration identified a research gap, presenting a valuable opportunity for further investigation. The principles and design dimensions introduced by Bellato *et al.* (2022a) were used as a baseline to reflect on regenerative tourism in places affected by disasters. The case study focused on *Cammino nelle Terre Mutate*, initiated in response to the 2009 and 2016-17 earthquakes in the Central Apennines. These seismic events compelled communities to reassess their relationship with the local ecosystem and livelihoods, prompting a re-evaluation of tourism's role in a living system marked by continuous land movements.

The CTM has distinct attributes, initially conceived not as a conventional tourism product, but rather as a means of supporting local communities affected by the disaster. Consequently, it offers an alternative to the common top-down approach to itinerary development, promoting more community-led and collaborative initiatives.

The case of CTM demonstrates that itineraries, when approached through regenerative principles, can be beneficial for activating the nexus between space, place, and environment, particularly in the post-disaster phase. Walking fosters connections with oneself, with others, and with the ecosystem in general, making it an effective tool for achieving human and environmental coexistence in the face of natural hazards.

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4 In abandoned areas, thickets and inhospitable, wilderness and neglected environments
5 prevail. With the activation of an itinerary, in addition to connecting outsiders with the
6 resident communities, the environment should be cared for, maintained, and continuously
7 monitored. This creates the need to engage with the environment to make it accessible and
8 liveable, thereby contributing to the regeneration of the natural systems that support life in the
9 area.

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13 We believe that CTM has a regenerative effect on the ecosystems in the earthquake areas,
14 creating experiences that nourish the visitor, community, place, and host. Thus, walking is a
15 political act, prompting a reassessment of human interactions with built environments. As
16 relatively low-cost projects rooted in culture and identity, itineraries offer effective options
17 for revitalizing communities and places, contributing to tangible and intangible heritage
18 reconstruction and shaping future pathways. While they may not directly influence
19 infrastructure rebuilding, itineraries serve as a means for reshaping a place's identity and
20 fostering new cultural paradigms.

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26 Nevertheless, our case study also highlights the challenges of fostering a regenerative
27 mindset, especially in situations of urgent material needs like reconstruction and the reliance
28 on external actors to drive such initiatives. Although it is a gradual process, it is crucial to tap
29 into transformative capabilities to stimulate local actors to rethink tourism in relation to the
30 habitability of places. In this context, maintaining ongoing engagement with visitors appears
31 pivotal in facilitating collaborative local development. It is evident that preserving the
32 itinerary relies heavily on the collective effort of all stakeholders along the route.

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37 These first results, although not exhaustive, pave the way for future research.

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39 Firstly, comparing this case with other post-disaster case studies in various geographical
40 contexts would be valuable. The proposed framework could be applied during the post-
41 disaster phase to analyse local conditions before initiating reconstruction projects, informing
42 development policies extending beyond the immediate post-disaster phase and incorporating
43 regeneration principles. Thus, future studies should explore tourism's role in all phases of
44 disasters through a regenerative development approach. For instance, they could investigate
45 how a regenerative approach can contribute to the preparedness of places and communities for
46 disasters.

