Strategic Development Scenarios in Inland Areas: Logical Framework Approach Preparing Collaborative Design

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Abstract. Inland areas in Italy are experiencing an increasing trend of depopulation and a critical lack of territorial competitiveness. A "place-based" spatial development policy is seen as an effective way to address this structural weakness, reducing the social and economic exclusion of resident communities. The paper's aim is to apply a study method based on the Logical Framework Approach (LFA) structured methodology that, at the outset, requires an in-depth knowledge of the local context. The study area is located in the Basilicata Region's hinterland and displays the same features of Italian inland areas, far from the centres offering essential services and a fragmented settlement system. The study is composed of a first analysis phase, through the geoSWOT definition. This is followed by a problem analysis and the consequent objective identification phase. Finally, the strategy organised in the Logical Framework Matrix (LFM) is set out, which highlights the rational link between the structure levels. The conclusions highlight the method's robustness as a teaching strategy in urban and regional studies. The specific results achieved are closely in line with the New Urban Agenda (NUA) goals and represent a downscaling to specific case studies.

Keywords: Local development strategy · Inland Area · New Urban Agenda

1 Introduction

The paper presents the results of an educational workshop held at the University of Basilicata's School of Engineering. The research objective was to define a robust framework integrating local context knowledge with a structured methodology based on the Logical Framework Approach, as a preliminary step to the organisation of a participatory workshop with local stakeholders.

The methodological structure of the work is based on the Logical Framework Approach adopted since the 1970s as a reference for the Territorial Engineering course in the master's degree in Environmental Engineering.

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The research is linked to a wider research project funded by the Italian national government and co-funded by the European Union (ERDF, PON Research and Innovation 2014–2020), which investigates the relationships between environmental risks and fragmented settlement systems in inland areas. The MITIGO project (Mitigation of Natural Risks for Safety and Mobility in the Mountain Areas of Southern Italy)[1] includes several disciplinary contributions and takes urban studies into account in terms of planning sustainable local development strategies [1].

The study area (Fig. 1) is located in the inland area of the Basilicata Region (Italy), between the cities of Potenza and Matera and between the Basento and Bradano valleys. In particular, the following municipalities are included in the study area: Albano di Lucania, Campomaggiore, Castelmezzano and Pietrapertosa.

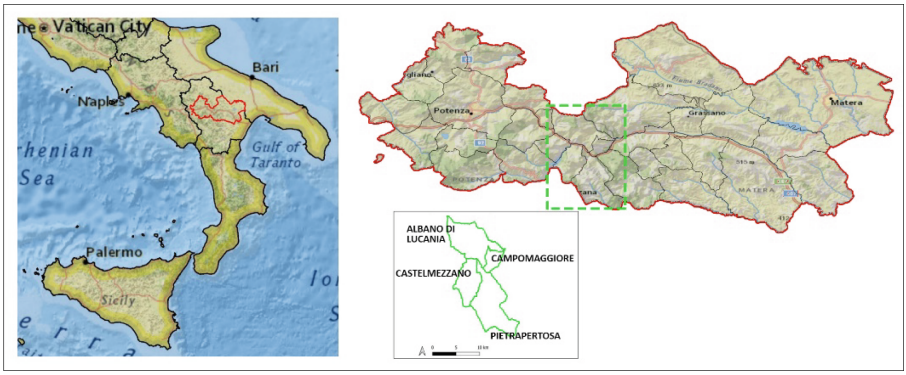

Fig. 1. On the left, in red, the boundaries of the MITIGO Project pilot area. On the right, a physical map of the thirty municipalities showing the study area consisting of four municipalities [2]. (Color figure online)

In the following sections, the special features of the study area are described and the methodological approach is briefly outlined to highlight the main stages of the research.

The geoSWOT is then discussed as the first output of the LFA methodology to highlight the spatial attributes that characterise the processing. The analysis of the problems and the consequent phase of identification of the objectives are represented through two synthetic graphs that describe the strategic branches to be considered in order to proceed to the final phase of spatial planning. At this stage, a brief reference is made to best practices that can also be adapted and repeated in the study area.

Finally, a part of the LFM is presented to give evidence of the rational link between the programme's structure levels. The conclusions highlight the robustness of the method as a teaching strategy in urban and regional studies. This work is the preliminary step to organizing a participatory workshop with local stakeholders, using the Geodesign methodology [3–7]. The specific results achieved are closely in keeping with the NUA [8, 9] objectives and represent an example of downscaling to specific case studies. Furthermore, the application's spatial scope covers an inter-municipal area, thus going

[1] "Progetto MITIGO". https://www.mitigoinbasilicata.it/ (accessed Apr. 04, 2023).

beyond the consolidated urban area, by addressing issues related to urban development management in regions with low settlement density.

2 Methodology

A rational approach [10, 11] was chosen to achieve an optimal analysis of the territory system, which is in itself complex, with an analysis aimed at understanding characteristic processes.

