# "Back to the Villages": Design Sustainable Development Scenarios for In-Land Areas

Antonia Lacerenza, Velia Terminio, Valeria Lacidogna, Verdiana Parente, Rachele Gatto, Rossella Scorzelli, Simone Corrado, Schiva Rahmani, Priscilla Sofia Dastoli, and Francesco Scorza(✉)

School of Engineering, Laboratory of Urban and Regional Systems Engineering, University of Basilicata, 10, Viale dell'Ateneo Lucano, 85100 Potenza, Italy
{antonia.lacerenza,velia.terminio,valeria.lacidogna, verdiana.parente,rachele.gatto,rossella.scorzelli, simone.corrado,schiva.rahmani,priscillasofia.dastoli, francesco.scorza}@unibas.it

**Abstract.** In-land Areas refers to territories that are farther from cities, often located in mountainous contexts, where job opportunities are less frequent. The National Strategy for Internal Areas (SNAI) represents an innovative national policy for development and territorial cohesion that aims to counter the marginalization and demographic decline phenomena specific to the In-land areas Italy and ultimately countering their "demographic negative trend". This paper aims to structure a strategic planning process aimed at answering those critical issues within a specific marginal area of Basilicata including four municipalities: Albano di Lucania, Campomaggiore, Castelmezzano, and Pietrapertosa. The methodological framework is based on the Logical Framework Approach as a preliminary analytical-knowledge phase to a co-design exercise that will be carried out with the main actors of the context within a specific Geodesign workshop. The LFA main output are discussed in the paper pointing out the rational process of strategic planning development.

**Keywords:** Logical Framework Approach · Strategic Planning · In-land area development

## 1 Introduction

In-land Areas (IA) are defined as municipalities that are distant from essential services, particularly schools, healthcare, and railway transportation. We are referring to territories that are farther from cities, often located in mountainous contexts, where job opportunities are less frequent. IA are mainly present in the regions of Southern Italy: a total of 1,718 municipalities (67.4%) are part of them, with significant incidence rates in Basilicata, Sicily, Molise, and Sardinia (all exceeding 70%). The IA of Southern Italy represent 44.8% of the national total [1–3]. As a consequence, large areas of the country are less livable for families. This leads to the progressive depopulation that has characterized peripheral municipalities since the post-war period.

© The Author(s), under exclusive license to Springer Nature Switzerland AG 2023
O. Gervasi et al. (Eds.): ICCSA 2023 Workshops, LNCS 14110, pp. 162–176, 2023.
https://doi.org/10.1007/978-3-031-37123-3_14

The National Strategy for Internal Areas (SNAI) represents an innovative national policy for development and territorial cohesion that aims to counter the marginalization and demographic decline phenomena specific to the In-land areas Italy. This is an ambitious place-based policy project, which has developed new multilevel local governance modalities aimed at addressing, through the adoption of an integrated approach oriented towards promoting and local development, the demographic challenges and responding to the needs of territories characterized by significant disadvantages of a geographical or demographic nature. The National Strategy aims to intervene in such places, investing in the promotion and protection of the wealth of the territory and local communities, enhancing their natural and cultural resources, creating new job opportunities and new opportunities, and ultimately countering their "demographic negative trend."

However, in-land areas are also characterized by high vulnerability of the territory to natural risks, influenced by geomorphological characteristics typical of mountainous territories. Overall greater fragility of the territory and difficult accessibility often linked to morphology may contribute to the causes of the progressive abandonment of these territories [4, 5].

This research, developed mainly within the framework of the course of Territory Engineering - Master's Degree in Environmental Engineering, aims to structure a strategic planning process aimed at answering the previously mentioned critical issues within a marginal area of Basilicata between the cities of Potenza and Matera and the Basento and Bradano valleys: the municipalities of Albano di Lucania, Campomaggiore, Castelmezzano, and Pietrapertosa.

The methodological framework of reference adopts the Logical Framework Approach as a preliminary analytical-knowledge phase to a co-design exercise that will be carried out with the main actors of the context within a specific Geodesign workshop [6–11].

In addition to reporting evaluation elements of the case study through a rigorous territorial analysis procedure, the work proposes development strategies and exemplifies design solutions derived from an evaluation of best practices.

"This work contributes to the wider MITIGO research project - Mitigation of natural risks for safety and mobility in the mountainous areas of Southern Italy - co-financed by the European Union - ERDF, PON Research and Innovation 2014–2020," which is led by the University of Basilicata. In order to offer a contribution to the improvement of the social and economic conditions of Southern Italy, the Mitigo project proposes approaches for mitigating hydrogeological and seismic risks for road connections and strategic structures in mountainous urban areas affected by landslides and earthquakes, lack of services, mobility difficulties, and depopulation phenomena [12–14].

