

A Social Multicriteria Evaluation of Strategic Development Options in Val di Non, Trentino Region, Italy

Alessandra Oppio*, Francesca Ziller^o

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Abstract

According to the evolution of the evaluation processes the article proposes the definition and the use of a participatory multicriteria model in order to assess different options of territorial strategic plan in the Trentino Region (Italy). The methodology proposed has been defined with the aim of considering the followings issues: a) the definition of development options consistent with the instances of conservation of high quality landscape values; b) the development of an evaluation process according to cognitive, normative and instrumental purposes; c) the participation to decision making processes as a crucial requirement for enlarging the awareness about the territorial development and its effects.

Keywords: multi-criteria analysis, participatory decisional processes, strategic planning.

JEL Classification: D81, O21, Q56.

Modello multicriteriale partecipato per la valutazione di opzioni di sviluppo strategico in Val di Non

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Sommario

Nel quadro dell'evoluzione degli strumenti di supporto a processi decisionali complessi, l'articolo presenta la costruzione e la sperimentazione di un modello multicriteriale partecipato per la valutazione di differenti ipotesi di piano strategico per la Val di Non in Trentino. La metodologia proposta suggerisce una riflessione intorno ai seguenti temi: a) la definizione di ipotesi di sviluppo coerenti con le esigenze di conservazione dell'equilibrio dei valori di un territorio connotato da una forte valenza paesaggistica; b) lo sviluppo delle potenzialità della valutazione in riferimento a finalità cognitive, normative e strumentali; c) la partecipazione ai processi decisionali, quale garanzia di una efficace condivisione delle possibili alternative d'intervento.

Parole chiave: analisi multicriteriale, processi decisionali inclusivi, pianificazione strategica.

Classificazione JEL: D81, O21, Q56.

* DAStU, Politecnico di Milano Via Ampere 9, 20133 Milano, Italy, e-mail: alessandra.oppio@polimi.it, corresponding author.

^o School of Architecture and Society, Politecnico di Milano Via Ampere 2, 20133 Milan, e-mail: foriska@hotmail.com.

1. Evaluation and Decision-making: For an Open and Participatory Process¹

In the last decades the evolution of decision-making processes related to complex problems has led to the development of new possibilities of combining analytic and assessment tools together with techniques for public participation. In this context, multi-criteria evaluations are used with growing frequency for deliberative evaluation processes (Jacobs, 1997; Proctor, Drechsler, 2006), becoming an active and integrative part of them. They also contribute to a faster implementation of the traditional appraisal methods. The basic assumption for using this kind of tools is the awareness about uncertainty related to complex problems (Funtowicz, Ravetz, 1994): this leads to the need of using specific support tools for decision-making, in order to get to more effective and suitable decisions. It means that attention is shifted from the results of the decision process to the process itself, which has to be as democratic as possible for correctly addressing the rapid social and institutional change and, as a consequence, the legitimation of multiple points of view (Munda, 2004)².

Moreover, under the perspective of governance, actions need to be supported by the awareness that different perspectives, interests and values coexist. These are a resource also from the political point of view, if the risk of ungovernability lying under the interests' fragmentation is overcome. In order to eliminate this risk, the relationships and interactions among a growing number of public and private actors – who usually take part to decision-making in a more or less intentional and institutional way – need to be re-connected and integrated. With this purpose, a strategy based on the evaluation of social capital has to be addressed towards the passage from *a*) competitiveness-based policies (which pay attention mainly on the highest efficiency in the resources' distribution as a warranty for a widespread welfare), to *b*) sustainability policies, which include, among the competitive elements, issues such as social cohesion, equity, urban quality and environment protection³.

In the last years there was a fast increasing of “catalytic administration” forms (Osborne, Gaebler, 1992): unlike traditional bureaucratic ones, a “catalytic administration” does not make decisions, but tries to make them together with other stakeholders, or to make it easier for citizens to decide. This is a “catalytic” role, because it stimulates participation and responsibility of the civil society, and also

1. A special gratitude to A. Lapucci (Laboratorio di Ingegneria dei Sistemi Territoriali ed Ambientali - University of Pisa) for supporting the definition and the application of the evaluation framework. F. Ziller has developed the section 2.

2. Evaluation meant as a co-extensive activity for decision-making is a cognitive process for the reduction of complexity, for the selection of choice criteria, for the understanding of the context's characteristics and for the study of the action hypothesis.

3. If we share this kind of strategy, it is essential to pay attention to elements which are able to represent the needs of: a) giving a value to natural, built and cultural environments; b) ensuring intra-generational and inter-generational equity (see e.g. Mattia, 2007; Lapucci, 2011; Capolongo *et al.*, 2011).

co-ordinates such processes. These trends emerge in different ways and at a different levels of the decision process; they have made clear to contemporary societies that there is a need of advanced methods for involving people, which has become even more urgent because of the absence of infrastructures for their participation, because of the exclusion of some social groups from decision processes according to a top-down logic, as well as because of the growing lack of confidence in the existence of economic development models able to provide sustainable and fair solutions for society. In such a context, despite the difficult and complex nature of participatory decisional processes, the demand of evaluation is emerging also in Italy: this is demonstrated by the fact that the National Government and Regional authorities have created evaluation commissions. As a consequence, the issue of evaluation's institutionalization and the urgent need of the expertise' updating has to be faced in an inter-disciplinary way.