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51 Secondly, the case study focused on seven years after the 2016-17 earthquake in central
52 Italy. It would be necessary to further investigate how these practices could enable a cultural
53 change towards the inhabitants and operators' regeneration mindset to internalize the
54 principles of regeneration and design for the long-term habitability of places. The CTM
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4 stakeholders are currently undergoing a self-assessment and restructuring of the itinerary
5 governance model. It is moving from immediate emergency response to the
6 institutionalization of the itinerary as an engine for socio-economic development, which
7 might change the role of CTM in the area. Monitoring the initiative's development and
8 institutionalization may provide insights into the long-term effects on the local culture and
9 economy.
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13 Finally, future research could further explore the contribution of regenerative tourism
14 practices in disaster-affected areas as prevention and response to the phenomenon of dark
15 tourism, analysing the proposed narratives and impacts for regeneration and development
16 policies.
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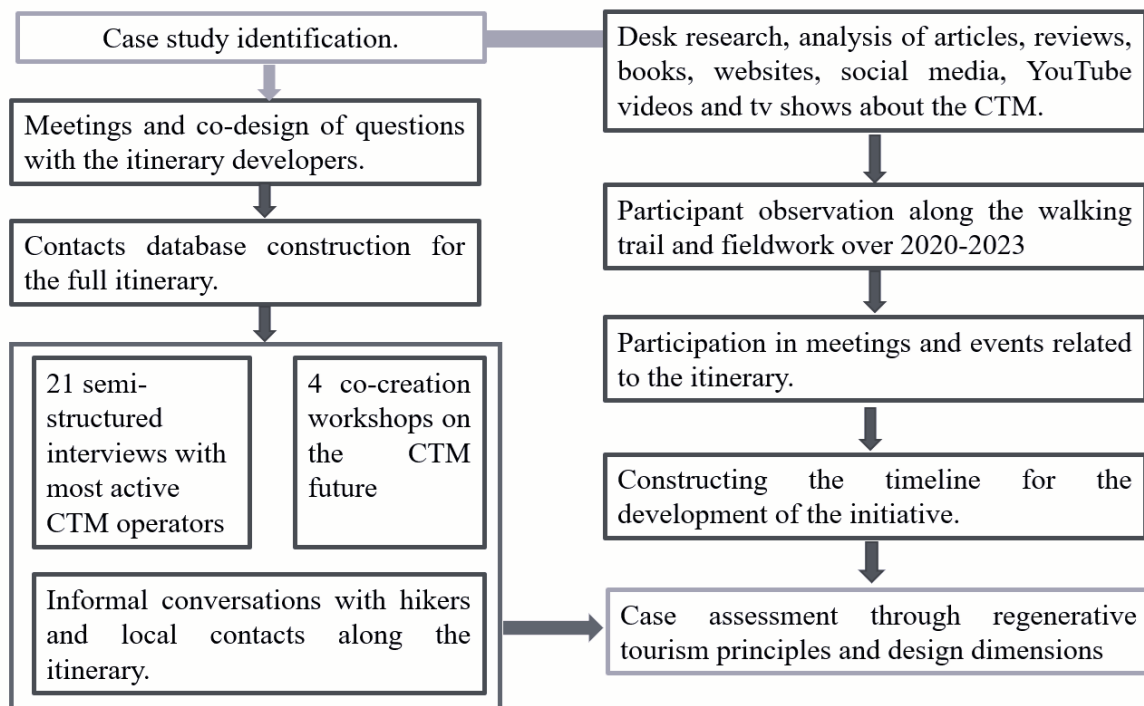
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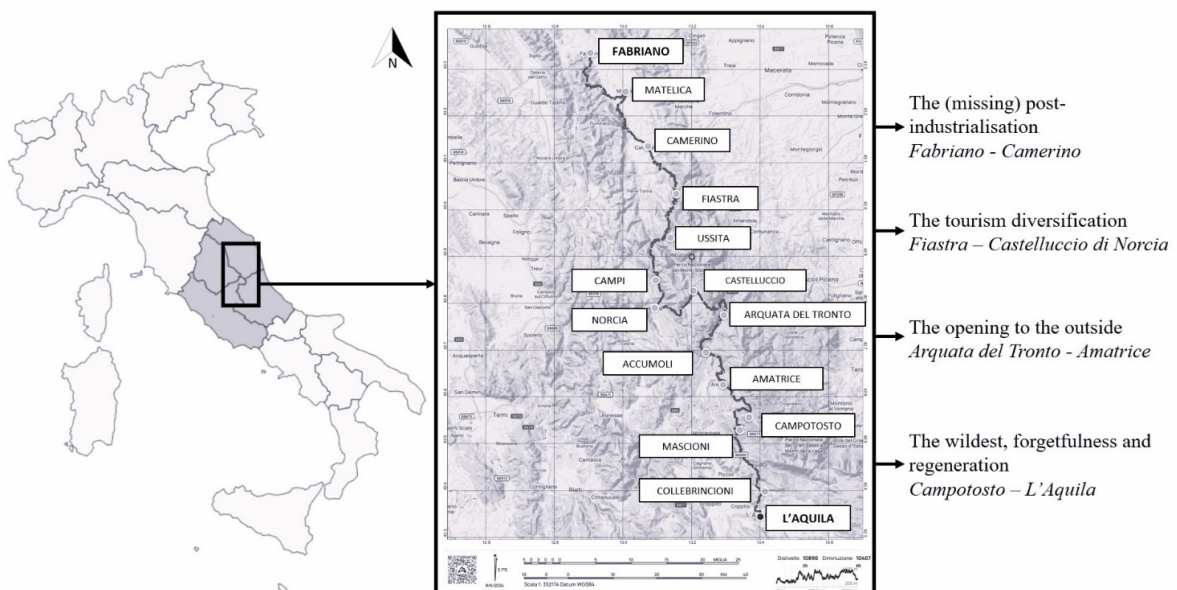
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4 **Figure 1: Case study research structure.**
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35 **Figure 2: The CTM itinerary and the four diverse tourism areas identified.**