The following section describes the reference principles, derived from the NUA, to which the study contributes in the process of downscaling to the local scale. This is followed by a discussion of the main elaborations of the Logical Framework Approach [15], from the construction of the geo-SWOT to the identification of the main intervention strategies. The last section indicates possible selected design strategy.

## 2 NUA Inspiring the Future of Local Development

The 2030 Agenda was born in 2015 from an agreement signed by the United Nations to address the great challenges of the planet through a common approach, defining 17 Sustainable Development Goals which are incorporated into a major action program for a total of 169 targets. The main target of the NUA is represented by cities intended as engines of sustainable development and areas for experimenting with innovative solutions to overcome the challenges of sustainability [16–19]. It is an important document since it renews and strengthens the global commitment to sustainable urban development, and it is an operational document, in fact it is considered as the accelerator of the Sustainable Development Goals defined in the 2030 Agenda [20–22]. In addition, urbanization, defined as a tool and engine of development, it is a cross-cutting theme within the SDGs. In particular, Objective 11 of the 2030 Agenda, which aims to "Make cities and human settlements inclusive, safe, resilient and sustainable", is central to the challenges of improving the quality of life in human settlements and shows connections with numerous other objectives affecting specific sectors. In the following figure we therefore report the diagram representing the connections identified with objective 11 and their respective description (Fig. 1).




**Fig. 1.** NUA themes

4.4: By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship.

8.3: Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small-and medium-sized enterprises, including through access to financial services.

8.9: By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products.

9.1: Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all.

10.2: By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status.

15.4: By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development.

These general purposes certainly have value if considered within a properly urban context but, in the perspective of this work, they are projected towards a domain of application that must be characterized as rural. However, the New Urban Agenda was born in a context in which the focus is on large cities and once again we see urban planning projected towards growth, towards urban agglomeration, neglecting abandonment in these processes, a phenomenon which is happening in 60% of the global territory, representative of a rural context. But rural areas are functional to cities, therefore a process of downscaling, i.e. resizing the process envisaged by the application of the New Urban Agenda [23, 24] at the local level, is therefore necessary. However, it is a fairly complex process as there are no predefined procedures that ensure the efficiency of the planning actions, because to date the monitoring of the implementation of the NUA mainly passes through the selection of good implementation practices rather than through indicators that make the contexts of application. These instances, and the research demand linked to the downscaling of the NUA represent new dimensions for the disciplines of urban and territorial planning and bring out a demand for innovation to refer to new tools, new methodologies and frameworks for monitoring the effects [25–27].

## 3 The Logical Framework Approach for NUA Downscaling

The LFA is an analytical tool for communicating the complexity of the project in a clear and comprehensible way in a single tabular document, which contains all the relevant objectives and aspects that must be pursued. Two distinct stages are recognized:

1. Phase of Analysis: elaborated in analysis of the context, of the problems, of the objectives, of the strategies;
2. Synthesis phase: involves the construction of the Logframe matrix and the implementation of the project.

### 3.1 SWOT, GEOSWOT and Context Analysis

The context analysis was carried out using the SWOT ANALYSIS methodology, considering the following systems:

1. Demographics and population structure,
2. Natural and environmental resources,
3. Historical-cultural resources,
4. Settlement system,
5. Production and employment system,
6. Infrastructural system (Table 1).

**Table 1.** Swot Analysis points

| STRENGHTS | WEAKNESSES |
|---|---|
| • Presence of highly valuable areas from the perspective of nature and biodiversity (SIC, ZPS, ZSC): 15.97% in Pietrapertosa, 12.29% in Castelmezzano, 1.73% in Campomaggiore, 7.61% in Albano Di Lucania<br>• Greater tourist attractiveness in Castelmezzano and Pietrapertosa due to the presence of the following practicable sites and activities: parco regionale di Gallipoli-Cognato, volo dell'angelo, percorso delle pietre, via ferrata Salemm, via ferrata Marcirosa, il ponte nepalese, la gradinata normanna<br>• Agricultural specialization of the Albano Di Lucania territory in terms of productive system<br>• Presence of considerable cultural heritage characterized by artistic and architectural-monumental values | • Various natural hazards affect the territory: 94% of it falls in seismic zone 2; 26% falls in landslide risk zone; 5 km of ss407 Basentana in hydraulic risk zone<br>• Population decreased by 21% since 2002<br>• Old age index (65+ /0–14) is 318, higher than the provincial (214) and regional (207) figures as of 2021<br>• A non- integrated touristic proposal<br>• Poor level of accessibility<br>• 22% reduction in active enterprises in the territory since 2002<br>• Limited offer of outreach services in terms of quantity and sectoral diversification |
| **OPPORTUNITIES** | **THREATS** |
| • National strategy for internal areas<br>• Outright grants for tourism in 2023, provided by Invitalia agency<br>• Program for environment and climate action (life 2021–2027)<br>• PNRR fundings | • Climate change<br>• 2% increase in interest rates on business credit expected between 2022 and 2023 that may affect entrepreneurship development<br>• Economic crisis aggravated by health emergency and geopolitical uncertainties with deteriorating employment indicators<br>• Underestimate the specific needs of Regions and rural areas due to a program based on a single Strategic Plan |

This elaboration, in addition to representing the synthesis that derives from the analysis of the socio-demographic variables of the context, was constructed through an exclusively spatial approach respecting the rules according to which each statement contained in the matrix finds correspondence in a cartography which gives an account of the intensity of the phenomena and their territorial location in explicit form (Figs. 2 and 3).