With these premises, evaluation should be considered as a system of actions with the purpose of expressing a judgement with cognitive aims, connected to the possibility – for who is involved – of getting new information on the analysed context, on the proposed action which is being evaluated and its effects. The purposes of the judgement are also normative, because evaluation is able to give arguments for generating or modifying the opinion on the proposal considered; and instrumental, because the decision's results can be oriented (Moroni, Patassini, 2006; Palumbo, 2001).

When carried out from the very beginning of the process, evaluation has a central role in the whole decision-making: it contributes – also when different and often conflictual values are involved – to the problem definition, to the generation of innovative solutions, to a conscious support to the choices and to the analysis of their effects according to the information collected and to the expectations of the involved actors (Cerreta, De Toro, 2010). Another outcome of the evaluation process is the increase of information and knowledge and, as a side effect, the creation of consensus on complex projects, especially when significant and long-term economical, social and physical impacts are involved (Webler *et al.*, 1995; Bobbio, Zeppetella, 1999).

There are different tools which can be used for facilitating the decision process: from multi-criteria analysis (MCA) to integrated evaluation models such as Social Multicriteria Evaluation (Munda, 2004).

For complex, uncertain, risky and multiple-goal decisions, the use of multi-criteria evaluation techniques is appropriate because they allow a comparison of different policies, action plans and projects with a single evaluation structure: in this way decision-making is made easier.

Unlike the traditional decision processes, multi-criteria analysis can provide an effective contribution to the following stages: *a)* objectives' definition; *b)* criteria identification; *c)* options' analysis (DTLR, 2005).

Adequate decisions (Roy, 1990) – that is to say efficient, fair, wise, lasting and feasible (Bobbio, 2004) – require clear, measurable and realistic goals, which also need to be shared and verifiable according to long-term, intermediate and short-

term perspective. The stages of objectives and criteria identification, as well as those of scores and weights assigning, support the representation of the preferences expressed by all the participants. According to the number and the kind of actors involved, as well as to the participatory technique chosen, the way of carrying out the evaluation process and consequently its outcomes are different. The result will be satisfactory if comprehensive objectives and criteria will be identified according to the interests of stakeholders who are directly or indirectly affected by the project.

About procedures, methods and techniques for participation – which are increasingly used in the field of public choices open to a wide number of participants, stakeholders, shareholders and citizens – it is clear and widely acknowledged that evaluation could provide a crucial contribution to these topics. If it is carried out from the very first stage of needs' individuation and of the objectives' definition, evaluation can support the analysis of the options' ability to satisfy those needs in a transparent way through various techniques that act according to different levels of participation (Oppio, 2007).

2. The Territorial Context of the Evaluation Model

The choice of applying the multicriteria as an ex-ante evaluation tool depends on the complexity of the territory considered: a large area, that is characterized from the presence of several stakeholders directly or indirectly interested by the implementation of the different strategic plan alternatives proposed concerning eight municipalities.

The general aim of the experience below described is to suggest especially to Public Authorities how to take decisions by a clear process addressed more to the construction of the decision problem rather than to its solution, by the use of the evaluation as a leverage for improving knowledge in the different stages of the planning process.

In this picture, the Multicriteria Analysis has been applied in order: 1) to assess three strategic options of development of seven municipalities (Cles, Tassullo, Taio, Sanzeno, Romallo, Revò and Cagnò), that are placed close to the Santa Giustina artificial lake for the hydroelectric power production (Valle di Non, Province of Trento) and 2) to select the one that could solve the criticisms and maximize the strengths emerged by the Strengths Weaknesses Opportunities and Threats (swot) Analysis⁴.

While the first two options assessed has been proposed by the Local Authority, the third has been defined by the authors with reference to the outputs of swot Analysis, that has provided a deep knowledge of this complex region.

4. Strengths and weaknesses, opportunities and threats has been identified with the participation of stakeholders and citizens.

The territorial context in which the evaluation model is applied is therefore an alpine valley with a significant agricultural vocation, that strongly affect both the socio-economical context and the environmental and landscape systems.

From the administrative point of view, there are different administration levels that are overlapped, like the Autonomous Province (with its specific competences in the land management) and the recently created "Valley Community Association" (Comunità di Valle), that took the place of the Valley District Council (Comprensorio), changing its administrative structure to acquire new skills to be developed into the Valley Community Plan, that represents an intermediate level between the Province Urban Plan (Piano Urbanistico Provinciale) and the Township General Development Plans (Piani Regolatori Generali Comunali). As the Province Urban Plan, the Valley Community Plan will use as main reference for the planning decision the "Landscape Charter"⁵, that should be prepared on the basis of specific landscape analyses.