This approach pursues the three safeguarding principles as the logical basis of the proposal:

- efficient allocation of resources
- equity in the distribution of opportunities
- protection of non-renewable resources.

In addition, it plans to experiment with the search for a rational 'a-priori' logic, in which the objectives-products-activities-meanings connection becomes clear, starting from the problems and through the implementation of the Logical Framework Approach (LFA). This methodology is based on an operational view of the 'procedural approach' and proposes a process for defining and monitoring objectives and strategies and concentrating efforts on a few well-defined directions.

The Logical Framework Approach takes two phases: a first analysis phase, necessary to know the context and a synthesis phase in which the process is defined.

The first analysis operation involved the construction of a geoSwot [12], defined so because it is supported by graphic representations (GIS) that make it possible to geographically identify what is available on the territory.

Once the critical issues on which to focus were defined, there was a move to the use of the Problem Tree and Objective Tree techniques. All the problems are related with an arrow that makes the cause-effect relationship explicit, forming a hierarchy in which all the branches flow into the key-problem or core-problem; from the key-problem spring the effects, making explicit the causal links between the problems identified, in cause-effect logic.

The objective tree will have the same structure as the problem tree, in that it represents its transformation into a positive one; common objectives can be grouped together, unrealistic and/or unrealisable ones eliminated and new ones inserted if, in the transition from problem to objective, it is useful to better argue specific aspects. The objectives represent future positive wishes. The positive translation changes the cause-effect logic, and here the arrows follow the means-ends logic, i.e. it defines what is needed to achieve the goal.

In the objective tree, identification of strategic lines is possible, provided that the means-ends relationship is correctly verified. In this case, this results in a representation of 'clusters', which are thematically and sectorial consistent with the intervention assumed in the development program. The selection of 'clusters' enables the identification of action strategies which are categorised for a specific intervention sector.

2.1 geoSwot

The SWOT analysis makes it possible to identify strengths, to be exploited and enhanced; weaknesses, on which to focus recovery activities; threats, to be understood and fought against with targeted actions; and finally, opportunities, to be captured and cultivated. The study area's geoSwot (Fig. 2) shows how the weaknesses of the area under examination fall largely into structural problem categories common to inland and mountainous areas.

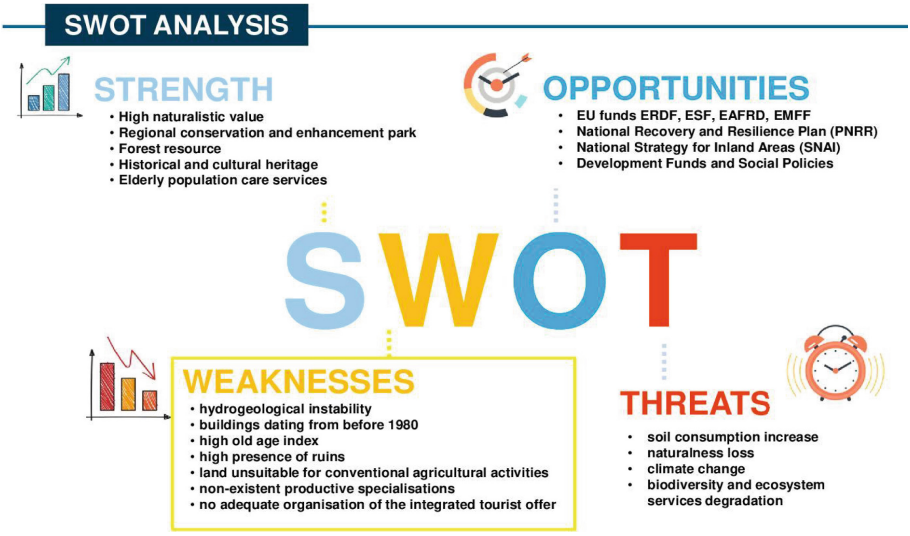

Fig. 2. GeoSWOT's main contents for the study area.

National data show how, from 1951 to 2019, the Mezzogiorno's Inner Areas lost 1.2 million residents (−2.5‰ on average per year; Italy −1.6‰) and one in three municipalities has systematically lost population since 1951 [13]. Moreover, the average value

Table 1. Some background data on the MITIGO area

	Old-age index	Births per 1000 inhabitants	Ruins unit	Percentage wooded area
Albano di Lucania	223,6	6,6	93	51,6%
Campomaggiore	326,2	5,4	42	62,1%
Castelmezzano	408,6	4,1	115	67,7%
Pietrapertosa	314,6	4,3	174	68,4%
Basilicata	214,1	6,1		

of the old-age index[2] found in the municipalities of the MITIGO area (318) exceeds the regional (214) and national (187) values (Table 1).

