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People, Property and Territory: Valuation Perspectives and Economic Prospects for the Trazzera Regional Property Reuse in Sicily

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Abstract: As in many parts of Italy and Europe, the Sicilian *Trazzera* regional property has been for a long time the main land infrastructure supporting the agro-pastoral economy. Throughout its slow evolution, this land heritage has been affected by transport transformations and illegal appropriations by neighboring landowners, which have reduced its potential public function in the current renewed prospects of sustainability and a new balance between territories concerning the issue of the inland areas. A further issue concerns the management of the relationship between private interest and prospects for public reuse in progressively urbanized territorial contexts where this infrastructure takes on considerable economic and real estate interest. The current regional legislation suggests some measures for inter-municipal planning that also include the legitimization of illegal appropriations. From this twofold prospect, according to the wide-spread information and communication technologies (ICTs), and also including the geographic information systems (GIS), this work provides the application of two assessment tools based on a GeoDatabase of the current heard roads in the two areas of quantitative–monetary and aesthetic–qualitative assessment. The first shows the extent to which the fair compensation to be charged for legitimizing land parcels is underestimated today, to the detriment of urban social fixed capital development. The second demonstrates the way that common awareness of landscape value can be nurtured for the benefit of land and ecological–environmental rebalancing.

Keywords: heard roads; Sicilian domain; fair residual value; landscape experience assessment; landscape planning

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1. Introduction

1.1. The Trazzera Royal Property in Sicily (Italy)

In Sicily, the Trazzera Royal Property (TRP), i.e., the system of the *trazzere* (*tratturi* in other parts of Italy, *canadas reales* in Spain, "drove roads" in English), is a network of grassy roads used for transhumance, one of the most ancient pastoral practices widespread throughout Europe and dating back to the Neolithic age [1]. Frederick II, then King of Sicily, through the *Costitutiones Regni Utriusque Siciliae*, instituted the *Regio Demanio delle Trazzere* in 1231, unifying this infrastructural network to the *Regalia* (the property of the state *strictu sensu*). The civic value of this territorial heritage, just because of the production of wealth it had been supporting, was recognized with the abolition of the feudal excise duties; it was subsequently defended by a special military body, "Milizia armentizia", created with the task of protecting transhumance. Starting from the first decade of the 19th century, specific regulations were issued for the *Regie Trazzere* (royal tracks), that established, in particular, a sufficient width for the passage of two herds, equal to about 38 meters [2].

This herd network can be considered the main, most widespread and most resilient territorial green footprint of the traditional Sicilian economy. As such, this territorial

heritage would currently have many potential functions if adequately made visible and usable, i.e., "made present in the shared experience of local and supra-local communities". In this sense, its economic significance can be referred to as the category of common goods [3] even if (and only if) they are primarily public goods [4], i.e., public property [5]; in this regard, it should be noted, more appropriately, that public goods are those that perform a public function rather than being publicly owned [6–8].

The *Trazzera* should be considered, although from a different perspective, a relevant part of the whole social capital [9,10], due to its original 11.000 km extension covering a surface of 1.6% of the total regional territory. Consequently, the future of the state property of the Trazzera depends on the convergence of the purposes of a unitary territorial policy [11,12] capable of using the proceeds deriving from the legitimization of the appropriations—especially in urban areas—for the implementation of its landscape potential [13–16].

The Trazzera territorial network is a part of the public goods whose specificities depend on the combination of original and contemporary saliencies and urgencies [17–25]. The former concerned the economies of land rent [26,27], and the latter concerned the civil economy, that is the economies of sustainability and inclusion. The relationship between inter/intra-generational solidarity that has concerned, especially in Sicily and particularly in its inland areas, the issue of territorial disadvantage and thus abandonment and depopulation, suggests that the potential use of this territorial network [28], rather than its current non-use (and/or misuse), should be taken as an element of truth of value judgment [29,30].

Concerning the vast and widely discussed issue of the relationship between public goods and private goods, it is possible to point out the following:

The unity of public and private: although distinguishable, these two spheres cannot be set against each other; in this sense, the public sphere cannot be the legal support of private interest in a civil economy, because of the prevalence in it of cases of "market failure", that is the prevalence of externalities and behavior typical of "free riders" [31];

- The iconic value of the *Trazzera* heritage: The combination of volume, value and accessibility of public assets is an index of the investment rate of an orderly community, i.e., of its relation to the future; this extension is the measurement of the degree of economic, environmental and social justice [32,33], and consolidates identity and consensus [34]. The widespread presence of the traces of past economies in the current physical and collective experiential space is the premise for the acceptance of the "value in itself" of this landscape asset;
- Social capital as an identity imprint: social capital is considered by Cristoforou to be the set of norms and processes of social communication that foster "trust, reciprocity and cooperation" in the accumulation and management of public assets: "its conception concerns the ability of individuals to share a sense of social obligation and common identity; choices therefore depend not only on inter-personal utility, but also on personal identity" [35].

As a common good [36], i.e., a non-excludable but rival resource, this asset has been affected by some kinds of overuse, in this case the abuses that have reduced its extent and sometimes continuity. In other cases, the needs of the transport network have transformed entire stretches of it into roadways. Particularly in those parts of the peri-urban area progressively affected by real estate appreciation processes, the illegal appropriations are now the subject of legal disputes, resulting in legitimation measures for a fixed sale price. These appropriations have resulted in a significant gap between private interest in terms of real estate capital gains, and lost social value [37,38] in terms of the social opportunity cost of a possible—but no longer feasible—public function that could have qualified increasingly densely built-up urban areas for the benefit of the community [39].

The importance of the Trazzera in the panorama of social practices aimed at enhancing the territory is testified by many experiences that some local communities have been nurturing for many years now, attracting the active participation of the local population,

tourists and scholars of popular traditions. The most famous of these is the Tratturo Magno that runs throughout three regions: Abruzzo, Molise and Apulia (Giordano 2012); it is a 244 km long sheep trail that connects the capital of Abruzzo, L'Aquila, to Foggia in Apulia via Chieti and Vasto. In the past, shepherds took about 15 days to perform the transhumance, which moved about 3 million heads of cattle. Today, the Tratturo Magno takes place over a week and actively involves various voluntary associations, and hundreds of enthusiasts and tourists, with the institutional support of the regional administration, the Chamber of Commerce and the Archaeological Superintendency.

In Sicily, the transhumance of Geraci Siculo has been recovered as an opportunity to rediscover the values of the pastoral economy and has become a festival celebrated due to the initiative of the municipal administration. Transhumance takes place over one day and is part of a series of other events that promote knowledge and experience of local, cultural and eno-gastronomy knowledge and traditions.