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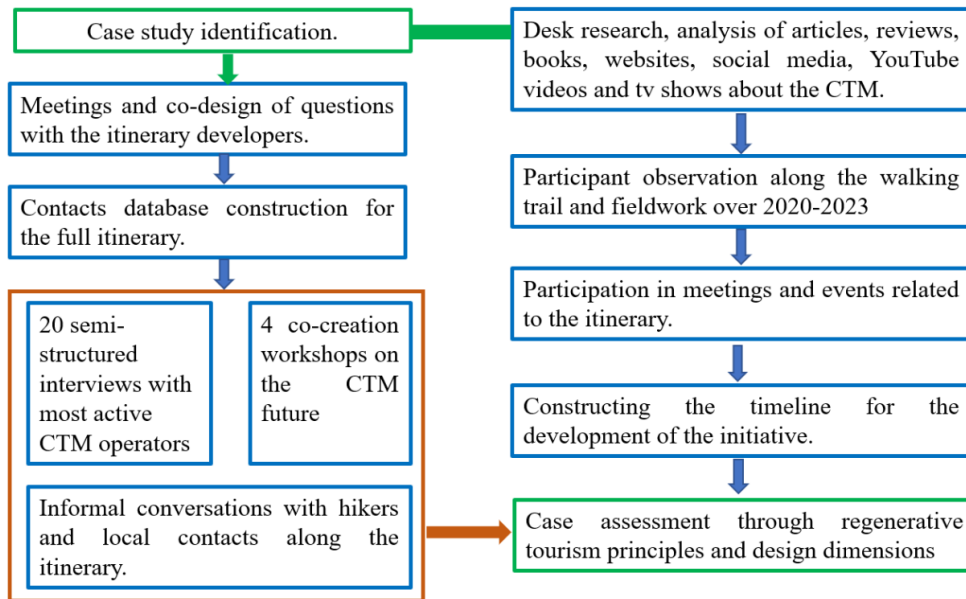
Figure 3: Application of Bellato *et al.* (2022a) practice principles and design dimensions to the post-disaster phase*.