Another weakness concerns hydrogeological instability, which is widespread in Basilicata and represents a significant problem. Among the natural factors that make the territory susceptible to hydrogeological instability is undoubtedly its geological and geomorphological layout, characterised by a young orography and rising relief. Hydrogeological risk is also strongly influenced by human action. The mountainous land abandonment, unauthorised building, ongoing deforestation, environmentally unfriendly farming techniques and the lack of slope and watercourse maintenance have undoubtedly worsened the disruption and further highlighted the territory's fragility [14]. As 18% of the roads in the study area fall in areas classified as landslide-prone, this represents a very significant problem. It affects not only roads but also buildings, for which there are 670 inhabitants living in landslide-prone areas.

Another worrying statistic refers to the percentage of residential buildings constructed before 1980, which in all municipalities exceeds 80%, while the provincial and regional average does not exceed 70% (source: ISTAT). In terms of safety, this represents a weakness. The number of decaying, ruined and broken down buildings was also surveyed, with over 400 in the study area alone.

The analysis shows that 59% of the total area falls in land use class VI areas, which represent soils with severe limitations that make them unsuitable for conventional agricultural activity. This inevitably translates into a lack of agricultural specialisation in high-value production, for which no quality and valorisation marks are recognised in the municipalities. Another relevant weakness is represented by a tourist offer organisation that is not adequate to the place's potential.

The strengths are essentially represented by the environmental, nationalistic and historical heritage, a true added and intrinsic value that characterises the territory in a special and unique way. The territory includes protected areas of high naturalistic value, in particular, Special Areas of Conservation (SAC), which have been recognised by the European Commission: Dolomiti di Pietrapertosa, Bosco di Montepiano, Foresta Gallipoli-Cognato, Bosco Cupolicchio [15]. Also significant is the presence of the Gallipoli Cognato Regional Park, a protected natural area established in 1997, which also includes Pietrapertosa and Castelmezzano municipalities.

The data referring to the woodland resource is representative, in all the municipalities the percentage of woodland compared to the total extension exceeds 50%, which represents an added value for the area's valorisation. Another strong point is the historical and cultural heritage, and the numerous events linked to local identity. Events linked to religious worship and tradition are numerous and represent a tourist attraction to be exploited, such as the Mascio rite in Pietrapertosa.

The threats are mainly climate change and increasing land take [16]. The 2007 Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) and numerous following studies state that climate change is producing significant impacts on plant and animal communities, biodiversity and ecosystem services [17]. As far as

[2] The old-age index is a synthetic but very dynamic indicator of a population's ageing status. It is obtained by relating the amount of the elderly population (65 years and over) to the youth population (0–14 years), multiplied by 100.

land take and loss of naturalness are concerned, Basilicata today has lower values than the average, but the trend is growing. This growth is not justified since Basilicata is a region with low population density and a decreasing demographic trend [18]. The most important opportunities are represented by ordinary and extraordinary funds, including the National Recovery and Resilience Plan (PNRR), the National Strategy for Inner Areas (SNAI) and EU cohesion funds.

2.2 From Problem Analysis to Objective Definition

The problem tree (Fig. 3) illustrates the critical issues, placed in connection upon the basis of the cause-effect relationship, structured according to a hierarchy that makes it possible to identify the specific fields on which to act.

From the analysis carried out, it emerged that the decline and the lack of territorial valorisation represent the central problem, the system's fulcrum from which the effects observed in the study area spring. This leads to a disadvantaged and vulnerable condition both economically and environmentally.

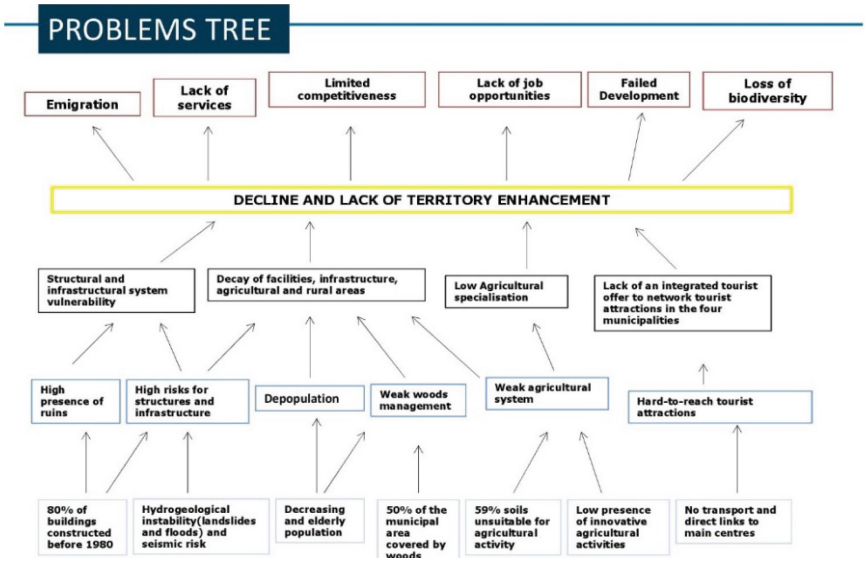

Fig. 3. Problems tree.

The causes identification and the subsequent actions for their removal or containment are the starting point to avoid the induced effects, including significant emigration and biodiversity loss before they become irreversible conditions for the territory.

