



Innovative Local Development Initiatives in the Eastern Alps: Forest Therapy, Land Consolidation Associations and Mountaineering Villages

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Abstract: Since the 19th century, Italy's mountain regions have suffered from depopulation and land abandonment. How can we counter this phenomenon? Here, we present three cases of innovative and participatory approaches implemented in the Eastern Alps of Friuli Venezia Giulia. Forest therapy is a new approach to medical therapy based on the beneficial effects on the human health of frequenting forests. It also has the potential to provide space for local economic initiatives, e.g., hospitality services. Land consolidation associations were created in France to collectively restore the productivity of fragmented and abandoned farmland. They can evolve into long-term planning for the conservation of landed wealth and the valorization of territories. Finally, Mountaineering villages have the potential to develop a more sustainable form of tourism by fostering a sense of responsibility for the natural and cultural heritage of the European Alps, in accordance with the Alpine Convention. These initiatives share the involvement of local actors in the definition of local development strategies, the capability of enhancing endogenous resources and increasing the environmental value of places, the importance of offering qualified and organized services, and the ability to support the local socioeconomic system. The adoption of innovative and participatory approaches such as these has the potential to revert depopulation and economic depression trends in mountain areas.

Keywords: forest therapy; land consolidation associations; mountaineering villages; local development; community participation



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1. Introduction

Since the 19th century, and more intensely after the second post-war period, Italy's mountain regions have suffered from depopulation and land abandonment. According to demographic census data, between 1951 and 2011 the share of residents in mountain municipalities dropped from 17.5% to 12.6% of the general Italian population, a loss of about 900,000 people. The Italian National Institute of Statistics (ISTAT) further reports that the mountain population accounted for 21.7% of the national population in 1921, and only 12.2% in 2019: mountain residents have almost halved over a century. In addition to depopulation, population aging hampers the possibility of generational turnover, making it difficult to reverse the trend [1]. The sole exceptions to these negative trends are the Aosta Valley region and the provinces of Trento and Bolzano, where strategic investments (e.g., energy self-sufficiency, green building, low-emission mobility) pushed the population increase by 34.7% and 41.3%, respectively, between 1951 and 2011.

Several causes have given rise to and then fueled this phenomenon. Socioeconomic changes linked to the industrialization process and the implementation of unsuitable development models for mountain areas, based mainly on standardization and increase in production scale, led to a gradual exodus from these areas in the mid-19th century. Land 2022, 11, 874 2 of 12

Initially, in the form of seasonal emigration, it then turned into long-term emigration and finally, in particular after the Second World War, into permanent emigration, which further impoverished the socioeconomic environment. Land, which was less profitable than that in the lowlands, was abandoned. In the Italian Alps, with the exception of Südtirol, where traditional inheritance law prescribes the distribution of assets among heirs thus fragmenting property ownership, the size of agro—sylvo—pastoral firms has proved inadequate to make the transition from family subsistence to the market economy. These problems were exacerbated by the seasonal imbalance of agricultural work, absence of on-site work and the need to supplement farm income, which have given rise to a long tradition of pluri-activity carried out on the plains or even abroad [2–7].

The above reflection raises two questions: why and how to address these issues? Depopulation, aging and abandonment leave behind problems deriving from a lack of care for the territory, conceived as the result of the human-nature relationship and whose vitality is closely linked to the vitality of the relationship itself [8]. Intervening to counter this trend therefore means not allowing the heritage of natural and cultural diversity created over centuries of human activity to be erased, managing public safety concerns (e.g., wildfires and hydrogeological instability), (re)creating living and working conditions to protect the territory and therefore its viability.

Related to this is the second question: how can we counter this phenomenon? Leaving aside the top-down initiatives to be taken in areas such as health, education, infrastructure, etc., we would consider bottom-up initiatives that can be effective in (re)creating viable communities, stimulating job opportunities and improving the quality of life in mountain regions. Indeed, although top-down and bottom-up strategies are often complementary, in less contested areas, such as rural development, there is more bottom-up, action-oriented collaboration [9]. The many LEADER initiatives implemented in rural, including mountain, areas of the European Union are a valid demonstration of this: they have brought changes in local governance through the extensive involvement of local actors and institutions and have influenced actors' perspectives and new pathways and strategies for rural development. Nevertheless, practitioners and analysts believe that some key elements of this approach, in particular its innovative character and the involvement of different socioeconomic groups, have weakened and that future initiatives should be reoriented towards innovative projects and cooperation [10–14].