The critical and potential elements of such a complex area have been specified through the *swot* Analysis applied a) in two different steps (*ex-ante*, in order to address the final decision, and *ex-post*, at the end of the planning process, in order to verify the compliance of the plan strategies and actions to the goals of maximizing the strength elements, minimizing the weakness factors, using the local opportunities and reducing the external threats) and b) to three different analysis levels: the Valley District Council; the larger scale of the seven municipalities placed near the artificial lake of Santa Giustina; the area called "Plaze-Diga", a place mainly located in the municipality of Taio and partly within the administrative limits of the municipality of Sanzeno, on which most of the actions planned in the last strategic plans were concentrated. In order to include the participation (Arnstein, 1971; Burns *et al.*, 1994; Wilcox, 1994; Wates, 2000) in the evaluation process since its preliminary steps – that is the real starting point both of the further context analyses and of the definition of the project strategies – the traditional procedure of this analytic and evaluative technique has been implemented through the contribution of some local key actors, consulted through informal tools or structured interviews. This analysis, that enclosed also inner conflict issues emerged both from the consultation of the main stakeholders and from the local press examination, was essential for the following steps, not only for elaborating the strategic plan alternative to be compared with the existing options, but also for structuring the multicriteria assessment process for the local context and its actors.

On the basis of the results of the *swot* Analysis, the multicriteria evaluation structure has been developed with a twofold purpose: to analyze the sustainability level both of the local resources (evaluated options: the seven municipalities), and of the development proposals elaborated at the strategic plan level (evaluated options: the three strategic plans, two of which developed by local authorities, whereas the third one was implemented in the context of this research). At the

5. The Landscape Charter has assumed the recognized role of constituting a reference for the sustainability evaluation in the subject area. See Trento (Province of), Province Act n. 1, 4th march 2008.

first level the multicriteria analysis was applied in order to assess the sustainability level (general goal) of the seven municipalities of Valle di Non region, according to the Landscape, Environment, Economic and Socio-cultural system (sub-goals). The evaluation structure was also divided into criteria and sub-criteria, measured through an indicators system defined with reference to the P-S-R model (Pressure-State-Response) and to the objectives of regional management policies included in the Province Urban Plan. Each indicator was chosen on the basis of specific requirements as pertinence, relevance, intelligibility, feasibility, comparability, acceptability, proportionality, belonging to a framework, accuracy, flexibility, reliability, consistency, results orientation. The most appropriate action strategy (maximization – minimization – optimization – non-intervention) was finally defined according to the results of this first assessment. This article focuses on the latter application context.

For the application of the multicriteria evaluation model, the authors decided to introduce the participation issue in the criteria weighing step, with the aim of actively involving only the stakeholders that were motivated by real interests on the territory and of generating new individual and collective knowledge and skills.

3. Comparing Options for the Strategic Development of the Val di Non

Three strategic development hypotheses have been evaluated using a participatory multi-criteria analysis tool. The first two options were elaborated by local authorities in different moments, while the third one has been developed during this research.

Every strategic plan considers both the wide scale (the territory of seven municipalities around the artificial lake Santa Giustina: Cles, Tassullo, Taio, Sanzeno, Romallo, Revò, Cagnò) and a smaller area (called “Plaze-Diga”). The general goal of all the plans is the sustainable development of the subject territory, and therefore of the whole valley. Being the project’s theme so complex, the options considered are only partial answers to the demand of sustainable development, which concerns not only environment but also the economic and social systems.

One of the basic strategies that the evaluated plans share is the proposal of tourism as the main economic activity that could be complementary to the ones currently carried out, foremost advanced agriculture. This aim is reached by actions such as the connection of historical, architectonical, archeological and natural areas, which should be improved also by new cycle-paths and footpaths. In this strategic frame, the three plans propose different actions for transforming the territory, which are below described.

The Option 1 is the Masterplan “L’Uovo di Colombo”, developed in 2004 by Sergio Leonardi for the Val di Non District Council. It proposes interventions for the naturalistic and environmental restoration of wide areas, as well as the creation of structures and infrastructures for promoting tourism in this part of the valley, which is at the moment not very exploited by this activity. For this purpose, the plan

introduces basically the creation of a cycle-path around the Santa Giustina lake and some site-specific projects such as a resort with a camping area at the "Plaze", two information and exhibition centres, a motor boat for transporting people and bikes to and from floating wharves (which can move up and down according to the level changes of the artificial lake), the environmental restoration of watercourses, the consolidation of some parts of the lake shores and also the renovation of a quarry which is no more in use.

