Enhancing Effectiveness in Planning: An Innovative Approach to Implement the 2030 Agenda at the Local Scale

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Abstract. The 2030 Agenda for Sustainable Development, signed by the 193 Member Countries of the United Nations in 2015, established 17 Sustainable Development Goals and 169 targets, which balance the economic, social and environmental dimensions of sustainable development. These are assumed to inform national and regional development strategies as well as local plans. To this purpose, Italy approved the law 221/2015, which implemented the National Sustainable Development Strategy. Italian Regions, in turn, are called to define a Regional Strategy for Sustainable Development, which has to contribute to the achievement of the objectives of the National Strategy. Such strategies need to be operationalized in terms of administrative actions. This requires new and innovative procedures able to adequately place plans and programs within the framework of the aforementioned key aspects of sustainability. This paper proposes an innovative approach to harmonize local plans with Sardinia's Regional Strategy for Sustainable Development. The illustrated procedure provides a new tool, which integrates the objectives of the Regional Strategy for Sustainable Development into local plans and programs and simultaneously assesses the efficiency of these strategies in the related territorial context. In this way, environmental concerns are complemented with social and economic issues according to a new approach to sustainable and inclusive territorial development, which requires a distinct governance model characterized by close cooperation with the public, private and voluntary sectors as well as with organizations of the civil society.

Keywords: Sustainable and inclusive planning · National sustainable development strategy · Regional strategy for sustainable development

1 Introduction

In the last decade, the concept of sustainable development shifted from the one of the Millennium Development Goals, with a major focus on environmental sustainability, to the global vision defined by the 2030 Agenda, which considers a variety of sustainabilities across different dimensions, with the aim of building an environmentally, economically and socially sustainable world. In this context, the planning practice is the tool most frequently identified by international organizations to achieve expected goals (Dvarioniene, et al. 2017). Therefore, the 2030 Agenda provides cities with a policy framework

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O. Gervasi et al. (Eds.): ICCSA 2021, LNCS 12957, pp. 591–604, 2021.
https://doi.org/10.1007/978-3-030-87013-3_45

that leads them towards holistic approaches to development, collaborative partnerships with the private sector and result measurability and accountability (Fernández de Losada 2020). It was signed on 25th September 2015 by the 193 Member Countries of the United Nations, which committed to "end poverty and hunger everywhere; to combat inequalities within and among countries; to build peaceful, just and inclusive societies; to protect human rights and promote gender equality and the empowerment of women and girls; and to ensure the lasting protection of the planet and its natural resources. […] to create conditions for sustainable, inclusive and sustained economic growth, shared prosperity and decent work for all, taking into account different levels of national development and capacities" (UNGA 2015). This new concept of sustainable development relies on the following five critical dimensions: people, prosperity, planet, partnership and peace (Fig. 1) (UNSSC 2017).



Fig. 1. The five dimensions of the 2030 Agenda (Wessa 2016).

In order to ensure the viability of such an ambitious vision, the five pillars are articulated across 17 Sustainable Development Goals (SDGs) (Fig. 2), further structured in 169 targets. Targets are defined as "the real working parts of the Goals" (Project everyone 2018), because they provide practical challenges that can be declined at a national and local level within the fields of action defined by the Goals.

Targets are "integrated and indivisible, global in nature and universally applicable, taking into account different national realities, capacities and levels of development and respecting national policies and priorities" (UNGA 2015). Each target is associated with one or more indicators, in order to ensure their monitoring and assessment. The set of indicators is composed by a global indicator framework defined by a specific

Inter-Agency and Expert Group and complemented by regional and national indicators, established by member states (UNSD, n.d.).



Fig. 2. The seventeen Sustainable Development Goals (AER 2019).

The 2030 Agenda represents a common framework to face economic, social and environmental challenges, which require cooperation among national, regional and local entities called to define complex processes of planning in terms of coordination among different government levels and institutions and with regard to consistency of objectives over time (Cavalli 2018). For this reason, regional and local authorities play a preeminent role in efficiently applying the 2030 Agenda and in involving citizens and stakeholders in order to coordinate planning processes at national, regional and local level (MiTE 2021). More precisely, National Governments are called to develop National Sustainable Development Strategies (NSDS), Administrative Regions are appointed to define Regional Strategies for Sustainable Development (RSSD) and Local Governments are expected to implement the Strategies at local level (OECD 2021).