There is, however, little literature describing innovative and community-based initiatives. This could be explained by the fact that they may be relatively recent initiatives, implemented in small and little-known geographic areas, often on the basis of local initiatives not supported except in part by public investment, as in the case of the LEADER initiative, which would give them visibility—hence the importance of highlighting existing experiences to extrapolate some lessons that could be adopted in other regions. For this reason, the paper focuses on three innovative local initiatives implemented fairly recently in some regions of the Italian Alps, which may contribute to contrasting the phenomena of depopulation and abandonment and in general to the progress of mountain regions. We are referring to Forest Therapy (FT), Land Consolidation Association (LCA) and Mountaineering Villages (MVs), which we have investigated in order to verify their innovative and participatory approach and identify those distinctive elements that could stimulate the implementation of similar experiences in other mountain regions.

2. Materials and Methods

The three abovementioned initiatives were selected because they represent a novelty in the Italian Alps and beyond (e.g., there are currently 36 Mountaineering Villages in the Alps, of which 6 in Italy) and because they are intended to contribute primarily (LCA and MVs) or as a related objective to others (FT) to the development of the reference territories. Next, we looked at the initiatives that have been implemented in the Eastern Alps of Friuli Venezia Giulia, identified as the study area.

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Given the novelty of these experiences, the case study methodology was selected as the best-suited approach for the investigation. According to Yin [15], the case study is particularly useful to describe contextualized phenomena through multiple data sources, and it is more focused on theory building rather than testing. In order to gather information, the analysis presented in this paper relies on a qualitative approach [16]. Information was gathered from (1) the existing literature, as indicated for each case, which proved to be rather lacking probably due to the novelty of the approaches, as well as (2) website contents, (3) document investigation, and (4) unstructured interviews with key local actors to investigate some issues that emerged from the material collected for each case, as depicted in Table 1 [17,18].

Table 1. Material collections for each case.

	Websites	Documents	Unstructured Interviews
Case 1 FT	Forest therapy station in the municipality of San Leonardo, Italy [19–21]	Press review [20,21]	Interviews with people behind the project [19] 2 people were interviewed.
Case 2 LCA	Municipality of Stregna, Italy [22] Asfo Erbezzo [23,24]	Statute of Asfo Erbezzo Asfo Erbezzo overall strategy 2021–2026 Asfo Erbezzo chestnut-growing strategy 2021–2026 Meeting reports of the Asfo Erbezzo general strategy participatory process Meeting reports of the Asfo Erbezzo chestnut cultivation strategy participatory process	Interviews with the president and spokesman of <i>Asfo Erbezzo</i> . The latter is also the Mayor of the Municipality of Stregna. Member of the Council of the Municipality of Stregna 3 people were interviewed.
Case 3 MV	Mountaineering Village of Paularo, Italy [25]	Meeting reports of the MV working group. In the period 2019-2021, four formal meetings were held, in addition to informal meetings on one-off aspects. Press review [26–28]	Interviews with the Mayor of the Municipality of Paularo, the President and members of the Ravascletto CAI Section. 4 people were interviewed.

The following sections provide the descriptive result of our investigation, which led us to identify the main mechanisms and facilitating factors through which the three initiatives have adopted alternative paths towards the revitalization of local economies and communities, under the perspective of sustainable development based on territorial specificities.

3. Case 1: Forest Therapy (FT)

As confirmed by the international literature, the frequenting of forests positively influences human health, mostly due to the effects of terpenes, aromatic organic compounds (biomolecules), naturally produced by many plants, coniferous in particular, and also by some insects [29]. Terpenes constitute the largest Volatile Organic Compounds (VOCs) class, counting more than 40,000 structures, such as α -pinene, β -pinene, d-limonene, β -myrcene and camphene. These compounds possess multiple beneficial properties—for example, antimicrobial, anti-inflammatory and anti-allergic [30,31]. Forest therapy, along with forest bathing, has a long tradition in Asian countries, in particular in Japan, where the effects have been studied since the 1980s. Indeed, forest therapy has beneficial effects on physical and mental health (Figure 1), to the point that some health care systems list it among their preventative and curative medical therapies [32–34].