The Option 2 is the Masterplan "Parco della Montagna", developed in 2007 for the Val di Non District Council by Fulvio Forrer and his office "Effe&D", in collaboration with the District's planner Michele Bortoli. This plan brings forth and modifies the previous plan for the restoration and touristic exploitation of the artificial lake Santa Giustina. The basic goals of the previous plan are carried on through specific projects which are partly similar to those of the plan "L'Uovo di Colombo", and partly new. This masterplan has been officially accepted by the Valley District Council together with nine municipalities: an official agreement ("Accordo di Programma") has been signed by these local authorities for putting the plan into effect. Like the "Uovo di Colombo", the masterplan "Parco della Montagna" focuses on the "Plaze" area the most substantial actions and underlines their priority on other projects included in the wide scale plan. The most important interventions of the strategic plan are: a resort with camping area and leisure structures in the "Plaze" area; cycle-paths and/or footpaths which connect some of the existing attractive places and some of the planned structures, and which are also connected to the cycle-paths of the nearby valley Val di Sole and of the Val d'Adige; the environmental and landscape restoration of watercourses; the naturalistic reuse of the part of a quarry which is no more exploited; the creation of some floating wharves for small boats.

The Option 3 is the so called "Val di Non 2040"⁶, that carries on the idea of sustainable tourism as an economic side-activity for the agricultural vocation of the valley. This aim is pursued through the connection of historical, architectonical, archeological and natural areas of the valley: such links are created by thematic cycle-paths and footpaths, which also provide a connection with the Val d'Adige and Val di Sole cycle-paths. In this way, the valley would be part of the bigger regional and international slow mobility system. Concerning the interventions for the improvement of the built environment, guidelines for the refurbishment of the apples' stores of the consortium "Melinda" have also been developed. The strategic plan proposes a touristic development of these fruit storehouses, using them as important and recognizable points for the cycle-paths, where people can have a break: by this way, these industrial buildings could become peculiar elements of the valley, also useful for a territorial marketing strategy. The guidelines consider the morphological, technological and functional renovation of the existing industrial

6. This masterplan was developed starting from a team work carried out by S. Calderini, M. Pasetto, G. Santacà and F. Ziller for the Urban Planning Workshop held by professors F. Ceci e C. Alinovi at the Politecnico di Milano (Mantova campus).

building, paying attention to the relationship between their scale (very different from the size of the villages where they are located) and the landscape.

Infrastructures have been considered both at the wide and local scale. The existing railway is considered in the project as the transport mode to be privileged for both residents and tourists, as well as for goods. With this purpose, the plan proposes to improve the railway system and its service, to link the most important industrial areas to the railway line and to provide an easy interchange with slow mobility systems.

Specific actions for the road system try to face the problematic area of Cles, which is the most important centre of the whole valley, where all the services are located, and it is also a compulsory passage for the traffic going to and coming from the touristic Val di Sole.

For the "Plaze" area, the plan introduces specific environmental actions, the consolidation of some parts of the lake shores and the improvement of the current leisure activities, by providing basic facilities places in autonomous and combinable modules along the cycle and foot paths.

4. Developing a participatory multi-criteria evaluation model for choosing a masterplan

The evaluation model has been structured according to the Analytic Hierarchy Process – AHP (Saaty, 1980, 1990, 1994) and the stakeholders' participation has been included in the criteria weighting stage.

As the evaluation framework is easily updatable (e.g. according to new emerging needs), it can be applied again as *in itinere* and *ex-post* evaluation tool in order to verify, monitor and re-address the planning process.

As regards to the local actors' participation, a first list of possible stakeholders to be involved into the evaluation process – and, as far as possible, in the planning process – has been prepared: The County Council administration; the municipalities of Cles, Tassullo, Taio, Sanzeno, Romallo, Revò and Cagnò; the Touristic Promotion Agency of the valley (APT Val di Non); the "Melinda" consortium; the Agricultural Research Centre "Maso Maiano" of the Agriculture Institute San Michele; touristic and economic associations, as "Coordinamento Operatori Economici del Comune di Taio" (Co-ordination of the Economic Operators of Taio Municipality), "Assindustria Trento-Cles" (Local manufacturing associations), "Unione Commercio e Turismo della Val di Non" (Valley association for Trade and Tourism), the association "Strada della Mela e dei Sapori" (Apples and Tastes' Route), the Consortium "Cles Iniziative"; local cultural associations, as "Pro Loco" of the various villages considered, the association "Pro Cultura Centro Studi Nonesi", the group of photographers "Circolo fotografico Valli del Noce"; the local sport associations most affected by the plan, as the association of the district's fishermen, the sport union "Anaune Ciclismo", the "Scuola di ciclismo fuoristrada Val di Non e Sole" (local school for off-road cycling), the group "Flamingo Dragon

Boat"; the associations that are active in the social and environmental fields, as the social voluntary association "Ali Aperte" (Cles), the group "Cittadinanzattiva", the group "Yo! production", the association "Pangea", the Islamic Community, the "Nu.Vol.A. Valle di Non"; single citizens who represent different local interests, as farmers (some who joint the "Melinda" consortium and some independent), artisans, shopkeepers, tour operators, educators.