1.2. Landscape as the Content of the Social and Civil Value Narrative

In Europe, starting from 1964, a Council of Europe working group launched the idea of identifying a series of European cultural routes in order to promote European culture through travel, create networks for cultural tourism, use European cultural heritage as a means of social stimulation, promote economic and cultural development and thus improve the quality of life of local people. The Cultural Routes program was initiated by the Council of Europe in 1987 with the Declaration of Santiago de Compostela [40].

A cultural itinerary, sometimes referred to as a European cultural route, is a certification issued by the Council of Europe to networks that promote shared European culture, history, memory, and certain values such as democracy, human rights, and intercultural exchanges within the framework of cultural tourism.

Following the launch of the program, the European Institute of Cultural Routes (EICR) was established in 1998, i.e., a technical body aimed at providing operational support for the creation of cultural routes. Then, in December 2010, the Committee of Ministers of the Council of Europe adopted Resolution CM/Res (2010) 53 [41], establishing an enlarged partial agreement (EPA) to enable closer cooperation between states particularly interested in the development of heritage trails. The importance of these routes for European tourism was also noted in the Charter on Cultural Routes presented at the 16th General Assembly of ICOMOS, Quebec (Canada), on 4 October 2008, which defined cultural routes (ICOMOS Charter on Cultural routes, 2005). To date, numerous cultural routes have been established in Europe: Santiago de Compostela, Viking Route, Via Francigena, Transromanica, European Route of Cistercian Abbeys, European Route of Gardens, Historic, etc.

However, Bennis and Davison in UNESCO Cultural Landscapes for the 21st Century, International Centre for Cultural and Heritage Studies, 11–16 April 2005, Newcastle, UK, have highlighted considerable interest in the protection of cultural routes in the United States (particularly scenic roads), but less recognition at the operational level has occurred in the European context [42].

The major case studies are mostly concentrated in the United States as a result of heightened awareness of the loss of U.S. highway assets due to a misinterpretation of the Recommended Guidelines for Officials (AASHTO) proposed by the American Association of State Highway and Transportation [43,44].

As a result of this, several American agencies and organizations, such as the National Park Service (through the National Register of Historic Places), the American Society of Civil Engineering (with the National or International Historic Civil Engineering Landmark Program), AASHTO (sponsoring the National Cooperative Highway Research Program) and the Federal Highway Administration (with their Scenic Byway Program) have established various initiatives aimed at raising awareness of the historic and/or aesthetic qualities of their road network. In Europe, this awareness for the protection of road heritage has been slow to manifest itself.

1.3. Contents and Aims

According to the general aims of the Regional Department of Rural and Territorial Development and the specific objectives of the Trazzera State Property Office, this study proposes an integrated valuation model supporting the measures aimed at the two conjoint objectives: 1. the fair public–private property transfer process in the case of legitimation; 2. the enhancement of the civil value of this part of the eco-socio-systemic capital over the most significant territorial landscape contexts.

The first is supported by a market-value-based monetary valuation model for the sale price estimate in the case of legitimation in view of the fair transfer of public property to private.

The second is supported by a GIS-ICT-based qualitative analysis model [45–56] for the evaluation of the multidimensional value of the Trazzera networks, which are selected and identified to maximize the landscape slow mobility experience [57–60]; as such, the Trazzera network obtains one of the most significant cultural–territorial references of the territorial planning [61–64].

The integration of these two valuation models depends on the possibility of funding part of the landscape policy measures related to the civic uses of the TRP through the charges resulting from the legitimation procedures involving the transfer of illegally occupied land parcels.

Several studies in the literature have used different approaches for the evaluation of cultural routes to support landscape policies.

Bennis and Davis used a GIS-based database with CAD to collect information on scenic roads. Li et al. [18,65], integrating GIS technology with site surveys and with AHP, evaluated the ancient Puer Tea Horse Road, one of the most significant nodes of the ancient Tea Horse Road in Yunnan–Tibet, and, integrating GIS with the adjacent index model, has carried out the analysis of space characteristics. Božić et al. [20] have proposed a cultural routes evaluation model (CREM) to assess the importance of cultural routes for tourism development, taking into account both the heritage values and economic impacts of "The Trail of Roman Emperors" in Serbia.

Li et al. [23] used multidimensional network connectivity analysis to identify cultural heritage corridors along the ancient Tea Horse Road. Based on the occurrence theory, they analyzed hierarchical factors such as time, space, ethnic culture, religious culture and elevation differences in landscape areas, to study how these corridors are connected through a multidimensional network.

Grazuleviciute-Vileniske et al. [66] have classified and identified factors that determine cultural and economic value. They proposed an integrated system for classifying the cultural heritage of roads and streetscapes, which considers the interconnections between roads, landscapes, cultural heritage objects and other factors of cultural significance.

Huang et al. [67] used the concept and methods of corridor networks to identify the best routes for cultural dissemination among cultural heritage sites and create a network of cultural tourism corridors in China. They used the minimum cumulative resistance (MCR) model to construct the cultural heritage tourism corridor network in this study.

The paper consists of six parts. Section 2 presents the information system of the TRP including data on the identification, location, ownership, extension and legal status of the land parcels that make up this territorial heritage. Section 3 describes the method proposed for appraising the monetary (in the case of legitimacy) and landscape value supporting the policies for the reactivation of the ecosystem and cultural functions of the grassways network. Section 4 presents the results of the application of the methods for both the legitimization and the evaluation of the landscape experience across the green network. Section 5 discusses the results in view of possible extensions of the application of the GIS-ICT tool supporting the landscape experience of wandering over the TRP green network. The conclusions, starting from the limitations of this study, propose some reflections on the potential of a WebGIS-based [68–75] evaluation system in terms of the formation of a consciousness of the land that supports the landscape economy, from the production

of experiences [76] to the creation and accumulation of cultural and ecosystem added value [77–81].

2. Materials

The Regional State Property Office for the Trazzere was established in 1917 (Decree No. 1540). Its management has been entrusted to the Special Technical Office for Sicilian Trazzera, established and regulated by subsequent Royal Decrees (3244/1923, 2801/1927 and 1706/1936), until it was assigned to the Sicilian region together with the entire regional state property following the introduction of the Statute of the Sicilian Region (Decree-Law No. 455/1946) [82]. Since then, the current legitimation practice, inspired by principles of general fairness and legal consistency, is now implemented by Service 5—Management of State Forest, Trazzerale and Civic Uses (Operative Unit 1—Trazzera State Property)—of the Regional Department of Rural and Territorial Development within the Regional Department of Agriculture of Rural Development and Mediterranean Fisheries of the Sicilian Region [2]. Figure 1 displays the extension of this capillary land economic structure.