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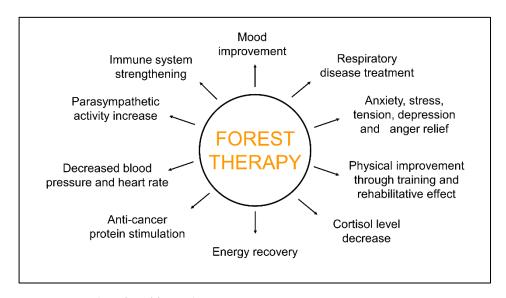


Figure 1. Main benefits of forest therapy.

The practice of FT consists of structured frequenting of forest environments. It requires the identification of an FT station—that is, a forest area whose beneficial effects are tested and proved, which can be enjoyed through optimally accessible paths, characterized by limited length, slope and elevation gain. Specific protocols define and discipline the FT sessions, during which people with health problems are accompanied by healthcare professionals, as well as trained environmental guides. The benefits of this practice are maximized by the reiteration, over several consecutive days, of short walk sessions (Figure 2) [35,36].





Figure 2. Moments of forest therapy sessions. Photos by Francesco Meneguzzo.

Besides the positive effects on individuals' wellbeing, both in terms of psychophysical health and lifestyle and interpersonal relations, forest therapy initiatives and related services also have the potential to provide space for economic initiatives and foster rural development [37,38]. First of all, forest therapy activities rely on the work, expertise and competencies of trained professionals, primarily healthcare workers, but also supporting nature guides. Secondly, local businesses and services, such as hospitality and catering, may readily benefit from the presence of a forest therapy station in a rural area. Lastly, the visit increase and turnover in the area may encourage the development of collateral activities, for example cultural events, leisure and sports services and facilities. From this perspective, forest therapy provides a chance to promote local development through new employment opportunities and income diversification and stabilization.

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Multiple studies conducted since 2002 have provided the scientific and knowledge base to establish the first Italian FT initiative in San Leonardo, a small municipality in the Natisone Valleys in Friuli Venezia Giulia, on the border with Slovenia. In this place, since 2019 a local association provides FT services throughout the year. In addition, together with local entrepreneurs and host facilities (taverns, agritourism, B&Bs, etc.), it has developed a tourist package that includes various other services, e.g., excursions, cycling tours, tasting of local products and cultural visits [39,40]. Thanks also to the growing recognition of the many benefits of FT, similar experiences are spreading to other areas. We mention here a project financed by European funds aimed at raising awareness of the benefits of FT in two small mountain municipalities in Friuli Venezia Giulia (Paularo and Moggio Udinese) and one in Carinthia (Lesachtal).

There are some useful lessons to be learned from this initiative, which can be summarized as follows: scientific research confirms the effectiveness of forest therapy for the prevention and cure of a number of pathologies; the practice must be supported by numerous services, among which the basic ones concern assistance by healthcare professionals and trained environmental guides; to these are added other services related to hospitality; all these services must be organized (organizational models for health and hospitality services); the FT practice has a strong local/territorial value if local actors are involved in the organization of the required services; and finally, the practice of FT could also become an opportunity to value the cultural ecosystem services of forests [41].

4. Case 2: Land Consolidation Association (LCA)

Land ownership fragmentation has long characterized the European rural landscape. To tackle problems of fragmentation, abandonment and under exploitation, in the 1970s, an innovative legal framework was introduced in France to foster cooperation among land owners, farmers and shepherds and promote agropastoral organization and merging of abandoned land. In this context, the first modern LCA emerged [42,43].

The first Italian LCAs appeared in Piedmont in 2012, namely the *Asfo (Asfo* is the short form for *Associazione Fondiaria*, Italian for Land Consolidation Association) *Carnino*, on the Cuneo Alps, and the *Asfo Prati di Avolasca*, on the hilly areas of the province of Alessandria [44,45]. Nowadays, Piedmont counts 36 LCAs, which group about 1000 members, 3000 hectares, and 12,000 cadastral parcels (average size of 0.25 hectares). The limited extension of land parcels is often coupled with fractional ownership issues: an 8 m² parcel jointly owned by 127 landlords is an extreme example of this problem, which the LCA intends to address. Following the Piedmont initiatives, LCAs have been established in recent years in other Northern Italian regions, namely Lombardy, Aosta Valley and Friuli Venezia Giulia [46].