The selection of the key-stakeholders of the specific decisional context was based both on the role that they have in it and on the knowledge and interest they might have in relation to the strategic plans considered. It has been created a balanced group, including also those subjects who represent points of view which are usually disregarded by the traditional decision-making processes. In order to test the evaluation model, since the participation of all the chosen actors was not possible, only those who could systematically take part to the process were involved⁷.

The scenarios obtained after the criteria weighting stage represent the preference sets of the District Council and of a group of local people who habitually frequent the lakeside.

The multi-criteria evaluation model was developed and applied through the following phases:

1. breaking down and hierarchical organization of the decisional problem (see Appendix 1). The framework obtained is structured in general objective (a. Sustainable development of the territory), sub-objectives (a.1 landscape and environment sustainability and a.2 social and economic sustainability), criteria (a.1.1 landscape and environment, a.1.2 mobility, a.1.3 built environment; a.2.1 manufacturing and trading, a.2.2 tourism, a.2.3 social system) and sub-criteria (a.1.1.1 land consumption, a.1.1.2 superficial water quality, a.1.1.3 acoustic pollution, a.1.1.4 hydro-geological risk, a.1.1.5 flora and fauna, a.1.1.6 landscape, a.1.1.7 infrastructures' pressure on agriculture, a.1.1.8 infrastructures' pressure on natural areas, a.1.2.1 existing routes' re-use, a.1.2.2 actions on roads, a.1.2.3 slow mobility, a.1.2.4 public transport network, a.1.2.5 interchange between public and private transport systems; a.1.3.1 renovation of the existing structures and areas, a.1.3.2 interference between urban and agricultural areas; a.2.1.1 agriculture, a.2.1.2 interference between sectors, a.2.1.3 typical minor activities; a.2.2.1 accommodation availability, a.2.2.2 type of touristic supply, a.2.2.3 seasonal distribution of the touristic supply, a.2.2.4 location of the supply; a.2.3.1 community participation to decision-making, a.2.3.2 services, a.2.3.3 spaces for public use);
2. assigning the weights to the elements of each level of the evaluation structure by a pair comparison. The stakeholders were involved at this stage, by asking them to compare the elements of the criteria level. For the sub-criteria level the weights were given in a technical way, in order to be consistent with the preferences expressed at the upper level (criteria). According to the use of two

7. A deputy of the County Council, some mayors of the considered City Councils and a group of people who habitually frequent the lakeside.

different weights' sets – the one decided by the District Council (a pragmatic scenario, focused on the touristic and economic development) and the one developed by the lakeside users group (a social-environmental scenario, promoting the conservation of the existing natural resources) – two different criteria ranking were generated. As regards the landscape and environment criteria, the District Council's preferences give more importance to the Mobility system (64%), since all the strategic plans consider mobility as a crucial aspect and therefore they introduce the creation of slow mobility system, which actually does not exist. In the second place of the list there is the criterion "Landscape and Environment" (28%), followed by the Built environment (8%). Among social and economic criteria, the most preferred one is tourism (51%). Similarly to the mobility, this aspect is still not very developed in the subject territory and therefore the District Council considers its development to be a priority. Second place is occupied by the criterion Social system (39%) and the third one is Manufacturing and trading activities (10%). The second scenario provides a different ranking of the criteria, according to the weights given by the lakeside users group, who sees the preservation of the existing natural resources as a crucial factor for the sustainability of Landscape and Environment (71%), which is followed by Mobility (20%) and, in the last place, by the Built environment (9%). As regards social and economic sustainability, the criterion considered as most important is Social system (70%), followed by Manufacturing and trading activities and Tourism (7%);

3. measuring the performances of each strategic masterplan (scoring), evaluated using both quantitative and qualitative indicators⁸;
4. data processing according to the hierarchy framework;
5. overall outcome for to the two weighting scenarios: final ranking of the options.