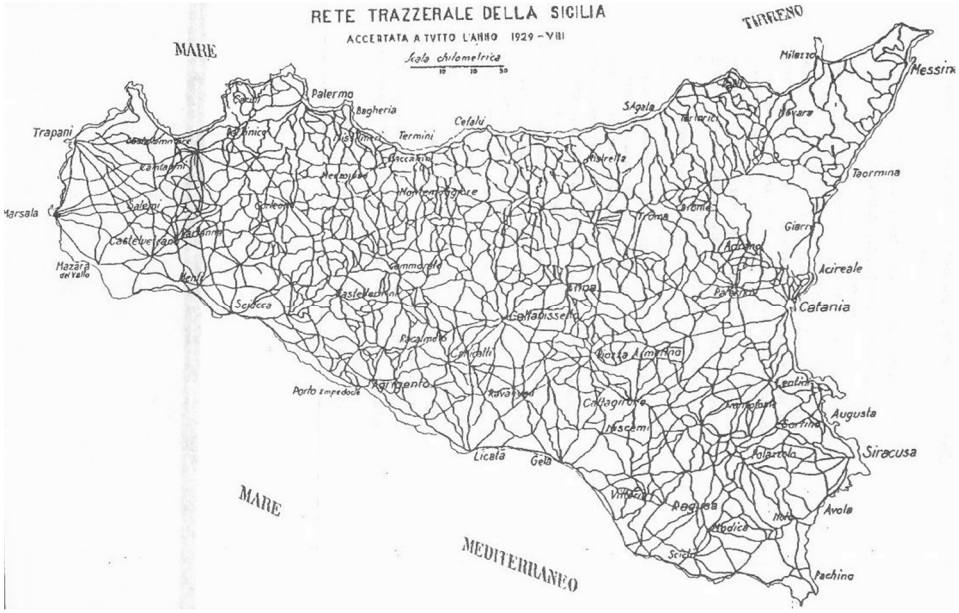


Figure 1. The Trazzera state property in 1929. Source [2].

The management of this common property consists of 1. legitimizing illegal appropriations and 2. supporting redevelopment projects whereby municipalities, or municipal consortia, propose to rehabilitate these infrastructures on the basis of slow mobility principles, in view of sustainable and eco-oriented use of the territory [83–89].

The former is an intermediate objective since it aims at creating favorable administrative context for the latter to be carried out quickly and in the absence of pending legal proceedings, that are, albeit to a limited extent, financed by the legitimation charges.

1. In the case of legitimation, supposing the onerous transaction of illegally appropriated assets, value and valuation issues emerge due to the imbalance between the very low sale price requested and the high (real estate) value of land in the most urbanized areas, as highlighted by a sentence of the Supreme Court (181/2011) which imposes the equivalence of prices in transactions from public to private and vice versa.

The bill concerning the "revaluation of the state property" [90] envisages a regional land policy whose measures and tools are implicitly included within the valuation best practices nowadays, inspired by the unity of environmental, territorial and landscape value attributes [91].

2. The land policy prospect highlights the criticalities that emerge above all in the second case—the development and enhancement of the landscape value of TRP—at the very level of the information system, due to whose inadequacy the assessment processes fail to appropriately represent the wide range of values, and among which the most relevant ones are selected from time to time according to the evolution of the individual and collective axiologies [92,93]. This relevance reflects the general cultural [94–97] and socio-economic climate, today influenced above all by the environmental issue [98] within which, particularly in the case of landscape, the perception of the impact of large-scale renewable energy technology installations has modified the "semantic value relations" [99], transforming, for example, wind farms or agrivoltaic systems from detractors to attractors, as a consequence of the current deep energy–environmental crisis. This has so far been the case with large hydraulic works [100] to protect the territory from flooding or large transport infrastructures.

In the field of the management of the TRP, the current information base supporting the knowledge of this asset is very poor, since it reflects the needs of legitimization procedures. It consists of the following:

1. The group of 90 masterplans, each consisting of the following:
    a. The cartography (Figure 2) showing (a) the location, (b) the stretch of the *trazzera* involved, (c) any part converted into a road, the borders of the neighboring properties, quarters crossed, the denomination and the parcels illegally occupied;
    b. The body of registers, whereby each of them refers to a portion of the trazzera, and consists of several large tables, whose rows refer to a single part of the trazzera, occupied or not, and the columns include information on its characteristics concerning location, legal status, ownership, neighbors, proposed final status, amount to be paid and approved final status (in Tables A1 and A2 in Appendix A).
2. The cartographic archive consisting of the geographic and cadastral maps, including the current as well as the historic ones, displaying the *Trazzera* (Figure 3).
3. The archive consisting of the decrees on public ownership, the general map with the locations of the *Trazzera* and the documentation regarding the legitimization process and whether it is completed or still ongoing.

There is no information on the landscaping of the area crossed by the *Trazzera* network.

The transactions of parts of *Trazzera* have been regulated since the enactment of Royal Decree (RD) 3244/1923 [101], significantly amended by RDs 2801/1927 [102] and 1706/1936 [103], then by Regional Law (RL) 10/1999 [104] and finally by RLs 4/2003 [105] and 17/2004 [106]. Since 1998, public property has been able to be transferred—by entitlement or sale—to concessionaires, possessors or co-possessors, as well as neighbors of the possessor. The sale price is calculated based on the agricultural average value (AAV), as shown in Table 1.

Furthermore, in the case of illegal occupation, an additional 25% compensation fee is charged. It should be emphasized that this selling price has no social relevance, firstly because it is not a market price (as it is set on the basis of abstract legal parameters), and secondly because it does not reflect the economic value of negative public externalities. The above mentioned bill aims at updating the calculation of the sale price based on the market price. Actually, the latter, referred to as a private asset, should be considered as the basis for calculating the social value, considered, following the Pigouvian approach, as the sum of private and external benefits.

The market prices, in fact, prevalent in urban settings, could be considered as significant indicators of the economic potential of these particular assets, but from the point of view of social value, prevalent in agriculture, they should be regarded as mere opportunity costs.

The social value of cultural heritage on a territorial scale, such as the TRP, has long been the main perspective of current agro-forestry policy in Sicily as well. For our purposes, the bill assumes the social value as a criterion for choosing the most interesting landscape contexts from an assessment perspective, and for constructing the most significant green-web from a planning perspective [107–109]. The social value is the most general dimension of everything "salient and urgent", in which historical, archaeological, architectural, anthropological, vegetational, hydrological, infrastructural and geological specific values are variously combined; as such, social value cannot be represented by means of a quantitative monetary measure from the current or simulated market, but must be stated via economic planning and project-based programming at the level of the political–administrative system [57,110–116].