The problems found in the previous diagram, let us transport these to the positive, identifying future desirable positive conditions. This modifies the logic, so we move from cause-effect to means-ends logic. Thus to define what is needed to achieve the ends, the objectives (Fig. 4).

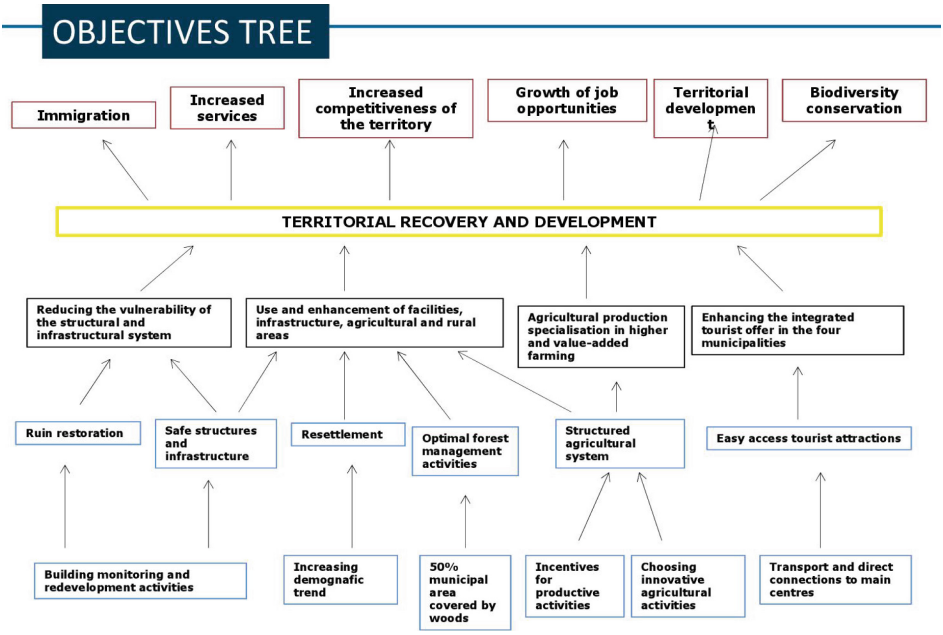

Fig. 4. Objectives tree.

It is possible to observe how acting on the territory's recovery and valorisation, through targeted actions that touch in a synergic and integrated manner the area's characteristic dimensions, such as tourism, agriculture and forestry, produces conclusions and ends that achieve real development and growth of the area.

To this end, on the objective tree, the strategies that contribute to the realisation of the central objective are identified, targeting the sectors in which it is necessary to act.

2.3 Best Reference Practices

Reference is made to the best project practices (Table 2) before proceeding to the actions linked to the individual strategic lines. The best practices taken into account were chosen according to the individual features offered by the area and, above all, to encourage strong synergy projects on a supra-municipal scale.

Among the good practices, numbers 1.1 and 1.4 were particularly taken into account. In the first case, the municipalities taking part in the project identified an area in the Local Government Plan to experiment with collective functions in line with environmental protection and conservation. The second one, on the other hand, is a practical experience of conservation agriculture, with medicinal herb cultivation combined with honey production as an environmentally and ecosystem-friendly solution.

2.4 Logical Framework Matrix (LFM)

The proposal, outlined in the Logical Framework Matrix (Fig. 5), aims to emphasise the effectiveness and efficiency principles and to clarify the coherence and relevance

Table 2. Best reference practices on the project area MITIGO

N°	Practice	Actors	Activities	Location	Outcomes and Products	link
1.1	Shared Soils Project	Municipalities / Cariplo Foundation	*Educational and practical activities with citizens; municipal technician training*	Albino, Nembro, Ponte San Pietro, Pradalunga municipalities (Piedmont)	Setting up soil valorisation paths for social and naturalistic functions	https://www.fondazioneceriplo.it/it/index.html
1.2	SOS4Life European project initiative	Municipalities	*Assessment and mapping of seven soil ecosystem services, and impact analysis of the services' consumption*	Forlì, San Lazzaro di Savena and Carpi Municipalities (Emilia Romagna)	Environmental planning and evaluation process based on Ecosystem Services	http://www.sos4life.it/
1.3	Life HelpSoil	Municipalities	*Setting up conservation agriculture activities for sustainable and stable productivity*	Po Valley (Northern Italy)	Promoting the dissemination of improved solutions that increase agricultural sustainability and competitiveness	https://www.lifehelpsoil.eu/
1.4	Herbalist	Farms	*The project aims to develop product micro-supply chains from officinal plants*	Project at the Villiago di Sedico biological farm (Veneto Region)	Development of a officinal plant product chain to be sponsored by farms	
1.5	The Cerreto Brigantes	Community cooperation	*Accommodation and tourist services, educational programmes, chestnut recovery, and chestnut production rediscovery*	Emilia-Romagna	Local partnership processes and tools for sustainable and long-lasting forest management	https://www.ibrigantidicerreto.com/

of choices to the implementation context, according to the search for a context- or place-based policy.