LCAs are associations among private and public landowners, aimed at the requalification and management of conferred land properties. In this sense, LCAs act as a unique managing entity for a set of small parcels, whose productive uses for agro-sylvo-pastoral activities are regulated through rental agreements with either members of the LCAs themselves or third parties [47,48]. The main advantages of LCA are twofold. On the one hand, it does not interfere with existing property rights: each member, who voluntarily and freely joins the association, retains actual ownership of the conferred parcels and has the right to leave the association, even though in compliance with contractual obligations between the LCA and the land user/tenant. On the other hand, LCA contributes to the functional and productive valorization of an otherwise neglected and underused land patrimony, which in turn leads to improvements in the economic attractiveness and overall quality of life in rural areas; moreover, under the multifunctional agriculture perspective, efficient land use is essential to support multiple ecosystem services, such as environment and landscape conservation, prevention of wildfire and hydrogeological risks, application of public health measures through pest control.

Collective management and administration of the local land patrimony and other natural resources have long characterized the mountain areas of Friuli Venezia Giulia, for Land 2022, 11, 874 6 of 12

example, the Consorzi Vicinali (Local Consortia) in Val Canale or the Comunelle (Family Communities) in the Karst area [49]. In recent years, two LCAs have been established in the region: the Asfo Valle dell'Erbezzo (referred to from now on as Asfo Erbezzo), founded in 2015 in the Natisone Valleys area, mentioned above, and the Asfo Valli del But e d'Incarojo, created more recently, in 2020, and operating in the municipalities of Paluzza and Paularo. The aim of the Asfo Erbezzo is to reverse the land abandonment trend, promote sustainable territorial development and enhance the distinctive landscape (Figure 3). The act of constitution was signed by ten founding members, among which are the municipality of Stregna, which took the lead. The positive results of the initiative, as well as its continuous and active participation in community life, have increased the popularity of the local LCA, which in 2021 counted 78 members, 72 ha of land, more than 430 parcels, and 6 rental contracts. The Asfo Erbezzo also took an active role in drafting the Regional Landscape Plan (RLP), later adopted by the Regional Council of Friuli Venezia Giulia in 2018. Among the activities founded by the Regional Council for the implementation of the RLP, the municipality of Stregna, together with other municipalities of the Natisone Valleys, launched Scrigni di Biodiversità (Biodiversity Treasure Chests), a project for the recovery and protection of the traditional terraced landscape along the Alpe Adria Trail route. The project, which is still ongoing, aims at restoring meadows and farmland, local traditional architecture, and the path network. The Asfo Erbezzo is involved in some of the project initiatives, in particular with the renovation of drystone walls on the conferred land and the organization of laboratories on traditional construction techniques for local schools.





Figure 3. Areas in the municipality of Stregna were restored by Asfo Erbezzo. Photos by Ivo Pecile.

In the early months of 2021, the *Asfo Erbezzo* organized two participatory planning initiatives. The first one, between January and March 2021, aimed at the definition of the 2021–2026 Activity Plan: LCA members, together with local and regional administrators, university researchers and other local stakeholders, shared their competencies and interests in order to identify the main problems and potentials for development of the area. The resulting SWOT analysis has laid the groundwork for the shared definition of objectives to be achieved and actions to be taken to tackle land abandonment and enhance the distinctive landscape of the Natisone Valleys.

This participatory process has also led to the recognition of the traditional role of chestnut cultivation, which for long was the main source of livelihood for families in the valleys, as is still witnessed today by the presence of numerous historical chestnut groves. Based on these considerations, the second participatory planning initiative took place between April and May 2021 and included about 20 stakeholders involved in the chestnut system: professional farmers, hobbyists, pruners and caterers, etc. Know-how sharing, again, supported the definition of a development plan for the local chestnut system.

Where it has been implemented, the LCA approach has amply demonstrated its capability and potential to restore and successfully exploit fragmented and neglected properties and positively stimulate the local socioeconomic system. This innovative redefinition and

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revival of traditional collective management systems can in fact surpass individual interest in favor of the progress of the whole community while preserving existing property rights. Moreover, as demonstrated by the *Asfo Erbezzo* case, these shared management initiatives can easily evolve into planning platforms for the conservation of the landed wealth and the promotion of sustainable development in mountain areas.