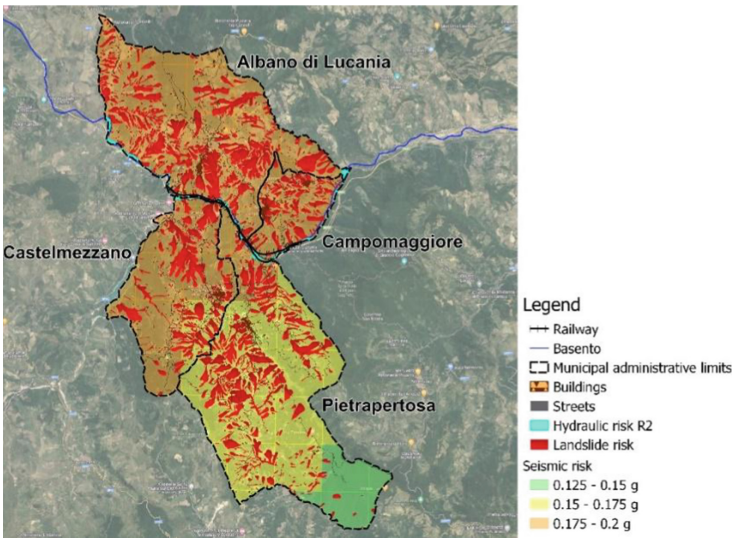


**Fig. 2.** Weaknesses.

As shown in the previous figures, strengths and weaknesses allow an overview of the territory under study and favor the comparison between the two main territorial portions coinciding with the municipalities to the north (Albano di Lucania and Campomaggiore) and to the south (Castelmezzano and Pietrapertosa) of the Basento river.

## 4 The Design of Development Strategies (LFM)

The problem tree is a diagram that offers an overall representation of the critical issues highlighted in the context analysis phase It is the result of a process analytical through which the causes and effects that determine a territorial condition of underdevelopment are identified and organized in a hierarchical form (Fig. 4).

The Logical Framework Approach, following the identification of the criticalities of the context, requires the elaboration of the tree of objectives which is achieved by transforming each problem ("current negative situation") into possible objectives to be achieved ("future positive situation") (Fig. 5).