DESIGN DIMENSIONS						
(A) Regeneration mindset		(B) Inherent potential	(C) System capability	(D) Intended systems effect	(E) Tasks and resources	
How can tourism align with an ecological worldview and living systems thinking? <i>(How can regenerative thinking in tourism support the way we think about the post-disaster phase?)</i>		What potential is present in this place and community? <i>(How are the place and community evolving after the disaster / what do they aspire to become?)</i>	What new regenerative capabilities can be created for tourism and related systems? <i>(Which tourism practices can support cultural revival, land reclamation, and the preservation of indigenous knowledge to prevent abandonment after a disaster? How can tourism contribute to reframing natural hazards as part of the natural transformation process, while also helping communities prepare to reduce the risk of disasters?)</i>	What will guide tourism stakeholders to develop a reciprocal relationship with nature and contribute to flourishing places and communities? <i>What role does tourism play in fostering cooperation and coevolution with the ecosystem in areas frequently impacted by natural hazards?)</i>	What tools, resources, and frameworks do we need to use, co-create, and implement? <i>(How could regeneration practices in tourism enable collaboration among fragmented ecological, cultural and economic activities?)</i>	
PRACTICE PRINCIPLES						
(1) Draw from an ecological worldview	(2) Use living systems thinking	(3) Discover the unique potential of a regenerative tourism place	(4) Leverage the capability of tourism living systems to catalyse transformations	(5) Adopt healing approaches	(6) Create regenerative places and communities	(7) Collaborate to evolve and enact regenerative tourism approaches
<i>(Regenerative thinking in tourism enhances harmonious co-evolution among humans and non-humans, including natural hazards.)</i>	<i>(Natural hazards are part of a living system. Hosts and guests contribute to the health of a place. It is a continuous exchange that needs to be part of a co-evolutionary approach.)</i>	<i>(There is a need for external actors to (re)discover the potential and deeply listen to local histories. It is important to pay attention to the continuous evolution of places' histories amidst breakout moments caused by disasters. This entails rethinking natural hazards as integral parts of the land's transformation process.)</i>	<i>(It is a lengthy process that necessitates an initial phase of external support to enhance system capabilities. This process is co-created within the context of specific places, balancing economic development with the natural characteristics of the area. Tourism, through walking, contributes to reshaping our perception of the nature of these places.)</i>	<i>(Post-disaster abandoned lands often suffer from resource exploitation, and extractive tourism. Collaboration with local inhabitants to develop bottom-up knowledge and experiences is crucial.)</i>	<i>(Regenerative thinking supports the system to flourish and to continually self-generate to be prepared and co-exist with future natural hazard and avoid disasters.)</i>	<i>(Mutual trust among stakeholders is essential, along with recognizing natural hazards as integral components of living systems. Itineraries and extensive collaborative efforts can establish a foundation for building trust and fostering evolution through collaboration.)</i>

Source: Authors' elaboration from Bellato *et al.* (2022a).

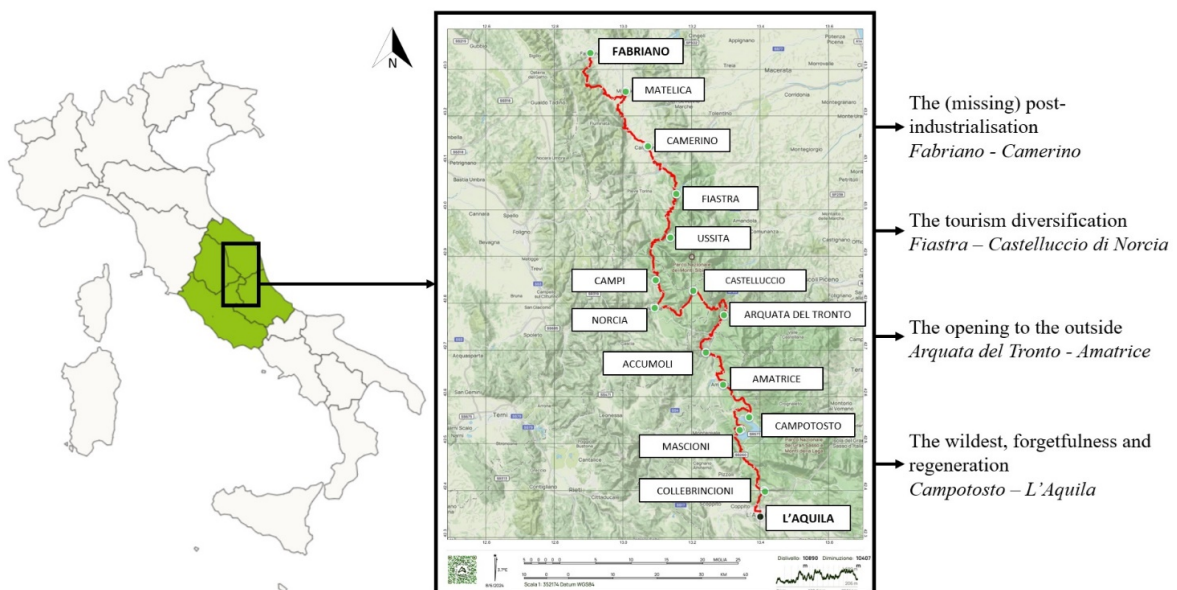
*in brackets, the post-disaster contextualisation.

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