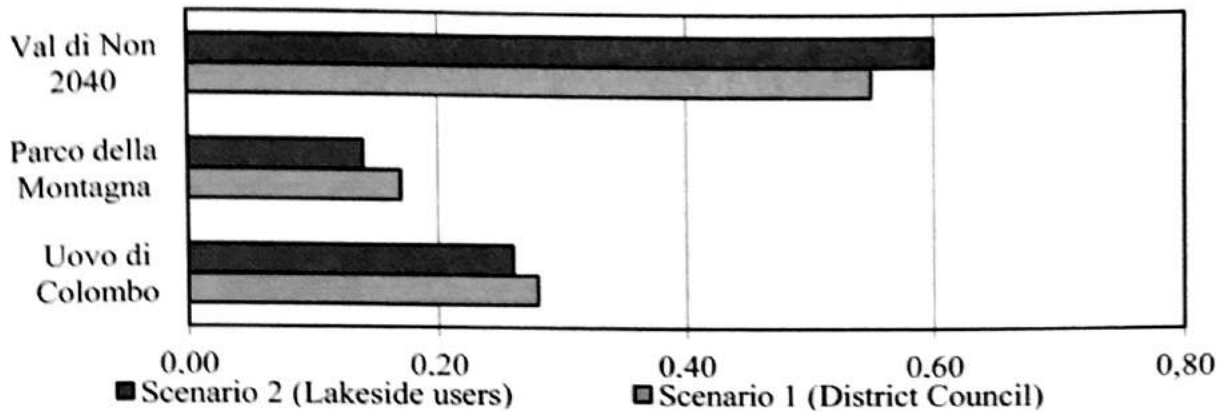
5. Conclusions

The results of this first and partial experiment should be considered basically methodological; anyway, they have shown the effectiveness of using *ex-ante* evaluation methods for analysing and comparing different planning hypothesis. Especially when they are structured during the cycle of the decision making process, their efficacy for problem creating (analysis of the problem's elements) and problem solving (search for the most satisfying solution) is proven: these methods are a helpful support for addressing the plans and projects towards the fulfilling of a clear and shared objectives' system.

It is particularly significant in this case to focus the attention on the final ranking of the three strategic options, that is the same for both the evaluation scenarios (see Figure 1). The most favourite option (the most sustainable one) is the masterplan

8. In the future, the performance values measured could be part of a territorial multi-dimensional database, better if combined with a Territorial Information Systems, whose consultation might be free and which could be constantly updated.

Figure 1 – Final Ranking of the Three Strategic Development Options



“Val di Non 2040” (District Council: 55%; lakeside users group: 60%), followed by the masterplan “Uovo di Colombo” (District Council: 28%; lakeside users group: 26%); the least favourite option is the masterplan “Parco della Montagna” (District Council: 17%; lakeside users group: 14%), which is furthermore the one currently adopted.

Figures 2, 3, 4, 5 point out that the masterplan “Val di Non 2040” generally performs much better than the others as regards both “landscape and environment” and “social and economic systems”. This aspect is confirmed by the sensitivity analysis carried out for the weights’ sets given at the criteria level: even if the priority order of the criteria is considerably varied, the final ranking of the options remains the same (see Figures 6, 7, 8). Examining these results, a first consideration is that the sustainability of the option “Val di Non 2040” is connected more with the choices made during the planning process than with the relative importance given to criteria during the evaluation process: this means that it might be considered the best one also by actors with different points of view. Another important consideration can be made on the options’ ranking generated using the District Council’s evaluation scenario: the preferred strategic plan among those developed by the Council itself is not the one which is currently adopted; the masterplan “L’Uovo di Colombo” previously developed and now abandoned comes out to be more desirable than the “Parco della Montagna”. This outcome gives strength to the conviction that if public decisions were supported by a structured and transparent evaluation process, strategic choices for the future development would be made in a more careful and conscious way.

Even if these outcomes can be considered as satisfactory, there are some weak points which could be solved during the future development of the Valley Community Plan. This new tool for the government of the Valle di Non could in fact be grounded on the development of a multi-criteria and inclusive evaluation framework, based on the involvement of as many subjects as possible thanks to the use of structured participatory methods and also with the support of Territorial Information Systems, both for the creation of a territorial database and for a dynamic monitoring of the planning options’ performances over time.

Figure 2 – Landscape and Environment Sustainability (District Council Scenario)

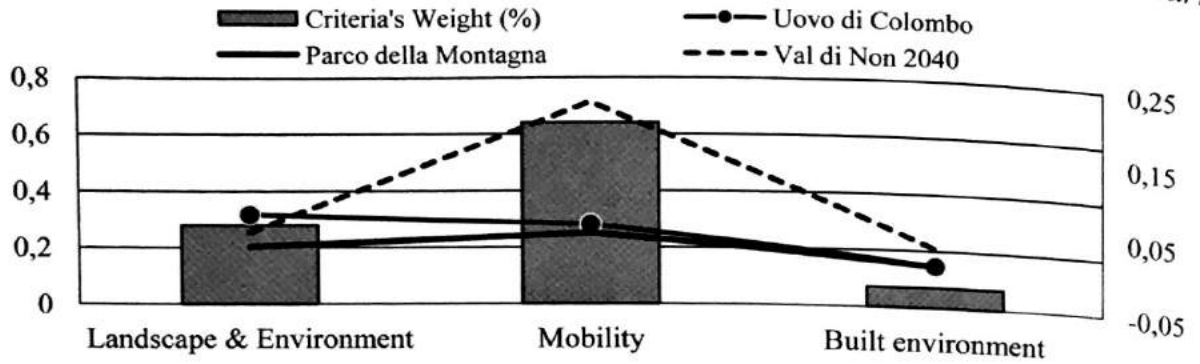


Figure 3 – Landscape and Environment Sustainability (Lakeside Users Scenario)