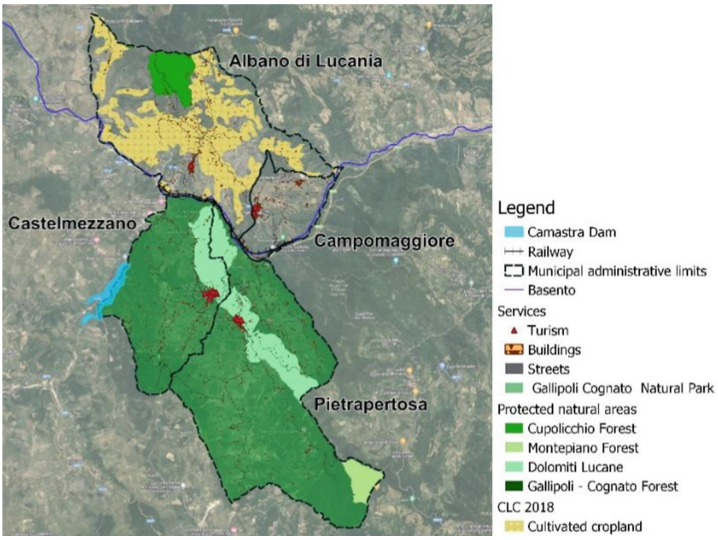


**Fig. 3.** Strenghts.

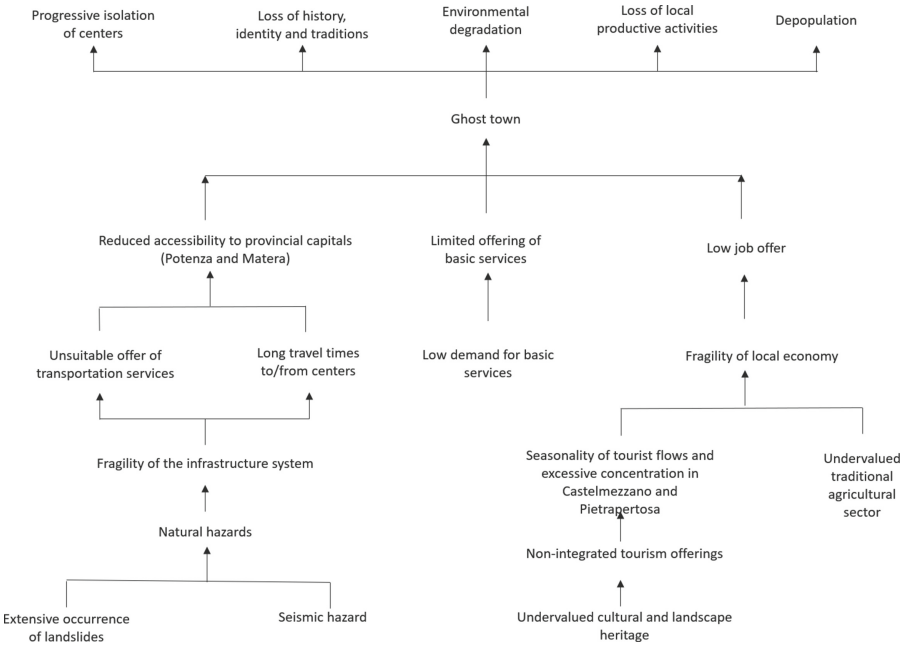


**Fig. 4.** Problems tree.

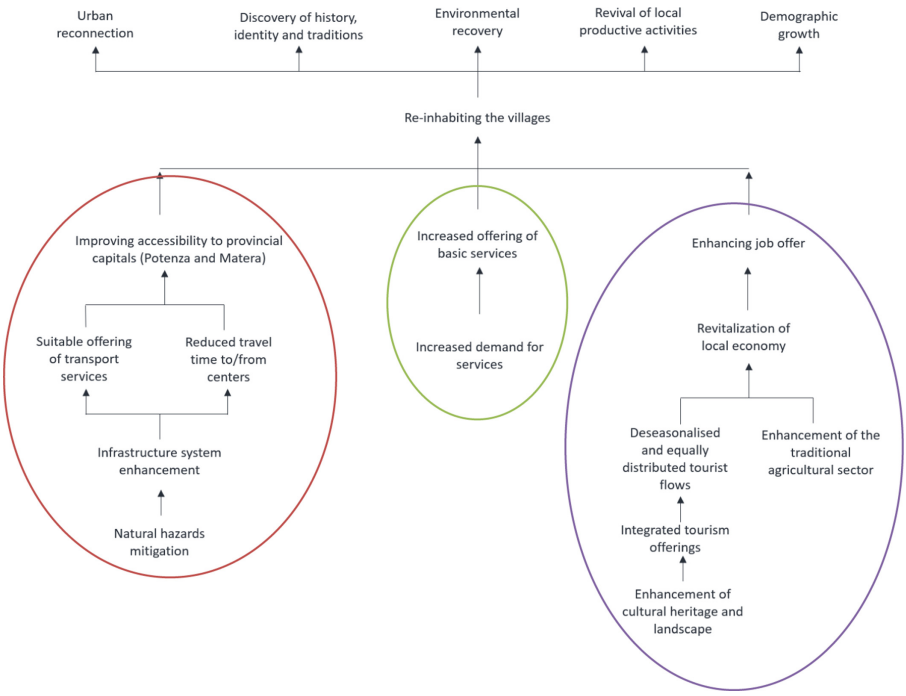


**Fig. 5.** Objectives tree.

It makes it possible to identify three coherent strategies with respect to a single sector of intervention. Three main areas emerge in the case study:

1. Enhancement of the job offer, through the development of the tourism and primary sector, supported by incentives or funds for companies and for the training of personnel to be employed. These activities will lead to the creation of new jobs, new tourist attractions and consequent seasonal adjustment and fair distribution of tourist flows;
2. Enhancement of the offer of services in the area, taking advantage of incentives aimed at opening new commercial activities and primary services that are absent or underdeveloped (e.g. school services);
3. Improve territorial accessibility, using funds for infrastructural and mobility interventions, acting on the one hand on the infrastructure system by improving the road network, on the other on the mobility service by increasing transport services; this objective supports activities that promote inclusive use for all, placing the needs of people with disabilities at the center.

From the analysis of the strategies we move on to the synthesis phase with the Logical Frame Matrix. From an operational point of view, "The Logical Framework matrix [28]" involves the construction of a table that summarizes the key elements of the project:

1. the hierarchy of the project Objectives, the specific Objectives, the expected Results and the Activities, with the necessary Resources,

2. Intervention logic, ie the description of the fundamental elements according to a bottom-up logic of cause and effect. This means that the activities lead to the results, the results lead to the achievement of the project aim and the aim contributes to the achievement of the overall objectives;
3. Objectively verifiable Indicators (with their Sources of Verification) which describe the project objectives in objectively measurable terms and prove the achievement of each result.
4. the Conditions (Hypothesis, assumption), i.e. those factors external to the project and beyond management control which, however, condition the achievement of the project objectives, the non-occurrence of which may prevent the correct execution of the intervention.