The lessons that can be drawn from this initiative can be summarized as follows: the LCA approach has proven to be an effective tool in tackling the problem of land ownership fragmentation, abandonment and under exploitation; the recovery of abandoned land fosters several local economies, in particular agro–sylvo–pastoral economies; it also enhances the environmental value of places; finally, the participation of local actors in LCA planning makes it possible to highlight the specific characteristics of an area and to define strategies consistent with its needs.

5. Case 3: Mountaineering Villages (MVs)

The existing literature on *Bergsteigerdörfer* (MVs in German) is scarce. In his mid-term review of the Austrian Rural Development Program 2007–2013, Wagner [50] mentions the MV initiative among the financed activities which contributed to developing the potential of the Alpine Region and fostering sustainable development among the local communities. Using a broader approach to analyze the case of the municipality of Bovec in Slovenia, Trček and Koderman [51] discuss the interlinkages between tourism and sustainable development and consider the MV initiatives as an opportunity for border mountain regions. Similarly, Siegrist et al. [52] discuss nature-oriented tourism in the Alps and note that this concept is already integrated into the MV concept.

The MV brand was created in 2008 as a project of the Austrian Alpine Club aimed at implementing the objectives of environmental protection and sustainable development of the Alpine region with reference to the protocols of the Alpine Convention [53]. Nowadays, six mountaineering associations collaborate on the MV project: Austrian Alpine Club (OAV), Italian Alpine Club (CAI), South Tyrol Alpine Club (AVS), German Alpine Club (DAV), Slovenian Alpine Club (PZS) and Swiss Alpine Club (CAS).

MVs are small towns with long-lasting, rich mountaineering traditions, characterized by high environmental and landscape quality, and whose authenticity, traditions and culture constitute valuable assets. Thanks to their distinguishing profile and features, which are proactively preserved, MVs have the potential to develop a more sustainable form of tourism by fostering a sense of responsibility for the natural and cultural heritage of the European Alps [54]. A tourism approach that should also rely on year-round hospitality, quality services and accessible and differentiated hiking networks. Yet, MVs are not exclusively tourism-oriented destinations, they primarily are spaces for their own communities, whose tourist attractiveness is the result of collective efforts to make them attractive to the local communities themselves [55]. The MV philosophy informs the selection criteria used to evaluate candidate villages, acknowledge their specificities and guarantee the quality of the tourism offered. In general, these criteria consider the ability to: promote responsible tourism and a hospitality system capable of communicating local values and providing differentiated and quality services; support mountain economies, in particular agriculture through the provision of local food products and the availability of Alpine dairy huts; encourage public transport and sustainable mobility; contribute to biodiversity and landscape conservation. The criterion system is organized into three sections: exclusion criteria, mandatory criteria (whose compliance is always required, also for current members), and target criteria (related to additional and distinguishing features of each village).

The cross-border MV network currently groups 36 villages—22 in Austria, 4 in Germany, 2 in Slovenia, 2 in Switzerland and 6 in Italy—proactively involved in sustainable development and slow tourism (Figure 4).

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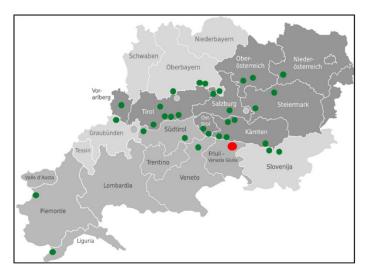


Figure 4. The MVs network. In red is the municipality of Paularo. Source: Map based on [56].

In 2019, the municipality of Paularo (Friuli Venezia Giulia), in collaboration with the local section of the Italian Alpine Club (CAI), i.e., CAI Section of Ravascletto, submitted its application. After that, a working group, formed by local administrators, members of the local CAI Section and representatives of the local tourism and commerce industry, was in charge of following the recognition procedure and promoting the initiative among the local community. After the preliminary in situ evaluation of the national CAI Committee, the application was forwarded to the International Committee and finally accepted in December 2021. The official ceremony to hand over the *Bergsteigerdörfer* brand was held in April 2022. The inclusion of Paularo in the MV international network is a unique chance to communicate the distinguishing features of the local community, its culture and traditions, and the value of the pristine environmental context in which it is located.