Logical Framework Matrix "MITIGO area"				
	INTERVENTION LOGIC	OBJECTIVELY VERIFIABLE INDICATORS		MEANS OF VERIFICATION
	OVERALL OBJECTIVE	PERFORMANCE INDICATORS	EFFICIENCY INDICATORS	
	GO: Territorial Recovery and Enhancement			
SPECIFIC OBJECTIVES	**SO1: Exploitation of structural, agricultural and forestry heritage**	No. of monitoring-adaptation and enhancement activities	No. of monitoring-adaptation and valorisation/investment activities	Municipal Offices
	SO2: Agricultural production specialisation in higher value-added crops	No. of agricultural activities in higher value-added crops	No. of agricultural activities in higher value-added crops/investment	Municipal Offices ISTAT
	SO3: Strengthening integrated tourism offer in the four municipalities	tourist presences	Tourist presences/investments	ISTAT
RESULTS	R1.1: Suitable facilities and infrastructure	No. of adequate facilities and infrastructure	No. of adequate facilities and infrastructure/investment	Municipal Technical Offices
	R1.2: New residents	No. of residents	No. of residents / investment and facilities	Municipal Offices ISTAT
	R1.3: Forest management partnerships	Hectares of managed woodland	Hectares of woods managed/investments	Municipal Offices
	R2.1: Agricultural system specialisation in high-value medicinal herbs	Hectares cultivated with officinal herbs	Hectares cultivated with officinal herbs/investments	Municipal Offices
	R2.2: High-quality honey production	Kg honey produced	Kg honey produced/investment	Municipal Offices
	R2.3: High Value Production	Revenue from product sales	Revenue from the product/ investment sales	ISTAT
	R2.4: Increased companies' income	Companies' income	Companies' income/investment	ISTAT
	R3.1: Tourist presences in all municipalities	Balanced tourist presences in municipalities	Balanced tourist presences in municipalities / investment	ISTAT
	R3.2: Non-seasonal flows	Tourist presences in winter months	Tourist presence in winter months / investment	ISTAT

ACTIVITIES	
A1.1) Building monitoring and redevelopment	**INPUT**
A1.1) Hydrogeological instability monitoring	Public funding (PNRR, EU funds ERDF, ESF, EAFRD, EMFF) Specialised equipment and human resources
A1.2) Economic and tax benefits for home buyers in municipalities	**CONDITIONS**
A1.2) Economic and tax advantages for starting new businesses	Cooperation between municipalities
A1.3) Establishing forest management cooperatives	Entrepreneurs and workers to be employed in new businesses in the area
A1.3) Making available areas of municipal woods	Cooperation between public and private partners
A 2.1) Training and coaching for innovative agricultural activities for officinal herb production	Cooperation between service providers
A 2.2) Training and promotion of techniques for herb-based flavoured honey production	Training institutions and personnel to be employed
A 2.3) Establishment of product processing, valorisation and distribution chains	Specialised staff
A 3.1) All-inclusive tourism packages spread across all municipalities	Availability of free properties
A 3.2) Tour operators' training	**PRECONDITIONS**
A 3.2) Exploitation of mountain outdoor activities	Collaboration agreement between the four municipalities

Fig. 5. Logical Framework Matrix “MITIGO area”.

The Logical Framework Approach adopted is an 'aid to thinking' [19] rather than a set of procedures. This approach represents a working tool with the goal of streamlining the design process. It does not focus on the discussion of what needs to be made, but rather on the problems and needs to be solved, and only consequently of the goals to be achieved.

In the first section, which contains the intervention logic, the objectives are set out, starting with the general one, i.e. 'recovery and enhancement of the territory' identified in the previous analysis phase. This represents the central and general objective, which is realised through the definition of secondary objectives. These objectives specifically define the various fields of application and contribute to its realisation. By analysing the strategies identified within the objective tree, the following specific objectives were defined:

1. enhancement of structural, agricultural and forestry heritage;
2. agricultural production focus on crops with a higher added value;
3. enhancement of the integrated tourist offer in the four municipalities [20–24].

Through the results definition, the objectives are pursued. This section, therefore, includes the specific, measurable and concrete results associated with each specific objective. These objectives are achieved by deploying targeted and defined actions.

A representative example can be related to specific objective No. 3, i.e. "enhancement of the integrated tourist offer in the four municipalities". The objective is achieved if results are observed, such as an increase in tourist presence in all municipalities and the non-seasonality of flows. Consequently, results are achieved if the specific actions described are put into practice, such as the creation of all-inclusive tourist packages, the promotion of social marketing, tourist operator training, and the enhancement of outdoor activities in mountain areas.