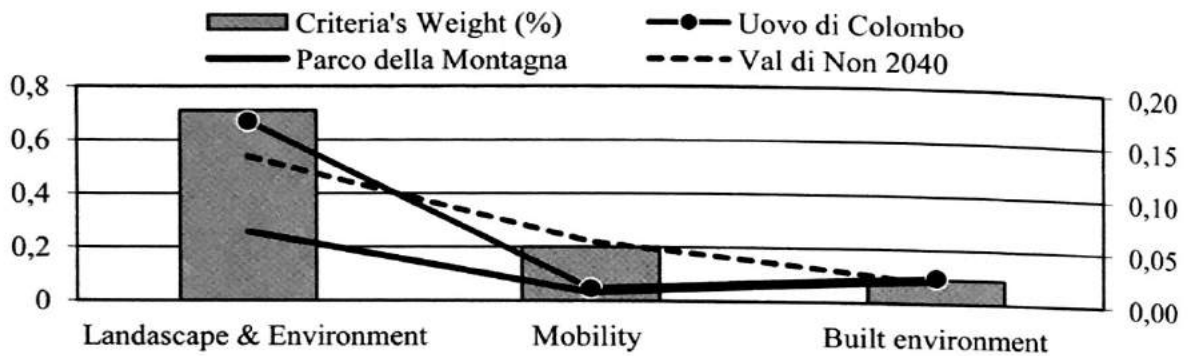


Figure 4 – Social and Economic Sustainability (District Council Scenario)

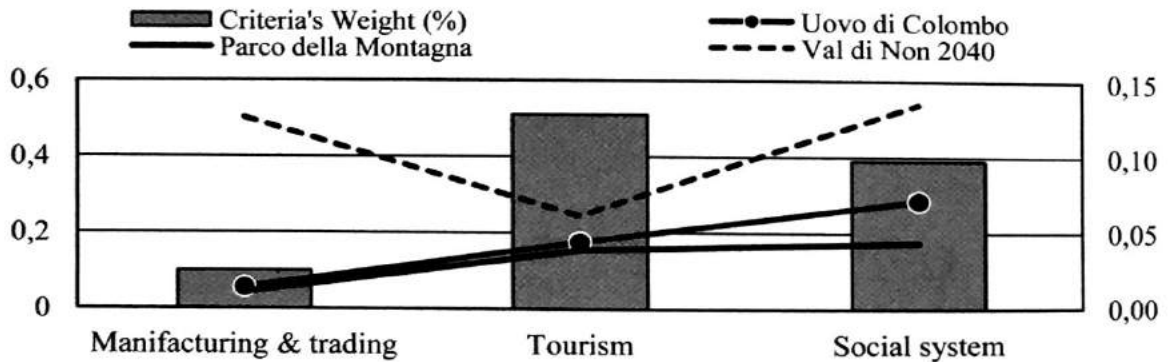


Figure 5 – Social and Economic Sustainability (Lakeside Users Scenario)