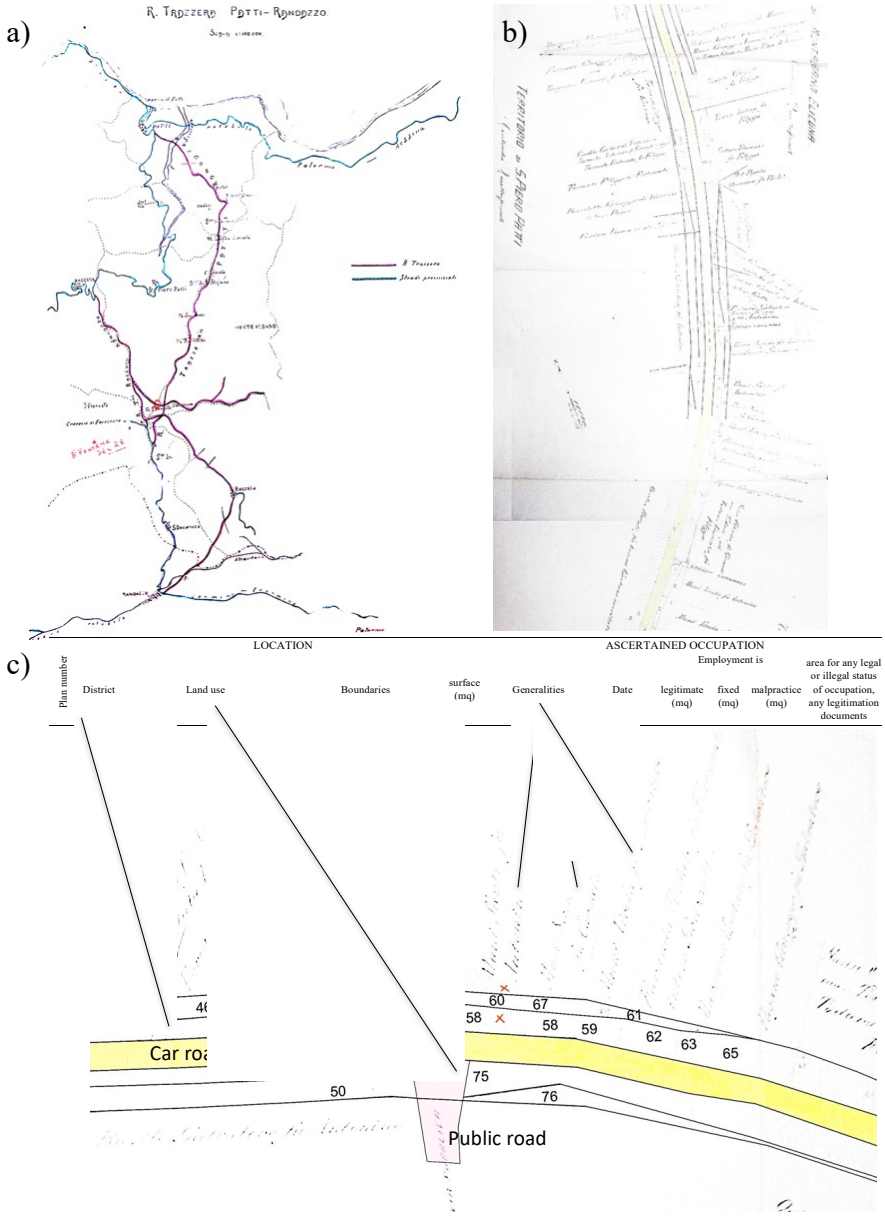


Figure 2. Sample of cartography of a masterplan: (**a**) location; (**b**) stretch of the *trazzera*; (**c**) parts converted into a road, borders of the neighboring properties and quarters crossed (source: Service 5—Management of State Forest, Trazzerale and Civic Uses).

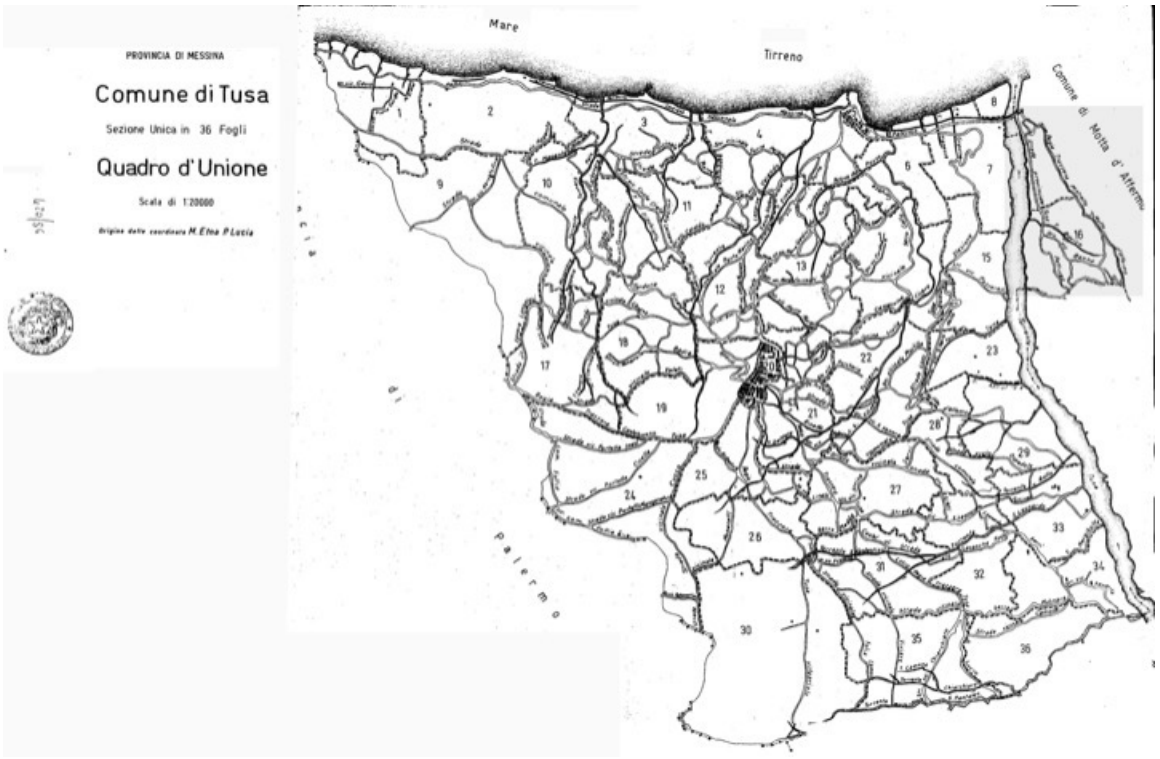


Figure 3. The Trazzera State Property Cadastral excerpt (source: Service 5—Management of State Forest, Trazzerale and Civic Uses).