Next to the section containing the logic behind the process, we find the indicators section, which must be objective and verifiable, providing actual evidence of context, effectiveness and efficiency. The definition of context indicators makes it possible to demonstrate how the central objective relating to "recovery and enhancement of the territory", represents the process' fulcrum and the most significant point for the MITIGO Area municipalities. In fact, the territory is characterised by a high value of biodiversity, naturalness and a potential tourist attractiveness that is high, but not equally exploited in the four municipalities. The decreasing demographic trend, combined with a precarious economic system, has led to a progressive exodus from the area. This is emblematic in the high presence of ruins, which are a symptom of marked landscape degradation. This underlines the suitability and relevance of the objective identified, and how much it is a priority.

The efficiency and effectiveness indicators identified make it possible to measure the objectives' realisation and specific results' achievement.

With regard to the verification means identified, in addition to Istat, municipal offices were considered authoritative and certified information sources. To this end, the authorities' collaboration in the process will be indispensable.

The necessary inputs were mainly identified in public funds with which human resources, equipment and specialised personnel could be associated.

3 Discussion and Conclusions

It is difficult to reverse the trend of depopulation and the increase in the elderly population with single, punctual actions. A "place-based" spatial development policy must be implemented; therefore, a long-term strategy has been proposed to tackle the resource under-exploitation and to reduce the social and economic exclusion of these marginal places. The more this strategy is specific and linked to the MITIGO area, the more effective and appropriate it will be for achieving improvement in the local socio-economic condition.

A strategy made up of targeted actions that start from elements that currently represent weaknesses, through the valorisation of strengths and by seizing the opportunities found, can make a difference.

In the Logframe Matrix, activities with improved solutions to enhance the sustainability and competitiveness of agricultural activities were indicated. An example of conservative and sustainable soil use is the medicinal herb crops associated with beekeeping. At the same time, the focus was on protecting and ensuring the sustainable use of soil while preserving its functions. In particular, the focus has been on conservative farming activities, which can play an important role in restoring soil functionality and enhancing soil ecosystem services. On a wide scale, the strategy outlined contributes to increasing resilience and climate change adaptation capacity [25–28].

The 17 Sustainable Development Goals of the 2030 Agenda, adopted by all United Nations Member State, and the Paris Climate Agreement (2015) consider the three dimensions of sustainable development, i.e. economic, social and ecological, in a balanced manner.

Taking into account the municipalities in the area under analysis, the work aims to find opportunities for development and valorisation, so that the NUA principles can be applied to the rural context. If we consider the topic of environmental sustainability, it is present throughout the NUA, as biodiversity and ecosystems conservation are essential aspects for sustainable development, both in urban and rural contexts. This is also central to the 2030 agenda, which has as its Goal 15, "life on earth".

The conservation of natural areas and assets that provide ecosystem services through land management and spatial planning is a central theme that is reflected in the spatial analysis carried out. Other fundamental themes are represented by the shared planning process, which must consider the stakeholders' voices, especially those who are directly involved with the given ecosystems [29, 30].

All this is in order to identify integrated solutions and multi-sectorial planning, taking into account all sectors of society with respect for the environment, conservation of biodiversity and respect for ecosystems at the centre. Based on this, with reference to individual activities, there are several actions that could be taken by the four municipalities with the aim of protecting biodiversity and conserving ecosystems, thus realizing the principles expressed within the NUA.

The compliance NUA framework [31–35] reinforce the proposal linking local objectives and proposed actions to a global framework addressing the contemporary planning perspective a mean to achieve global sustainability in the urban perspective [36–38].

This work is the preliminary step to organizing a participatory workshop [39–41] with local stakeholders. The goal is to use the Geodesign methodology to create proposals

for change and assess their impacts, sharing information with stakeholders involved in this context.