By way of example, the first of the selected strategies is discussed below: "strengthening the job offer". The activities with the relative expected results have been associated with the specific objective (see Table 2). For example, to achieve the goal of generating new jobs, actions have been proposed aimed at opening businesses in the hospitality sector in the municipalities of Albano di Lucania and Campomaggiore. This is consistent with what is indicated in the geo-SWOT with respect to the need to balance tourist supply and demand within the study area. For a more equitable distribution of tourist flows on a territorial scale, the activity of creating integrated tourist packages is proposed to enhance the natural and monumental heritage, supported by outdoor activities such as birdwatching and trekking routes to counteract the tourist seasonality. To promote more inclusive forms of tourism, actions have been proposed for the organization of nature trails accessible to people with disabilities.

In the agri-food tourism sector, the enhancement of the production and valorisation of the products of the primary sector are associated with agri-food chain projects which close the production, transformation, distribution and marketing process of local products within the territorial system. Below is an extract of the matrix relating to the specific objective "Enhancement of the job offer".

**Table 2.** Enhancement of job offer

| ACTIVITIES | RESULTS |
|---|---|
| **A1.1.1** Organise training internships with tourism enterprises<br>**A1.1.2** Opening of activities in the hospitality sector in Albano di Lucania and Campomaggiore<br>**A1.2.1** Opening local production activities specialising in forestry (chestnut), arboreal (lavender), beekeeping | **R1.1** New jobs in the tourism sector |
| **A1.2.2** Organise training programmes | **R1.2** New jobs in the agro-food sector |

(*continued*)

**Table 2.** (*continued*)

| ACTIVITIES | RESULTS |
|---|---|
| **A1.3.1** Enhancement of the natural, landscape and monumental heritage by offering integrated packages<br>**A1.3.2** Organise outdoor activities in equipped areas (birdwatching, trekking routes..) | **R1.3** Deseasonalised and equally distributed tourist flows |
| **A1.4.1** Planning guided tours of agri-food companies with product tasting<br>**A.1.4.2** Organise nature trails accessible to the differently abled | **R1.4** New tourist attractors |
| **A1.5.1** Production, processing, distribution and marketing of local products (honey, jams, infusions…) | **R1.5** New agro-food chains |

## 5 Pilot Actions and Reference Projects

Good practices have been selected to give an operational perspective to the proposed strategic framework and to suggest typical actions for the Geodesign debate that will follow according to the MITIGO research project program with the direct involvement of local actors. The selection criteria refer to: applicability to the context in question, consistency with the principles selected by the NUA; a significant efficiency in the comparison between expected results and resources used. These good practices mainly pertain to the social and environmental sphere of sustainability. These are examples that make it possible to put the principles of sustainable development into practice and to stimulate actors to implement further projects on the basis of other positive experiences. In relation to the environmental sphere, the theme of "Resilience and adaptation to climate change" was selected, as it is closely linked to the natural risks (seismic and hydrogeological) present in the area which require mitigation actions. The best practices identified are the following:



- Reforestation: provides for the extension of the green forest area by planting coniferous and deciduous trees in areas at risk of landslides or floods, adjacent to existing woods, to reduce or prevent this risk;



- Information campaigns: fall within the so-called Soft Measures described within the NUA, mainly concerning the organization of services and in this case information campaigns, as it is necessary to make citizens aware of the risks to which they are exposed.

With regard to the social sphere, the theme of "Strengthening marginalized groups" was selected. The project is unique:



- "The neighborhood butler", an activity that aims to place, following a training period, the professional figure who is trained, in the economic-productive sectors linked to personal services and support to businesses, for example as a family assistant, since the professional figure of the neighborhood butler can be defined as a light home assistance to support families in simple and daily needs.

Per il tema relativo alla "Pianificazione sensibile all'età" la buona pratica selezionata è:



- "La Farmacia dei servizi", un'evoluzione dell'attività professionale nell'ambito delle cure primarie, che nasce dalla volontà di ampliare i servizi territoriali, sia per favorire la deospedalizzazione della sanità, sia per ampliare il ruolo che le farmacie devono assolvere nell'ambito del Sistema Sanitario Nazionale, avvicinando la sanità ai cittadini e riducendo i costi.

For the topic related to "Planning for migrants, ethnic minorities and people with disabilities" the proposal is:



- "Accessible Dolomites" which provides for the creation of paths accessible to people with motor disabilities with the support of specialized personnel for accompaniment, to guarantee the universal right to enjoy an equally universal beauty.