Principles, objectives and targets of the 2030 Agenda have been attuned to the Italian context through the NSDS, approved on 22nd December 2017 (MiTE 2021). The participatory process for its definition focused on three aspects: (I) the analysis of the Italian framework, (II) the identification of strengths and weaknesses and (III) the definition of the national strategic objectives (MiTE 2021). Adopting the structure devised by the 2030 Agenda, the NSDS is organized into the same five dimensions (people, prosperity, planet, partnership and peace), while Strategic National Objectives are formulated on the basis of the Agenda targets and monitored through a set of national indicators defined by the Italian National Institute of Statistics (ISTAT) (Ibid.).

Sustainability strategies and objectives need to be contextualized to local realities. This operation is conferred by the Italian legislative decree 152/2006 to administrative regions and local governments. In particular, according to art. 34, fourth paragraph, Regions define RSSD consistently with the themes and priorities identified in the NSDS, while Local Governments implement policy instruments able to pursue the objectives of

the RSSD. Therefore, new methodological tools are needed in order to properly design local plans and programs within the framework of both the NSDS and the RSSD.

In response to this need, this paper illustrates an innovative approach to local planning developed by the DICAAR research group within the project SOSLabs, directed to the implementation of the NSDS into local plans and programs. To this end, an original procedure to integrate economic, social and environmental dimensions of sustainable development into plans and programs is defined. In particular, the new methodology serves the purpose to integrate the objectives of the Regional Strategy for Sustainable Development into local plans and programs and to simultaneously assess the efficiency of these strategies in the related territorial context. Examples referred to Sardinia's RSSD help to better illustrate the process.

The paper is structured as follows. This introduction is followed by the description of Sardinia's RSSD. In the second section, methodology is illustrated. In the third section results are discussed and examples are reported. In the fourth section conclusions are drawn.



Fig. 3. Italy map. In red the Autonomous Region of Sardinia (Author's elaboration).

1.1 Sardinia's Regional Strategy for Sustainable Development

Sardinia is an Administrative Region in Italy, one of the five Italian Autonomous Regions, the second largest island in the Mediterranean Sea, located west of the Italian peninsula (Fig. 3).

The Autonomous Region of Sardinia is currently working on the definition of the RSSD. In order to gear the National Strategic Objectives to the Sardinian context, the regional administration has, first of all, implemented a "positioning analysis", which maps the current progress towards the SDGs in the island. The analysis is carried out by investigating a set of indicators able to highlight strengths and weaknesses related to each goal, with reference to other Italian regions as well as to the national average (Fig. 4). In this way, the RSSD can focus on the most pressing issues and thus adequately steer its efforts (RAS 2021).

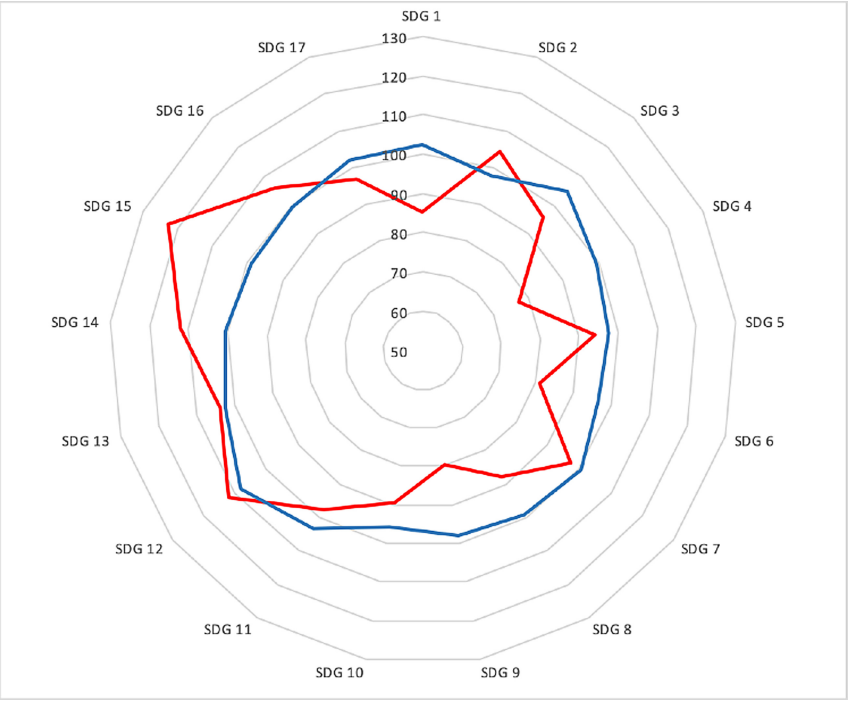

Fig. 4. Positioning map of Sardinia (red) and Italy (blue) (RAS 2021).