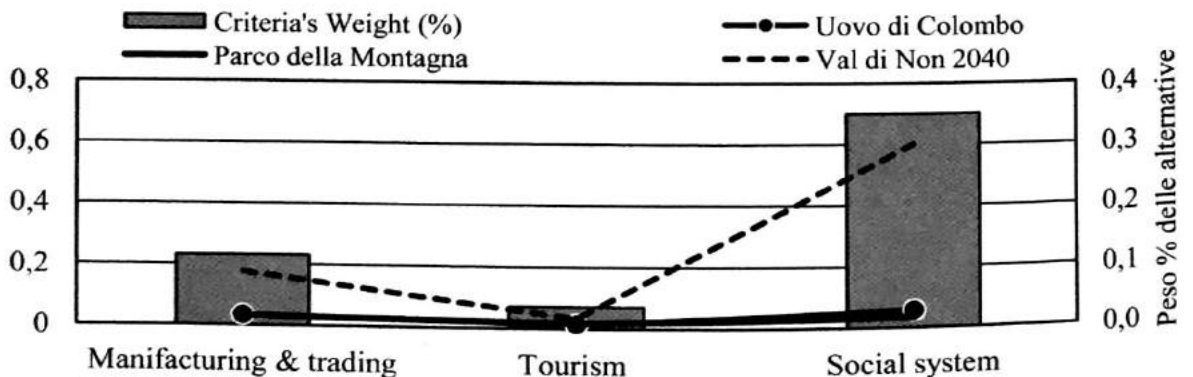
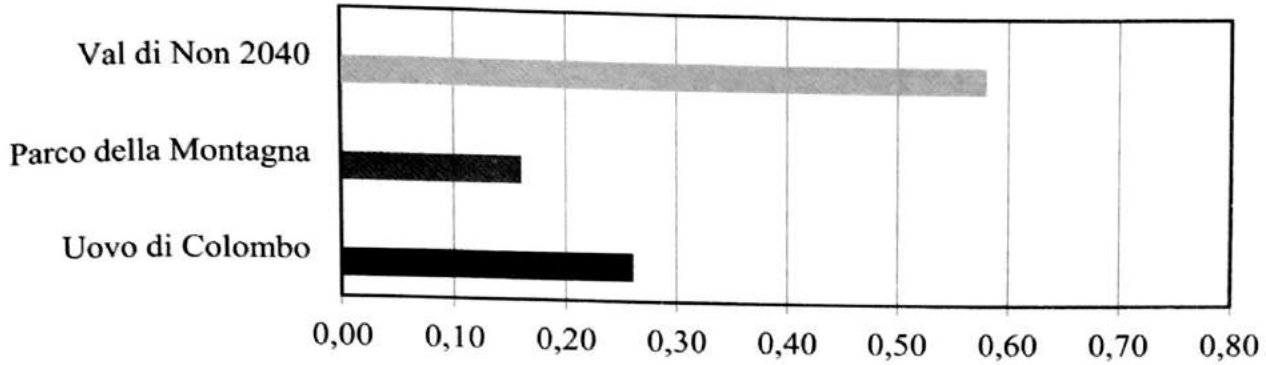
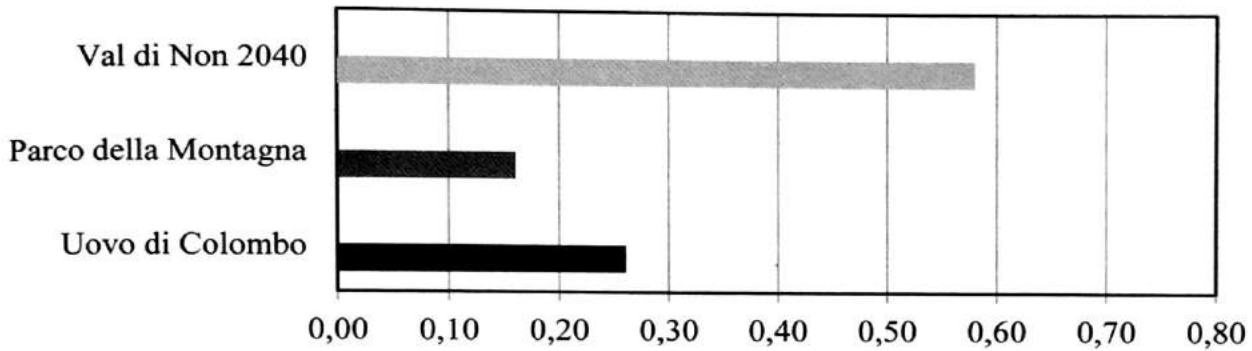


Figure 6 – Sensitivity Analysis of the Results



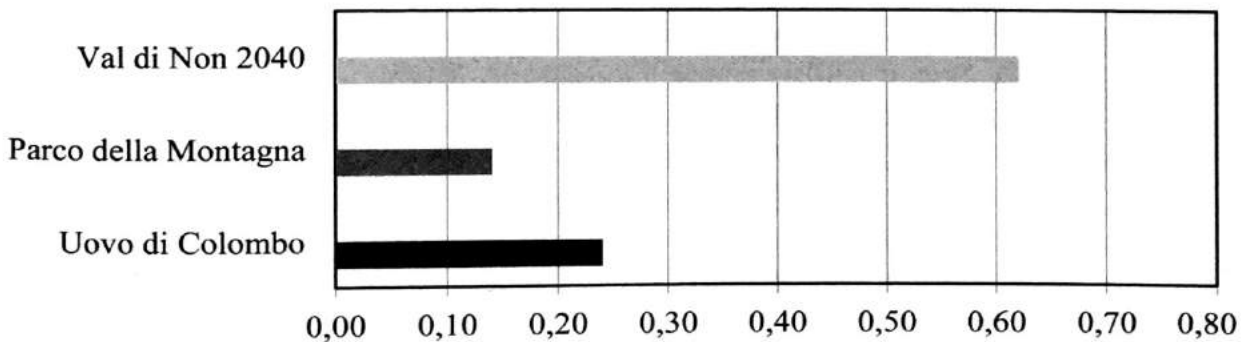
Note: For Landscape and Environmental Sustainability the criteria's weights are: Landscape and Environment (60%); Mobility (20%); Built Environment (20%). For Social and Economic Sustainability the criteria's weights are: Manufacturing and Trading (60%); Tourism (20%); Social System (20%).

Figure 7 – Sensitivity Analysis of the Results



Note: For Landscape and Environmental Sustainability the criteria's weights are: Landscape and Environment (20%); Mobility (60%); Built Environment (20%). For Social and Economic Sustainability the criteria's weights are: Manufacturing and Trading (20%); Tourism (60%); Social System (20%).

Figure 8 – Sensitivity Analysis of the Results



Note: For Landscape and Environmental Sustainability the criteria's weights are: Landscape and Environment (20%); Mobility (20%); Built Environment (60%). For Social and Economic Sustainability the criteria's weights are: Manufacturing and Trading (20%); Tourism (20%); Social System (60%).

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