## 6 Conclusions

This paper describes a strategic approach for sustainable development planning in In-land Areas. In particular it aims to structure a strategic planning process aimed at answering those critical issues within a specific marginal area of Basilicata including four municipalities: Albano di Lucania, Campomaggiore, Castelmezzano, and Pietrapertosa. The methodological framework is based on the Logical Framework Approach as a preliminary analytical-knowledge phase to a co-design exercise that will be carried out with the main actors of the context within a specific Geodesign workshop.

The case study area is characterized by high vulnerability of the territory to natural risks, influenced by geomorphological characteristics typical of mountainous territories [29–31]. Overall greater fragility of the [32–34] territory and difficult accessibility often linked to morphology may contribute to the causes of the progressive abandonment of these territories [35–40].

This research was developed mainly within the framework of the course of Territory Engineering - Master's Degree in Engineering as a results of a semester laboratory actively engaging students in Environmental and Civil Engineering.

The methodological framework of reference adopts the Logical Framework Approach as a preliminary analytical-knowledge phase to a co-design exercise that will be carried out with the main actors of the context within a specific Geodesign workshop.

This work contributes to the wider MITIGO research project - Mitigation of natural risks for safety and mobility in the mountainous areas of Southern Italy" which is led by the University of Basilicata.

The LFA methodology, already applied by the research group in a number of operational territorial application [41–47], was intended as a formalized and robust structure to deliver a process o downscaling NUA principles in the case study context also referring to tourism development perspective [30, 48–51].

The comparison with selected good practices makes the strategic design obtained with LFA more expressive of specific actions and suitable intervention solutions.

## References


1. 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). In: Gervasi, O., Murgante, B., Misra, S., Rocha, A.M.A.C., Garau, C. (eds.) Computational Science and Its Applications – ICCSA 2022 Workshops. ICCSA 2022. LNCS, vol. 13379. Springer, Cham (2022). https://doi.org/10.1007/978-3-031-10545-6_18
2. Scorza, F., et al.: Training for territorial sustainable development design in basilicata remote areas: GEODESIGN workshop. In: Gervasi, O., Murgante, B., Misra, S., Rocha, A.M.A.C., Garau, C. (eds.) Computational Science and Its Applications – ICCSA 2022 Workshops. ICCSA 2022. LNCS, vol. 13379, pp. 242–252. Springer, Cham (2022). https://doi.org/10.1007/978-3-031-10545-6_17/COVER
3. Curatella, L., Scorza, F.: Polycentrism and insularity metrics for in-land areas. In: Gervasi, O., et al. (eds.) ICCSA 2020. LNCS, vol. 12255, pp. 253–261. Springer, Cham (2020). https://doi.org/10.1007/978-3-030-58820-5_20
4. Las Casas, G., Scorza, F., Murgante, B.: Conflicts and sustainable planning: peculiar instances coming from Val D'agri structural inter-municipal plan. In: Papa, R., Fistola, R., Gargiulo, C. (eds.) Smart Planning: Sustainability and Mobility in the Age of Change. GET, pp. 163–177. Springer, Cham (2018). https://doi.org/10.1007/978-3-319-77682-8_10
5. Scorza, F., Santopietro, L., Giuzio, B., Amato, F., Murgante, B., Casas, G.L.: Conflicts between environmental protection and energy regeneration of the historic heritage in the case of the city of Matera: tools for assessing and dimensioning of sustainable energy action plans (SEAP). In: Gervasi, O., et al. (eds.) ICCSA 2017. LNCS, vol. 10409, pp. 527–539. Springer, Cham (2017). https://doi.org/10.1007/978-3-319-62407-5_37
6. Fiore, P., Padula, A., Pilogallo, F.S.A.: Facing urban regeneration issues through geodesign approach. The case of Gravina in Puglia. In: Leone, A. and Gargiulo, C. (eds.) Environmental and Territorial Modelling for Planning and Design. FedOAPress (2018). https://doi.org/10.6093/978-88-6887-048-5
7. 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. and 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
8. Scorza, F.: Sustainable urban regeneration in Gravina in Puglia, Italy. In: Fisher, T., Orland, B., and Steinitz, C. (eds.) The International Geodesign Collaboration. Changing Geography by Design, pp. 112–113. ESRI Press, Redlands, California (2020)
9. Campagna, M., Ervin, S., Sheppard, S.: How geodesign processes shaped outcomes. In: Fisher, T., Orland, B., and Steinitz, C. (eds.) The International Geodesign Collaboration. Changing Geography by Design, pp. 145–148. ESRI Press, Redlands, California (2020)