Accordingly, Sardinia identified five strategic themes to lean sustainable development in the region, following the European proposal for a Common Provisions Regulation, which delivered a common set of basic rules for seven European funds (European Parliament 2018). The themes are named as follows: (I) A smarter, more innovative and IT-oriented Sardinia; (II) A greener Sardinia: people, enterprises and institutions; (III) A more connected and accessible Sardinia; (IV) A more social, educated and prosperous Sardinia; (V) Sardinia closer to citizens, welcoming and with a stronger identity.

For each theme, critical issues have been identified and Strategic Regional Objectives (SROs) have been formulated on this basis. In order to reach the SROs, macro-actions and actions have been determined (RAS 2021). In December 2020, a Preliminary Document collecting the positioning analysis, the SROs and the actions was uploaded to the Regional Administration official website in order to boost public participation for its implementation (RAS 2020). In this regard, the Region organized two public meetings with institutions and the civil society, respectively, and five thematic workshops, one for each strategic theme, during the months of March and April 2021 (RAS 2021).

2 Methodology

The methodological approach developed by the DICAAR research group, aiming at integrating the objectives of the RSSD into local plans and programs and at simultaneously evaluating the efficiency of these strategies in the related territorial context, stems from the Logical Framework Approach (LFA).

The LFA has become a widespread tool in planning practices (Aune 2000), since it demonstrated to be a valuable method for project blueprint and assessment (Couillard et al. 2009). Thanks to its plain and simple structure, it supports the logic organization of plan activities (Las Casas and Scorza 2016) and emphasizes relations between project components and external aspects, thus highlighting the strategy dimension and allowing for continuous monitoring (NORAD 1999).

> "It is objective-centered, it sketches out the resources required to attain the objectives and the main fields in which these will be used, and it seeks to clarify critical aspects of the interface between the development effort and its environment" (Dale 2003, p. 58).

It illustrates the reasons and purposes of the project, identifies fundamental requirements for project development, defines outputs or end results of the project and related necessary inputs (Couillard et al. 2009) and defines procedures for project success evaluation (NORAD 1999).

The implementation of the LFA led to a four-column and n-line matrix (Table 1), called the Objective tree. The four columns are: Sustainability Objectives (SO), Specific Objectives (SpO), Operational Objectives (OO) and Actions (A). The number of matrix lines is variable and depends on the objective and action counts.

Sustainability objectives are defined on the basis of both the SWOT analysis conducted in the local context, and of the SROs identified in the RSSD.

However, not all the SROs are relevant to local plans and programs. Indeed, many of them can be pursued through different initiatives and tools, but cannot be addressed by regional or local plans.

For this reason, the first fundamental step to integrate the SROs into local plans and programs is the selection of the ones that are pertinent to planning practices, irrespective of the governance scale. The identification is guided by the actions that the RAS associated with each objective, because they clarify the field of action of the objectives through the expected impact they might exert.

This methodology is adopted in the next section, where results are reported and discussed through some examples.

Table 1. The objective tree.

Sustainability Objectives	Specific Objectives	Operational Objectives	Actions
SO.1	SpO.1	OO.1	A.1
			A.2
		OO.2	A.3
			A.4
	SpO.2	OO.3	A.5
			A.6
		OO.4	A.7
			…
…	…	…	…

3 Results and Discussion

In order to identify and select the SROs pertinent to planning practices, all the 36 SROs defined in the RSSD are reported in a table together with the related actions. A specific additional column houses the output of the evaluation. In particular, the corresponding

Table 2. Selection of strategic regional objectives.

SROs	Actions	Evaluation
Guarantee sustainable beach fruition.	Discipline urban infrastructure and contrast urban sprawl along the coast.	
	Actions to safeguard extremely valuable communal areas.	
	Actions to combat coastal erosion.	
	Promotion of effective planning and implementation of policies and programs to efficiently manage communal spaces.	
	Monitoring and assessment of impacts on coastal areas and on their littoral ecosystems.	
	Definition of guidelines for coastal management.	
Improve digital accessibility and to enrich the delivery of on-line public services.	Increase and update of computer equipment.	
	Financial support for covering family connectivity costs.	
	Promotion of information literacy programs to improve digital competencies of the population.	
	Promotion of smart working as an ordinary way of working in order to enhance work productivity, support families and reduce employee journeys.	

cell is colored in green when the objective is considered pertinent to planning initiatives, whereas it is colored in red when it is evaluated not relevant (Table 2).

As it can be seen, the first SRO in Table 2 is colored in green because all the related actions can be implemented through a planning tool; whereas the second SRO is colored in red, because its actions concern aspects that are out of the scope of planning practices. The same reasoning is applied to all the 36 SROs of the RSSD.