Table 1. Outline of the calculation of the sale price of the land parcels subject to the legitimation procedure.

Transfer Price Pursuant to Art. 13 R. L. R. n.4/2003						
Tipology	**Land Density (mc/mq)**	**Further Information**	**Value**	**Decreasing Value Factor**	**1. Value Multipler**	**2. Value Multipler**
Not building area	< or = 0.03		Present crop AAV			
Building ground and court			Max AAV			
Building ground and court		Main applicant's dwell × 0.5	Max AAV	1/2		
Building ground and court		Social house characteristics	Max AAV	1/3		
Land parcel included in zones A B C D F	>0.03; <1		Max AAV		2	
Non-building area	>1		Max AAV		2	Building index
At the request of the applicant			Market Value			

3. Methods

3.1. A Disciplinary Premise

The two above questions concerning the valuation issues of a possible TRP enhancement plan involve monetary and non-monetary measurement, that is, market estimates and non-market assessment. The recent disciplinary debate in the science of valuation on

the distinction between estimate and assessment has somehow generally opposed against specifically valid value judgements, and in some operational contexts, numerary and preference statements. In both cases, it must be considered that the validation of the evaluation must refer to the robustness of the evaluation path in terms of "internal" and "external" consistency. The former concerns the logical connection of the subsequent stages, while the latter concerns the reference to reality. As for the distinction between numerary measurement and preferences statements, it should be considered that choice and/or decision are the actual end of every valuation; these are sometimes explicit, such as in the case of the valuation of projects or more general decision-making processes, and sometimes implicit, such as in the case of real estate market value where, however, the monetary measurement implicates any possible decision [117–121] about the use (or non-use) of the asset estimated.

The sustainable development of territory, and specifically, the issue of common property [122], includes the whole range of monetary and non-monetary value judgements [123], so that, as usual in the appraisal and valuation literature, the approach proposed here tries to overcome such definitory and taxonomical oppositions, thus considering that the value judgement is valid if it is just true, and it is true just "if it states how things actually are". The way things are is related to the facts of landscape which, in this case, are a more or less consistent envelope of natural [124–129], cultural [97,130–137], social and aesthetic (iconic) facts whose axiological relevance is not only just measurable, but knowable in terms of "sense and essence" [138–140]. Sense and essence of reality are in the authenticity of the values by means of which the facts of reality emerge and progressively develop as content of the social communication process.

The sense of the facts, according to a linguistic–semiotic approach, is the content of the true judgements as statements connecting reference (the object), the signifier (its saliences) and significance (the value conventionally, culturally and socially attributed to the object as represented by means of its saliences and urgencies). The essence of the facts, according to a phenomenological approach, is the result of the "intentional consciousness" transcending the appearance of the object.

3.2. Social Landscape Value and Valuation Patterns

The proposed evaluative approach is divided into two stages: the first analyzes the real estate potential of the parcels of land subject to legitimization, based on the three economic categories of price, cost and real estate value; the second investigates the ways in which the *Trazzera* has worth in reference to its socio-eco-systemic sense, thus in relation to the contribution it can give to the recovery of the territorial imprint of an ancestral economic anthropology that persisted until a few decades ago.

The combination of the two stages is proposed to support decision-making processes [141] involving local governments engaged in increasing the volume and value of the material culture heritage, nowadays re-signified considering new saliences, such as the emergence of local identities and urgencies, such as climate and environmental drift.

These processes use the joint tool of legitimation and expropriation: the former involves the disposal of the illegally occupied portion for a conventional price (a non-market price); the latter involves the acquisition and redevelopment by the public plots of land necessary to implement the landscape enhancement program.

Since the legitimation process is conducted outside of an organic valuation plan and with reference to each individual parcel, the public transfers a highly valuable resource without receiving adequate compensation, leading to significant positive externalities that benefit the private sector [142].

On the contrary, since land—and in particular its essence, landscape—is a social entity, that is, the social place of the life experiences which flow, giving shape to the common destinies, it is the primary context of the single parcels valuation, with as much reference to the market (for the benefits and costs widely accepted as measures of real estate value) as to the cognitive agreement [143] between technicians' expertise, stakeholders' instances and decision makers' accountability. Accordingly, the axiological perspective makes the

legitimation process meaningful in that it makes every single parcel have worth rather than being extensive, just as they have value and not just a price. As a consequence, in the legitimization process, prices assume the instrumental function of the information base of the economic–financial conventions with respect to the purpose of increasing the landscape values of the entire territorial context targeted by a territorial policy [144].

3.3. The Model

The model aims at combining the two operational areas, and accordingly the two dimensions of value and valuations: private property market value and social landscape value.

3.3.1. Private Property Market Value

The estimation of the private values of land parcels of the TRP is especially relevant in urban and peri-urban areas, and with reference to the prospects of valorization, due to the evolution of the functions, and the lands may have both with reference to building possibilities and to the activation of functions supporting the private and the public ones.

According to the bill, and with reference to nowadays densely built-up areas, we simulated the estimates of the parcel to be transferred by means of a simplified pattern, taking into account the general intended uses—built-up areas, green areas, parks, parking, sport facilities and commercial areas—and the economic potentials of the areas. Built-up areas stand out for the great surplus of their real estate prices over the sale prices [145–147]. Moreover, in the lack of an active market for this asset, they must be estimated indirectly; this circumstance discourages administrations from dealing with non-standardized evaluations, since the simplifications they use ensure fair estimates, whether they are simple or not.

3.3.2. Social Economic Value: The Fair Sale Price

The more appropriate indirect estimation method in these cases is the well-known residual value [148], considering the three main components of the expected real estate market value V_f of the property transformed according to the new intended uses: the current value of land parcel V_r, the building cost k and the promoter profit π. Accordingly, the value of the land parcel is

$$V_r = V_f - k - \pi \tag{1}$$

Profit is calculated as a percentage r (profit rate) of the total present expenditures:

$$\pi = r(V_r + k) \tag{2}$$

Then,

$$V_r = \frac{V_f - k(1+r)}{(1+r)} \tag{3}$$

Finally,

$$V_r = \frac{V_f}{(1+r)} - k \tag{4}$$

The profit rate is a relevant distributive variable on whose dimension the fairness of the transaction significantly depends; therefore, it needs to be calculated according to some robust references:

$$r = [(w + r^*)(1 + w + r^*)^n - 1]/(w + r^*) \tag{5}$$

where

- w is the well-known weighted average cost of capital (WACC), assuming that the latter consists of equity and debt;
- r^* is the annual profit rate that compensates the promoter for risk and organization;

- n is the duration (years) of the economic–financial cycle that takes into account the promoter's financial exposure over the duration of each work lot. In particular, r^* can be considered as the cost of the human/social capital [149].