10. Campagna, M.: Metaplanning: about designing the Geodesign process. Landsc Urban Plan. **156**, 118–128 (2016). https://doi.org/10.1016/J.LANDURBPLAN.2015.08.019
11. Steinitz, C., Orland, B., Fisher, T., Campagna, M.: Geodesign to address global change. Intell. Environ. 193–242 (2023). https://doi.org/10.1016/B978-0-12-820247-0.00016-3
12. Scorza, F.: Improving EU cohesion policy: the spatial distribution analysis of regional development investments funded by EU structural funds 2007/2013 in Italy. In: Murgante, B., et al. (eds.) ICCSA 2013. LNCS, vol. 7973, pp. 582–593. Springer, Heidelberg (2013). https://doi.org/10.1007/978-3-642-39646-5_42
13. Brandano, M.G., Crociata, A.: Cohesion Policy, tourism and culture in Italy: a regional policy evaluation (2022). https://doi.org/10.1080/00343404.2022.2106365
14. 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, Territ. Architect. **9**(1), 1–23 (2022). https://doi.org/10.1186/s40410-022-00153-6
15. Vagnby, B.H.: Logical framework approach, vol. 64 (2000)
16. Capodiferro, M., et al.: "University equity": students' facilities in major tourism destination towns. In: Gervasi, O. (ed.) Computational Science and Its Applications - ICCSA 2023 (2023)
17. Lagonigro, D., et al.: Downscaling NUA: Matera new urban structure. In: Gervasi, O. (ed.) Computational Science and Its Applications - ICCSA 2023. Springer (2023)
18. Florio, E., et al.: SuperABLE: Matera accessible for all. In: Gervasi, O. (ed.) Computational Science and Its Applications - ICCSA 2023. Springer (2023)
19. Esposito Loscavo, B., et al.: Innovation ecosystem: the added value in a unique UNESCO city. In: Gervasi, O. (ed.) Computational Science and Its Applications - ICCSA 2023. Springer (2023)
20. UN: Sustainable Development Goals (2014). http://www.igbp.net/download/18.62dc35801456272b46d51/1399290813740/NL82-SDGs.pdf, https://doi.org/10.1038/505587a
21. Hák, T., Janoušková, S., Moldan, B.: Sustainable Development Goals: a need for relevant indicators. Ecol Indic. **60**, 565–573 (2016). https://doi.org/10.1016/j.ecolind.2015.08.003
22. Wood, S.L.R., et al.: Distilling the role of ecosystem services in the Sustainable Development Goals. Ecosyst. Serv. **29**, 70–82 (2018). https://doi.org/10.1016/j.ecoser.2017.10.010
23. UN HABITAT: New Urban Agenda. United Nations (2016)
24. Caprotti, F., et al.: The New Urban Agenda: key opportunities and challenges for policy and practice. Urban Res. Pract. **10**, 367–378 (2017). https://doi.org/10.1080/17535069.2016.1275618
25. Caprotti, F., et al.: The New Urban Agenda: key opportunities and challenges for policy and practice **10**, 367–378 (2017). https://doi.org/10.1080/17535069.2016.1275618
26. Andersson, C.: Public space and the new Urban Agenda. J. Public Space **1**, 5 (2016). https://doi.org/10.5204/JPS.V1I1.4
27. Casas, G.L., Scorza, F.: From the UN New Urban Agenda to the local experiences of urban development: the case of Potenza. In: Gervasi, O., et al. (eds.) ICCSA 2018. LNCS, vol. 10964, pp. 734–743. Springer, Cham (2018). https://doi.org/10.1007/978-3-319-95174-4_56
28. 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
29. Corrado, S., Giannini, B., Santopietro, L., Oliveto, G., Scorza, F.: Water management and municipal climate adaptation plans: a preliminary assessment for flood risks management at urban scale. In: Gervasi, O., et al. (eds.) ICCSA 2020. LNCS, vol. 12255, pp. 184–192. Springer, Cham (2020). https://doi.org/10.1007/978-3-030-58820-5_14
30. Gatto, R.V., Corrado, S., Scorza, F.: Towards a definition of tourism ecosystem. In: 18th International Forum on Knowledge Asset Dynamics (IFKAD) - MANAGING KNOWLEDGE FOR SUSTAINABILITY (2023)