At the end of this evaluation process, 27 objectives out of 36 are selected to be potentially included in the Objective tree of urban and regional plans and programs. However, their inclusion can never be taken for granted, but requires a case-by-case examination on the basis of the particular context and of the specific plan or program that is being defined.

The second step of the methodology is the association between the selected SROs with one or more NSDS objectives, which are, in turn, linked to a set of national strategic choices. Table 3 displays an example of these connections, related to the green-colored SRO in Table 2.

Table 3. Connections between SRO, NSDS objectives and 2030 Strategic choices.

SRO	NSDS objectives	2030 Strategic choices
Guarantee sustainable beach fruition	Safeguard and improve the conservation status of species and habitats in terrestrial and aquatic ecosystems	Halt the loss of biodiversity
	Ensure the development of potential and the sustainable management of territories, landscapes and cultural heritage	Create resilient communities and territories, protect landscapes and cultural heritage
	Promote the demand and increase the supply of sustainable tourism	Ensure sustainable production and consumption patterns

Table 3 shows that the SRO is linked to three NSDS objectives, which concern different aspects of sustainability. The first one is associated because it aims at safeguarding and improving habitats in terrestrial ecosystems, of which beaches clearly are a key component. The second one regards the development of potential and the sustainable management of territories and landscapes; thus, it includes sustainable beach fruition. The third one seeks the increase in the supply of sustainable tourism, which obviously comprises beach fruition. The association of 2030 Strategic choices is not part of this work, but provided by the NSDS and here reported to explicate logical connections.

The third step of the methodology is the acquisition of the association of the NSDS objectives with the Local Planning Strategic Actions (LPSAs), and related indicators, agreed by four Italian Regions (Marche, Umbria, Liguria and Piedmont) as part of a collaboration project. Table 4 shows three local planning strategic actions, and their related indicators, linked to the same number of NSDS objectives.

Table 4. Connections between NSDS objectives, LPSAs and related indicators.

NSDS objectives	LPSAs	Indicators
Protect and restore genetic resources and natural ecosystems linked to farming, forestry and aquaculture	Protection of agricultural sectors and of natural elements, which characterize them	Utilized agricultural area
		Land used for organic farming
		High-quality agricultural areas
		New residential, industrial and commercial developments or infrastructure
		Land used for organic farming and high-quality agricultural areas interested by new residential, industrial and commercial developments or infrastructure
Ensure ecosystems restoration and defragmentation, strengthen ecological urban-rural connections	Interventions for the realization and maintenance of Green Corridors	Green space fragmentation index
	Increase of urban green areas	Realization of new linear infrastructure
		New residential, industrial and commercial developments
		Actions oriented to the development of the ecological network
		Number of interruptions of the ecological network
		Faunal underpasses/overpasses
		Land covered by new developments in areas characterized by low or very low green fragmentation index

(*continued*)

Table 4. (*continued*)

NSDS objectives	LPSAs	Indicators
Ensure the development of potential and the sustainable management of territories, landscapes and cultural heritage	Conservation and enhancement actions on existing historic heritage	Number of Listed Buildings and Conservation Areas
	Actions oriented to landscape maintenance and protection	Archeological areas (m2)
		Buildings located in the historic city center that are renovated or refurbished
		Actions oriented to landscape maintenance and protection
		Listed Buildings and Conservation Areas in good conservation status
		Archeological areas in good conservation status

The fourth step of the methodology is the association of the NSDS objectives with the suited Indicators defined by the Italian National Institute of Statistics (ISTAT). Table 5 presents ISTAT indicators related to the same NSDS objectives reported as examples in Table 4.

Table 5. Connections between NSDS objectives and ISTAT indicators.

NSDS objectives	Indicators
Protect and restore genetic resources and natural ecosystems linked to farming, forestry and aquaculture	Rate of land used for organic farming
	Fertilizers distributed in agriculture
	Plant protection products distributed in agriculture
	Annual growth rate of organic farming
	Rate of forest area covered by protected areas established by law
	Ammonia emissions from the agricultural sector
	Index of forest areas
	Annual growth rate of forest areas

(*continued*)

Table 5. (*continued*)

NSDS objectives	Indicators
	Forest biomass in the forest area
Ensure ecosystems restoration and defragmentation, strengthen ecological urban-rural connections	Protected areas
	Rate of green areas in urban areas
	Index of forest areas
	Average coverage of protected areas in Key biodiversity Areas (KbAs)
	Fragmentation index of natural and agricultural areas
Ensure the development of potential and the sustainable management of territories, landscapes and cultural heritage	Illegal building
	Soil consumption and soil sealing
	Annual growth rate of organic farming

Lastly, descriptions of indicators, reported in Table 6, clarify which changes have to be measured over time and guide data gathering and analysis.