References

1. Scorza, F., Santopietro, L., Corrado, S., Dastoli, P.S., Santarsiero, V., Gatto, R., Murgante, B.: Training for territorial sustainable development design in Basilicata remote areas: geodesign workshop. In: Gervasi, O., Murgante, B., Misra, S., Ana, M.A., Rocha, C., Garau, C. (eds.) Computational Science and Its Applications – ICCSA 2022 Workshops: Malaga, Spain, July 4–7, 2022, Proceedings, Part III, pp. 242–252. Springer International Publishing, Cham (2022). https://doi.org/10.1007/978-3-031-10545-6_17
2. Villani, V., Barbato, G., Rianna, G., Mercogliano, P.: Profilo climatico per un'area compresa fra le città di Potenza e Matera, e fra le valli dei fiumi Basento e Bradano. (2022)
3. Steinitz, C., Orland, B., Fisher, T., Campagna, M.: Geodesign to address global change. In: Intelligent Environments, pp. 193–242 (2023). https://doi.org/10.1016/B978-0-12-820247-0.00016-3
4. Scorza, F.: Sustainable urban regeneration in Gravina in Puglia, Italy. In: Fisher, T., Orland, B., Steinitz, C. (eds.) The International Geodesign Collaboration. Changing Geography by Design, pp. 112–113. ESRI Press, Redlands, California (2020)
5. Padula, A., Fiore, P., Pilogallo, A., Scorza, F.: Collaborative approach in strategic development planning for small municipalities. Applying geodesign methodology and tools for a new municipal strategy in Scanzano Jonico. In: Leone, A., Gargiulo, C. (eds.) Environmental and territorial modelling for planning and design, pp. 665–672. FedOApress (2018). https://doi.org/10.6093/978-88-6887-048-5
6. Dastoli, P.S., Pontrandolfi, P., Scorza, F., Corrado, S., Azzato, A.: Applying geodesign towards an integrated local development strategy: the Val d'Agri Case (Italy), BT - Computational Science and Its Applications – ICCSA 2022 Workshops, pp. 253–262 (2022). https://doi.org/10.1007/978-3-031-10545-6_18
7. Scorza, F.: Training decision-makers: GEODESIGN workshop paving the way for new urban agenda. In: Gervasi, O., et al. (eds.) ICCSA 2020. LNCS, vol. 12252, pp. 310–316. Springer, Cham (2020). https://doi.org/10.1007/978-3-030-58811-3_22
8. UN HABITAT: New Urban Agenda. United Nations (2016)
9. Pontrandolfi, P., Dastoli, P.S.: Comparing impact evaluation evidence of EU and local development policies with new urban Agenda themes: the Agri Valley case in Basilicata (Italy).https://doi.org/10.3390/su13169376
10. Casas, G.L., Scorza, F.: Sustainable planning: a methodological toolkit. In: Gervasi, O., et al. (eds.) ICCSA 2016. LNCS, vol. 9786, pp. 627–635. Springer, Cham (2016). https://doi.org/10.1007/978-3-319-42085-1_53
11. Dastoli, P.S., Pontrandolfi, P.: Strategic guidelines to increase the resilience of inland areas: the case of the Alta Val d'Agri (Basilicata-Italy). In: Gervasi, O., et al. (eds.) ICCSA 2021. LNCS, vol. 12958, pp. 119–130. Springer, Cham (2021). https://doi.org/10.1007/978-3-030-87016-4_9
12. Helms, M.M., Nixon, J.: Exploring SWOT analysis – where are we now?: a review of academic research from the last decade. J. Strateg. Manag. **3**, 215–251 (2010). https://doi.org/10.1108/17554251011064837
13. Bianchino, A., Carbonara, M., Carucci, A.M., Tebala, D.: Le aree interne tra spopolamento e povertà. https://www.istat.it/it/files/2022/09/31_ISTAT_MILeS2022_Bianchino_Carbonara_Carucci_Tebala.pdf

14. Rischio idrogeologico in Basilicata. http://www.protezionecivilebasilicata.it/protcivbas/section.jsp?sec=100053
15. Regione Basilicata: Siti Rete Natura 2000. https://rsdi.regione.basilicata.it/siti-rete-natura-2000/
16. ISPRA: Consumo di suolo, dinamiche territoriali e servizi ecosistemici (2022)
17. Pilogallo, A., Saganeiti, L., Scorza, F., Murgante, B.: Assessing the impact of land use changes on ecosystem services value. In: Gervasi, O., et al. (eds.) ICCSA 2020. LNCS, vol. 12253, pp. 606–616. Springer, Cham (2020). https://doi.org/10.1007/978-3-030-58814-4_47
18. Saganeiti, L., Pilogallo, A., Scorza, F., Mussuto, G., Murgante, B.: Spatial indicators to evaluate urban fragmentation in basilicata region. In: Gervasi, O., et al. (eds.) ICCSA 2018. LNCS, vol. 10964, pp. 100–112. Springer, Cham (2018). https://doi.org/10.1007/978-3-319-95174-4_8
19. Coleman, G.: Logical framework approach to the monitoring and evaluation of agricultural and rural development projects. Project Appraisal **2**, 251–259 (1987). https://doi.org/10.1080/02688867.1987.9726638
20. Scorza, F., Gatto, R.V.: Identifying territorial values for tourism development: the case study of Calabrian Greek area. Sustainability **15**, 5501 (2023). https://doi.org/10.3390/SU15065501
21. Gatto, R., Santopietro, L., Scorza, F.: Roghudi: developing knowledge of the places in an abandoned inland municipality. Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics). LNCS, vol. 13382, pp. 48–53 (2022). https://doi.org/10.1007/978-3-031-10592-0_5/COVER
22. Séraphin, H., Platania, M., Spencer, P., Modica, G.: Events and tourism development within a local community: the case of winchester (UK). Sustainability **10**(10), 3728 (2018). https://doi.org/10.3390/su10103728
23. Murgante, B., Borruso, G., Lapucci, A.: Sustainable development: concepts and methods for its application in urban and environmental planning. In: Murgante, B., Borruso, G., Lapucci, A. (eds.) Geocomputation, Sustainability and Environmental Planning, pp. 1–15. Springer Berlin Heidelberg, Berlin, Heidelberg (2011). https://doi.org/10.1007/978-3-642-19733-8_1
24. Corrado, S., Gatto, R.V., Scorza, F.: The European digital decade and the tourism ecosystem: a methodological approach to improve tourism analytics. In: 18th International Forum on Knowledge Asset Dynamics (IFKAD) - Managing Knowledge for Sustainability, Matera (2023)
25. Scorza, F., Santopietro, L.: A systemic perspective for the Sustainable Energy and Climate Action Plan (SECAP). Eur. Plann. Stud., 1–21 (2021).https://doi.org/10.1080/09654313.2021.1954603
26. Santopietro, L., Scorza, F.: The Italian experience of the covenant of mayors: a territorial evaluation. Sustainability **13**, 1289 (2021). https://doi.org/10.3390/su13031289
27. Scorza, F., Fortunato, G.: Active mobility-oriented urban development: a morpho-syntactic scenario for a mid-sized town. Eur. Plann. Stud., 1–25 (2022). https://doi.org/10.1080/09654313.2022.2077094
28. Scorza, F., Fortunato, G.: Cyclable cities: building feasible scenario through urban space morphology assessment. J Urban Plan Dev. **147**, 05021039 (2021). https://doi.org/10.1061/(ASCE)UP.1943-5444.0000713
29. Daley, J.M., Angulo, J.: People-centered community planning. J. Community Dev. Soc. **21**, 88–103 (1990). https://doi.org/10.1080/15575339009489963
30. Dastoli, P.S., Pontrandolfi, P.: Methods and tools for a participatory local development strategy - new metropolitan perspectives. Calabrò, F., Della Spina, L., Piñeira Mantiñán, M.J. (eds.), pp. 2112–2121. Springer International Publishing, Cham (2022). https://doi.org/10.1007/978-3-031-06825-6_203