31. Corrado, S., Scorza, F.: Machine learning based approach to assess territorial marginality. In: Gervasi, O., Murgante, B., Hendrix, E.M.T., Taniar, D., Apduhan, B.O. (eds.) Computational Science and Its Applications – ICCSA 2022. ICCSA 2022. LNCS, vol. 13376. Springer, Cham (2022). https://doi.org/10.1007/978-3-031-10450-3_25
32. Lombardini, G., Scorza, F.: Resilience and smartness of coastal regions. a tool for spatial evaluation. In: Gervasi, O., et al. (eds.) ICCSA 2016. LNCS, vol. 9788, pp. 530–541. Springer, Cham (2016). https://doi.org/10.1007/978-3-319-42111-7_42
33. Lai, S., Lombardini, G.: Regional drivers of land take: a comparative analysis in two Italian regions. Land Use Policy **56**, 262–273 (2016)
34. Zoppi, C.: Governance, pianificazione e valutazione strategica. Sviluppo sostenibile e governence nella pianificazione urbanistica, Gangemi Editore, Roma (2008)
35. Vona, M., Harabaglia, P., Murgante, B.: Thinking about resilient cities: studying Italian earthquakes. Proc. Inst. Civil Eng. Urban Design Plan. **169**(4), 185–199 (2016). https://doi.org/10.1680/udap.14.00007
36. Murgante, B., Borruso, G., Lapucci, A.: Sustainable development: Concepts and methods for its application in urban and environmental planning. Stud. Comput. Intell. **348**, 1–15 (2011). https://doi.org/10.1007/978-3-642-19733-8_1/COVER
37. Las Casas, G., Scorza, F., Murgante, B.: Razionalità a-priori: una proposta verso una pianificazione antifragile. Italian J. Region. Sci. **18**, 329–338 (2019). https://doi.org/10.14650/93656
38. Murgante, B., Borruso, G., Lapucci, A.: Geocomputation and urban planning. Stud. Comput. Intell. **176**, 1–17 (2009). https://doi.org/10.1007/978-3-540-89930-3_1/COVER
39. Scorza, F., Pilogallo, A., Saganeiti, L., Murgante, B.: Natura 2000 areas and sites of national interest (SNI): Measuring (un)integration between naturalness preservation and environmental remediation policies. Sustainability (Switzerland). **12** (2020). https://doi.org/10.3390/SU12072928
40. Saganeiti, L., Mustafa, A., Teller, J., Murgante, B.: Modeling urban sprinkling with cellular automata. Sustain. Cities Soc. **65**, 102586 (2021). https://doi.org/10.1016/J.SCS.2020.102586
41. Scorza, F.: Towards self energy-management and sustainable citizens' engagement in local energy efficiency Agenda. Int. J. Agricul. Environ. Inform. Syst. **7**, 44–53 (2016). https://doi.org/10.4018/ijaeis.2016010103
42. Scorza, F.: Smart monitoring system for energy performance in public building. In: Gervasi, O., et al. (eds.) ICCSA 2015. LNCS, vol. 9156, pp. 767–774. Springer, Cham (2015). https://doi.org/10.1007/978-3-319-21407-8_55
43. Scorza, F., Saganeiti, L., Pilogallo, A., Murgante, B.: Ghost planning: the inefficiency of energy sector policies in a low population density region1. Archivio di Studi Urbani e Regionali, pp. 34–55 (2020). https://doi.org/10.3280/ASUR2020-127-S1003
44. Scorza, F., Fortunato, G.: Active mobility-oriented urban development: a morpho-syntactic scenario for a mid-sized town. Eur. Plan. Stud. 1–25 (2022). https://doi.org/10.1080/09654313.2022.2077094
45. 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
46. Pilogallo, A., Scorza, F.: Mapping regulation ecosystem services specialization in Italy. J. Urban Plan. Dev. **148** (2022). https://doi.org/10.1061/(ASCE)UP.1943-5444.0000801
47. Scorza, F., Pilogallo, A., Saganeiti, L., Murgante, B., Pontrandolfi, P.: Comparing the territorial performances of renewable energy sources' plants with an integrated ecosystem services loss assessment: a case study from the Basilicata region (Italy). Sustain. Cities Soc. **56**, 102082 (2020). https://doi.org/10.1016/j.scs.2020.102082

48. Gatto, R., Santopietro, L., Scorza, F.: Roghudi: Developing knowledge of the places in an abandoned inland municipality. In: Gervasi, O., Murgante, B., Misra, S., Rocha, A.M.A.C., Garau, C. (eds.) Computational Science and Its Applications – ICCSA 2022 Workshops. ICCSA 2022. LNCS, vol. 13382. Springer, Cham (2022). https://doi.org/10.1007/978-3-031-10592-0_5
49. Gatto, R., Santopietro, L., Scorza, F.: Tourism and abandoned inland areas development demand: a critical appraisal. In:Gervasi,O., Murgante,B., Misra, S.,Rocha,A.M.A.C., Garau, C. (eds.) Computational Science and Its Applications – ICCSA 2022 Workshops. ICCSA 2022. LNCS, vol. 13382. Springer, Cham (2022). https://doi.org/10.1007/978-3-031-10592-0_4
50. 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)
51. Scorza, F., Gatto, R.V.: Identifying territorial values for tourism development: the case study of Calabrian Greek Area. Sustainability **15**(6), 5501 (2023). https://doi.org/10.3390/su15065501