Table 6. Indicator descriptions.

Indicators	Indicator descriptions
Rate of land used for organic farming	Fraction of utilized agricultural area that is used for organic farming
Fertilizers distributed in agriculture	Quantity of fertilizers (fertilizers, soil conditioners and liming materials) distributed for agricultural use, in Kgs per hectare that can be fertilized
Plant protection products distributed in agriculture	Quantity of plant protection distributed for agricultural use, in Kgs per hectare that can be treated
Annual growth rate of organic farming	Ratio between land used for organic farming in two consecutive years, %
Rate of forest area covered by protected areas established by law	Rate of forest area included in protected areas established by law
Ammonia emissions from the agricultural sector	Ammonia emissions produced by the agricultural sector, tons x 1000
Index of forest areas	Ratio between forest areas and land surface, %
Annual growth rate of forest areas	Average annual growth rate of forest areas, as defined in the FAO Global Forest Resources Assessment

(*continued*)

Table 6. (*continued*)

Indicators	Indicator descriptions
Forest biomass in the forest area	Organic matter living on the soil surface in forest areas, including logs, stumps, bark, branches and leaves, measured in tons per hectare
Protected areas	Percentage of land area covered by terrestrial natural areas included in the official list of protected areas (Euap) or in Natura 2000 network
Rate of green areas in urban areas	Ratio between green areas and urban areas. Green areas include: historic green areas, municipal parks, green equipped areas, school gardens, urban gardens, outdoor sport areas, urban forests, zoos, cemeteries and other typologies of green areas
Index of forest areas	Ratio between forest areas and land surface, %
Average coverage of protected areas in Key biodiversity Areas (KbAs) in fresh water environments	Average coverage of protected areas in Key biodiversity Areas (KbAs) in fresh water environments
Fragmentation index of natural and agricultural areas	Ratio of natural or agricultural areas characterized by high or very high fragmentation
Illegal building	Number of illegal buildings erected in a year every 100 authorized buildings
Soil consumption and soil sealing	Square meters of annually sealed soil per inhabitant
Annual growth rate of organic farming	Ratio between land used for organic farming in two consecutive years, %

At this point, once the selected 27 SROs have been associated with NSDS objectives, 2030 Strategic choices, LPSAs and related Indicators, it is possible to compare them to the objectives deriving from the SWOT analysis and to consequently define the objectives to be included in the Objective tree. The objectives can be either transposed in the Objective tree according to the original formulation they had in the RSSD or in the SWOT analysis or rather rephrased by combining the two.

4 Conclusion

This paper addresses the need of including economic, social and environmental dimensions of sustainability in planning practices, by proposing an innovative procedure of urban planning that allows for the integration of the RSSD in urban and regional planning practices.

The developed methodology stems from the LFA and it is structured into five steps:

1. Selection of Strategic Regional Objectives pertinent to planning initiatives.
2. Connections between SROs, NSDS objectives and 2030 Strategic choices.
3. Connections between NSDS objectives, LPSAs and related Indicators.
4. Connections between NSDS objectives and ISTAT Indicators.
5. Description of ISTAT Indicators.

At the end of this process the identified objectives can be compared with those previously defined on the basis of the SWOT analysis. This comparison can lead to a combination of the two, that implies a rephrasing of the two objectives into a single one, or to the adoption in the Objective tree of both the objectives according to their original formulation.

In this way, objectives, actions and indicators included in the LF take into account social and economic issues alongside environmental concerns. Hence the purpose of the 2030 Agenda of building an environmentally, economically and socially sustainable world is pursued through the coherent strategies and the effective actions provided by local and sectoral plans.

Further development of this research envisages applying the illustrated methodology to two Sardinian case studies, in order to define a Local plan for the Municipality of Cagliari, and a Park plan for the Regional park of Tepilora, respectively.

Funding. This research is implemented within the research project SOSLabs. Laboratori di ricerca-azione per la Sostenibilità urbana" [SOSLabs. Research-action laboratories for urban sustainability], financed by the Ministry of the Environment and of the Protection of the Territory and the Sea of the Italian Government within the "Bando per la promozione di progetti di ricerca a supporto dell'attuazione della Strategia Nazionale per lo Sviluppo Sostenibile - Bando Snsvs 2" ["Public selection for the promotion of research projects focusing on the implementation of the National Strategy for sustainable development – Public selection Snsvs 2"].

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