In this particular urban development process, r^* is increasingly (+) or decreasingly (−) influenced by some context circumstances:

$$r^* = f(a, s, l, e, i, y, c) \quad (6)$$

where

- a is entrepreneurial risk, financial exposure, no dominant market position (+);
- s is local externalities coming from the neighbor (–);
- l is legal advantages, such as the long-time occupation (–);
- e is location improvement prospects coming from urbanization (–);
- i is intrinsic qualities, such as property rarity (–);
- y is expected rent variation (±);
- c is expected capital gains/losses (±).

These adjustments of the profit rate with respect to the ordinary or average rate of return outline the profile of the different kinds of complementarity between the promoter and the real estate urban context [150,151]; the latter is differently interpreted in terms of the risks and opportunities that result in the imbalance between asking and bid prices.

The next application shows the difference between the applied sale prices and those estimated with the proposed methodology following a real estate survey in the above area.

3.3.3. Social Landscape Value: From "Appearance" to "Essence"

The contribution of assessment in territorial planning has benefited, with exponential progress, from the development of ICT, including geomatics tools such as GIS, which, together with an enhancement in satellite survey and data management technologies (data mining, big data), has developed inter-scalar assessment models. These tools make it possible to project information from the detailed observation level to the assessments/interpretation level supporting the spatial policies.

The case of the landscape assessment of network agro-pastoral infrastructures involves both the territorial characterization of each *trazzera* and their sequence, as well as the set of motivations that renew their intangible (today, primary) functions, which can support the production of added value in rural areas.

The central topic of this form of reuse is therefore the reconfirmation of its primary function, that of physical infrastructure, for the transfer of intangible value, that is, landscape. In this sense, the user constitutes the primary vehicle for the formation and transport of this value in the furrow traced by herds and shepherds and defended by dedicated militias, retracing in his or her imagination that ancient magnificence. This tactile and at the same time affective experience stands as the way and place in which territorial information is transformed into landscape value.

The landscape value is therefore defined by the encounter between the user and the territorial context in which the journey is enriched by the experiences made possible by the network of these ancient routes. Some of these are located on ridges that were watersheds for the safe passage, and are therefore characterized by high panoramic views.

In this sense, landscape is the form of the territory created through the conceptualization of its multiple perceptions, i.e., the "appearances" that the intentional consciousness transcends into "essences".

Some conceptual premises clarify the next operational stages of the evaluation, supporting a green-web policy within the TRP network:

- A green-web (GW), that is a section of a TRP, subject to an enhancement policy is a "textual" framework based on landscape syntax;
- Landscape is a "semantic chain", that is a system of land signs "interpreting each other";

- Consequently, a territorial unit is a "sign" insofar as it is a synthesis of a "value bearer" (the signifier, i.e., the combination of salience and urgency that characterizes a territorial object) and the "content" (meaning or value) assigned to it;
- According to a "generative approach" [110], a GW is a generative structure insofar as value is not in things, but things exist because of their value;
- Accordingly, which value do we attribute to things? Which reality does this value outline?

The above points are the premises of the valuation/planning process of a system of paths selected within the GW based on their landscape value; accordingly, the GW is defined by the most valuable paths.

Since TRP is a network of arcs (the roads) and nodes (their intersections), a path can be variously formed by selecting the interconnected arcs that form the highest landscape value path from some perspectives.

The landscape value of each path selected within the GW is the content of an evaluation process based on the following:

- Criteria that make explicit the point of view from which the phenomenon is observed; the set of criteria forms a dendrogram with four "root" criteria, whereby each of which is subdivided into two further subsets of criteria—"branches" and "leaves";
- Evaluation functions that connect the different manifestations of the phenomenon (indices) to a certain degree of appreciation measured using a standard metric;
- A system of weights that establishes the relative importance of each criterion with respect to all of the others;
- A bottom-up procedure for aggregating all elementary evaluations into the main criteria.

According to the above semiotic interpretation of landscape, each path can also be considered as a "signifying unit" of a process of signification, in which each signifier (the set of characteristics of the path, not the path itself) implies a reference (the physical structure of the path as the combination of its natural and artificial components) and the concept, or function, with reference to a subject.

Although value cannot be considered as a relative entity, it must nevertheless be related to the axiology of the subject operating in the contextual unit with which it interacts.

In the proposed elaboration, the value of a path is measured by an aggregated score synthesizing the axiological profile of the user.

This axiological profile selects the path valorizing the "objects" (the territorial goods in themselves), the "performances" (length, comfort and safety) and the "values" (practical and symbolic) connotating it.

Within an overall TRP valorization plan, the proposed evaluation and decision-making model takes the form of an intangible technological infrastructure—the ICT-GIS tool—that supports decision makers in selecting the GWs that best combine the values of the "natural structures" and the values of the "cultural superstructures" of this territorial landscape heritage.

In this prospect, the "intentional consciousness" driving the contemplative experience (on the demand side), and the TRP enhancement measures (on the supply side), is the way in which the "appearance" of individual user preferences transcends to the "essence" of a shared value system through the ICT-GIS technological infrastructure.

Individual value. The users' individual preferences were structured with reference to the traveler's axiological square values according to the semiotic approach proposed by J. M. Floch [152].

This scheme is made up of four types of values—practical, critical, utopian and playful—which stand in relationships of contrariety, complementarity and contradiction. These values define the traveler's profile depending on whether he or she prefers comfortable routes (practical appreciation of the trajectories' continuity by "sleep-walker"), or whether he or she feels gratified in overcoming obstacles and inconveniences with ease (critical appreciation of the sequences' non-discontinuity by the "professional"), or whether he or she can experience the most direct contact with nature in spite of the risks (utopian appreciation of the paths' discontinuities by the "explorer") or, finally, whether he or she

can experience surprise, gratuitousness, amusement and amazement (playful appreciation of the walk's non-continuities by the "loafer") (Figure 4).