31. Pilogallo, A., Saganeiti, L., Scorza, F., Murgante, B.: Ecosystem services approach to evaluate renewable energy plants effects. In: Misra, S., et al. (eds.) ICCSA 2019. LNCS, vol. 11624, pp. 281–290. Springer, Cham (2019). https://doi.org/10.1007/978-3-030-24311-1_20
32. Scorza, F., Murgante, B., Las Casas, G., Fortino, Y., Pilogallo, A.: Investigating territorial specialization in tourism sector by ecosystem services approach. In: Stratigea, A., Kavroudakis, D. (eds.) Mediterranean Cities and Island Communities. PI, pp. 161–179. Springer, Cham (2019). https://doi.org/10.1007/978-3-319-99444-4_7
33. Pilogallo, A., Scorza, F.: Ecosystem services multifunctionality: an analytical framework to support sustainable spatial planning in Italy. Sustainability. **14**, 3346 (2022). https://doi.org/10.3390/SU14063346
34. Pilogallo, A., Saganeiti, L., Scorza, F., Las Casas, G.: Tourism attractiveness: main components for a spacial appraisal of major destinations according with ecosystem services approach. In: Gervasi, O., et al. (eds.) ICCSA 2018. LNCS, vol. 10964, pp. 712–724. Springer, Cham (2018). https://doi.org/10.1007/978-3-319-95174-4_54
35. Pilogallo, A., Scorza, F.: Mapping regulation ecosystem services specialization in Italy. J. Urban Plann. Dev. **148** (2022). https://doi.org/10.1061/(ASCE)UP.1943-5444.0000801
36. Garau, C., Annunziata, A.: A method for assessing the vitality potential of urban areas. The case study of the metropolitan city of Cagliari, Italy. City, Territory and Architecture **9**(1), 1–23 (2022). https://doi.org/10.1186/s40410-022-00153-6
37. Garau, C., Annunziata, A., Yamu, C.: A walkability assessment tool coupling multi-criteria analysis and space syntax: the case study of Iglesias, Italy. Eur. Plann. Stud., 1–23 (2020). https://doi.org/10.1080/09654313.2020.1761947
38. Francini, M., Chieffallo, L., Palermo, A., Viapiana, M.F.: A method for the definition of local vulnerability domains to climate change and relate mapping. Two case studies in southern Italy. Sustainability **12**(22), 9454 (2020). https://doi.org/10.3390/su12229454
39. Conroy, M.M., Evans-Cowley, J.: E-Participation in planning: an analysis of cities adopting on-line citizen participation tools. Eviron. Plann. C. Gov. Policy **24**, 371–384 (2006). https://doi.org/10.1068/c1k
40. Scorza, F., Fortunato, G., Carbone, R., Murgante, B., Pontrandolfi, P.: Increasing urban walkability through citizens' participation processes. Sustainability **13**, 5835 (2021). https://doi.org/10.3390/su13115835
41. Scorza, F., Pontrandolfi, P.: Citizen participation and technologies: the CAST architecture. In: Gervasi, O., et al. (eds.) ICCSA 2015. LNCS, vol. 9156, pp. 747–755. Springer, Cham (2015). https://doi.org/10.1007/978-3-319-21407-8_53