Even in this last case we examined, it seems useful to highlight the main lessons that emerged: MV initiative promotes a more sustainable form of Alpine tourism grounded on the responsibility of local communities and tourists for the many valuable resources in the area; thereby MVs can contribute to the development of local economies (tourist services, agriculture, handicrafts, etc.) and thus to the creation of living and working conditions that can counter mountain depopulation; the participation of the local community is a prerequisite for defining plans based on endogenous resources, e.g., hiking network, mountain huts and museums, etc.; finally, participation also raises awareness of the value of these resources.

6. Discussion and Conclusions

The analysis of forest therapy, land consolidation association and mountaineering village initiatives allowed us to point out some lessons that could support their replicability in other contexts. These initiatives share the importance of offering qualified and organized services to the community and guests (e.g., patients, tourists), the involvement of local actors in the definition of strategies consistent with the needs of each area, the capability of enhancing endogenous resources and increasing the environmental value of places, and the ability to support the local socioeconomic system through the generation of new income opportunities (slow tourism and health tourism, etc.).

The initiatives proved to be a valid example of an innovative and participatory approach to local development. They rely on a virtuous relationship between people themselves and nature as a starting point for processes of sustainable change for the environment and society. Their value drivers can be outlined as follows:

 Territorial innovation. The concept of innovation is not limited to inventions or changes never seen before (radical innovation), it also includes the ability to improve existing conditions to add or sustain value (incremental innovation) [57]. In this Land 2022, 11, 874 9 of 12

sense, we conceive territorial innovation as a reinterpretation of the human–nature relationships based on advances in knowledge and abilities over time as well as the ability to exploit emerging opportunities provided by new technologies [58–61]. Contemporary science-based forest therapy can be easily read as an advanced and improved version of 19th-century Alpine sanatoriums and their therapeutic practices. Similarly, land consolidation associations are the result of an adaptation to current societal needs and legal frameworks of traditional collective management institutions which played a central role in the conservation and exploitation of land assets in mountain areas. Finally, mountaineering villages provide an alternative to mass tourism, based on the respect for natural and cultural resources that characterize the Alpine region.

- New human-nature relationships. Development is not the static conservation of the
 original nature of places nor the transformation of the territory into a museum. It rather
 implies the acquisition of environmental knowledge to create virtuous relationships
 between communities and their environment and promote the adoption of good
 practices and regulations for the re-construction and care of spaces [14,62]. In this
 regard, sustainable development triggers virtuous change through the involvement of
 the community in the whole process, from conception and planning to implementation.
- Participatory approach. Indeed, the involvement of the community is essential to supporting local development initiatives [63–66]. The locals are not only the recipients of development initiatives—they are primarily the protagonists and agents of change, the only ones with the ability to re-shape their own environment, their community and the underlying social and economic relationships. Their deep-rooted knowledge of their territory, coupled with constructive interaction with experts and enablers, is essential to bringing positive change.

The adoption of innovative and participatory approaches in spatial planning, economic development and social interactions, all based on shared responsibility, have the potential to revert depopulation and economic depression trends in mountain areas, through the recognition of local values and singularities.

The three initiatives we investigated should not be considered as alternative approaches to local development but as potentially complementary and even mutually reinforcing. An example is the municipality of Paularo, which recently became a MV, co-created the *Asfo Valli del But e d'Incarojo* and is currently involved in an EU-funded project on forest therapy.

Their innovative nature and the reciprocal links that are already being forged have prompted us to investigate them as a whole and to give a descriptive and concise but comprehensive account of them. Future research should deepen the analysis and provide more details on each case, as well as cross-case comparison. For instance, it will be worthwhile to know what positives emerged after the start-up of each experience and how they were capitalized on, along with the main challenges that were faced and how they were overcome. No less important will be to know what opportunities were grasped and how they contributed to the further progress of each initiative, as well as the threats from external factors that had to be tackled. Finally, the identification of similar or alternative case studies is also important to identify enabling capacities and local specificities that can be effective for a transition towards sustainable local development paths. Follow-up studies on the impact, also quantitative, of similar and alternative initiatives on local economies and environmental quality would support the rationale of replicability and extension of experiences to other contexts.

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