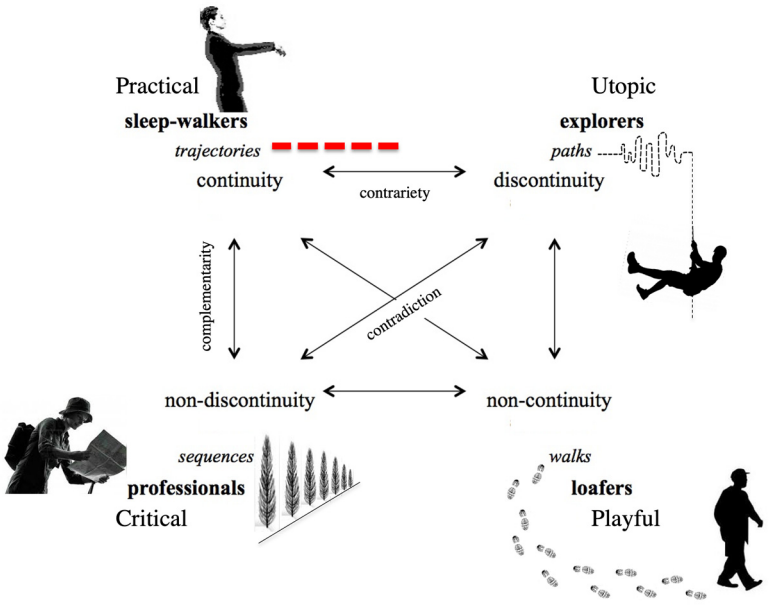


Figure 4. Axiological quadrangular pattern (source: [152], modified by authors).

The dendrogram in Figure 5 shows the breakdown of the four values into three levels of criteria and sub-criteria, according to the multicriteria additive approach based on the multi-attribute value theory (MAVT) [153,154].

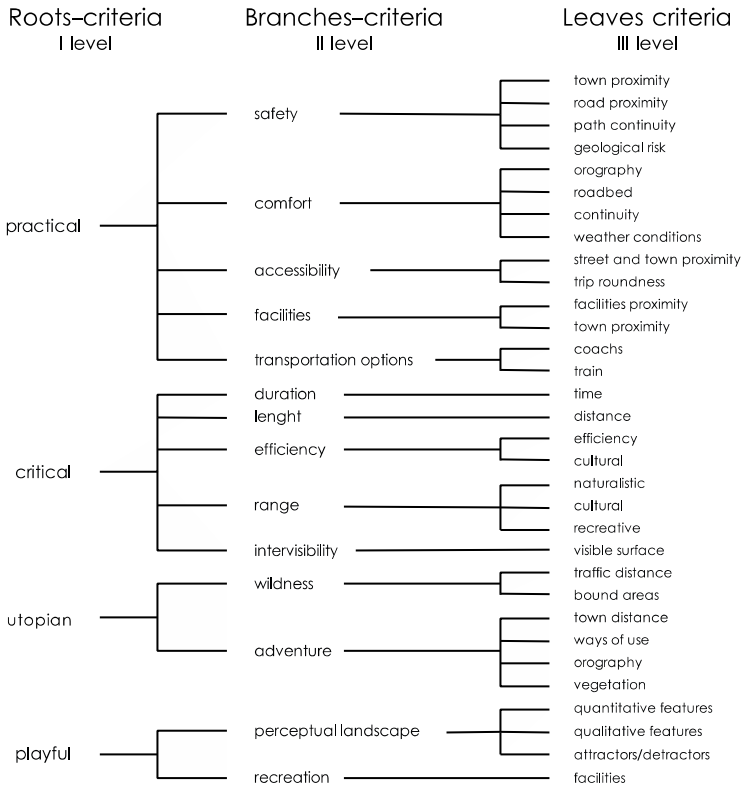


Figure 5. Dendrogram of the axiological representation of the user's preferences.

This model allows each GW's arch to be assessed according to the landscape characteristics of the areas it passes through, so that the path made up of the most valuable sequences of connected arches can be selected once the user's preference system has been defined.

The landscape characteristics come from the Regional Territorial Information System of the Sicilian Region. The landscape value of a path is the sum of the landscape values of the arches that make it up.

To this end, every single arch was subdivided into 250 m segments, and each segment was given a total score as the weighted average of the score given under each "leave-criteria". The total score of each segment was calculated as the weighted average score of the "roots-criteria"; each "roots-criterion", again, was calculated as the weighted average of the scores of the related "branches-criteria"; and each "branches-criterion", finally, was calculated as the weighted average of the scores of the related "leaves-criteria".

A hierarchic weight system was set up in order to bottom-up calculate the total score, starting from the leaves criteria level.

The "leaves-criteria" scores were attributed based on a value function normalizing over a 1–5 score range the various quantitative and qualitative characteristics of the segment in each specific land area.

Thus, the model allows a potential user to create his/her own best path by means of the WebGIS interface through which he/she sets up his/her preferences according to three different and complementary approaches:

- Object approach: the user selects what he/she is interested in (monuments, panoramas, archaeologic sites, etc.);
- Performance approach: the user indicates some functional characteristics such as length/duration of the route, safety/risk profile, average slope, etc.;
- Axiological approach: the user sets up the weight system of the four roots criteria, according to his/her own axiological profile.

The total score s_p (Equation (7)) of each t_{th} path p_t is the sum of the scores of all of the i_{th} arches a_i, whose score s_a is the sum of the scores of all of the j_{th} 250 m segments w_j making up that arch; the score s_w of each j_{th} segment w_j is the weighted average of the scores attributed to it from the perspectives of each k_{th} roots criteria s_k:

$$s_p = \sum_i \sum_j \sum_k s_k \lambda_k \tag{7}$$

under the condition (Equation (8)) that

$$\sum_k \lambda_k = 1 \tag{8}$$

where λ_k is the weight of the k_{th} segment of each arch.

A possible in-depth valuation could consider the contextual and dynamic experience of the user traveling through a *trazzera*. This assessment extension assumes the appreciation of the single segment to be influenced by the appreciations s_{j-2} and s_{j-1} of the two previous segments, and s_{j+1} and s_{j+2} of the two subsequent segments, so that the overall score s_j^* (Equation (9)) of the j_{th} segment w_j is the weighed average of the scores s_{j-2}, s_{j-1}, s_j, s_{j+1} and s_{j+2}, allowing one to consider the relation between the context and the single segment:

$$s_j^* = \frac{s_{j-2}\mu_{j-2} + s_{j-1}\mu_{j-1} + s_j\mu_j + s_{j+1}\mu_{j+1} + s_{j+2}\mu_{j+2}}{5} \tag{9}$$

where μ is the weight measuring the relevance of the different segment with respect to the j_{th}, according to the position (back or ahead) and distance (closer or farther).

Social value. The above scheme is the methodological basis of a multi-scalar and multi-dimensional integrated approach that interprets TRP as a complex of GWs in the prospect of the development of a "landscape value centred" slow mobility [155–158] supporting the emergence of a "social landscape identity".

In fact, the proposed model is supported by a database that can be differently queried and for different purposes, the main of which being the mapping of the complex value of the territory and, for the purposes of this study, the landscape value.

Nonetheless, the implicit potential of the TRP insofar as the civic value of this unitary regional green infrastructure suggested a possible extension of the above individual use.

The social value of the landscape experience can be considered as the envelope of the actual appreciation of users whose feedback could be solicited by means of questionaries within the same interface, allowing them to select the best path.

More in general, the information obtained about the satisfaction level of the users can be useful for resetting the weight system throughout a consequently dynamic process of progressive adjustment and extension of the GWs to be enhanced.

Figure 6 shows the conceptual process enveloping the individual experiences within a more general pattern supporting the decision-making process by integrating technical expertise with the response of the users.

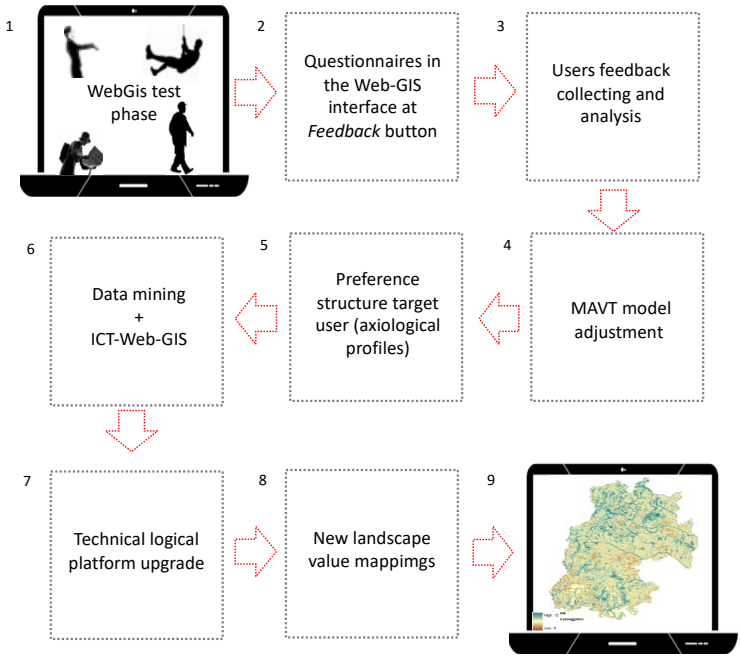


Figure 6. The ICT-Web-GIS interactive platform.

The flowchart in Figure 6 displays the ICT-Web-GIS interactive process for outlining the shared landscape consciousness based on the analysis and comparison of the multiple axiological individual preference profiles from the very beginning, i.e., from entering the object, performance and axiological instances, up to the end of the landscape experience.

The interactive/iterative process linking individual experience and shared collective consciousness involves inviting the user to fill in a questionnaire about the experience carried out based on the expectations represented by the axiological profile entered in the form of choosing a path.

The Web-GIS test phase starts with (1) filling in the questionnaire, whose results allow for (2) collecting and analyzing the feedback from users; (3) then, adjusting the set-up of the multidimensional assessment model (MAVT); (4) identifying the shared landscape values; (5) engineering the shared consciousness by means of the Datamining + ICT-WebGis tool; (6) upgrading the technical–logical platform and (7) generating new landscape valuation prospects.

4. Applications and Results

4.1. Legitimation Sale Prices and Real Estate Market Values

As above, the legitimation of the illegally occupied TRP land parcels is a basic premise of the enhancement and promotion of the TRP on the urban and territorial scales. The issue of the social relevance of the legitimation process concerns the fair sale price for the transfer of public heritage to private owners.

As an example of the gap between the sale price of the legitimating land parcel and their actual market value, we present a case study of a group of urban parcels in Palermo, the capital city of the Sicilian Region, over a densely built-up area along Corso dei Mille, an important thoroughfare in Palermo. This street is part of the important former Trazzera n. 139—Palermo-Ventimiglia, which today connects the central station with the peripheral areas of the Brancaccio district (S-E), and with the coastal Messina Marine Street (N-E). The whole neighborhood area has undergone intense building and economic development since the end of the nineteenth century and is today a vital urban context with significant building heritage, albeit of a medium or low–medium socio-economic level.

The real estate survey, based on which the above-mentioned residual value-based model has been implemented, is synthesized in Table 2, displaying the relevant data of the property for sale, and Table 3 displays the relevant data of the property for rent.

Table 2. Excerpt of the real estate market value survey.

Market Survey Samples for RENT										
		Mounth Rent	€ 550	€ 620	€ 650	€ 500	€ 850	€ 500	€ 600	€ 420	€ 580
		commercial surfaces (mq)	90	100	138	90	160	130	100	75	100
characteristics	weights		€ 6.11	€ 6.20	€ 4.71	€ 5.56	€ 5.31	€ 3.85	€ 6.00	€ 5.60	€ 5.80
location	35%	Infrastructure qualification	2.0	3.5	3.0	2.5	3.0	2.0	3.0	3.0	3.0
		Accessibility Services Centre	2.5	4.0	3.0	3.0	4.0	3.0	4.5	4.0	3.0
		Parking facilities	4.0	5.0	2.0	3.0	2.0	2.0	2.5	2.0	3.0
intrinsic	5%	Environmental qualification	3.0	3.0	2.0	2.0	2.5	2.0	2.5	2.5	2.0
		Air quality. noise and amenities	4.0	3.0	2.0	3.0	2.0	2.0	2.5	2.0	2.5
		Floor level	2.0	5.0	5.0	1.0	2.0	4.0	5.0	4.0	5.0
		Landscape; overlook and brightness	3.0	5.0	4.5	2.0	3.0	4.0	4.5	3.5	4.0
technologic	15%	Structure; supplied plants	5.0	4.0	3.0	4.0	2.0	1.0	2.0	2.5	3.0
		Finishes; State of conservation	5.0	5.0	2.5	4.0	2.5	1.0	2.0	2.0	4.0
	35%	State of maintenance	5.0	5.0	2.5	3.5	3.0	2.5	5.0	3.5	3.0
		Technological plants	5.0	4.5	2.0	3.0	3.0	2.0	4.5	3.5	2.5
		Sound insulation	5.0	4.0	1.5	2.0	2.0	1.0	3.0	1.5	2.0
architectural	10%	Dimensions (open. open spaces, . . .)	5.0	5.0	3.5	3.5	3.5	2.5	5.0	4.0	3.0
		Box or parking	1.0	5.0	1.0	1.0	1.0	1.0	1.0	1.0	5.0
		Decoration of the prospectus	2.5	2.0	1.0	2.0	3.0	3.5	3.5	2.0	1.0
		total	**4.1**	**4.3**	**2.5**	**3.0**	**2.7**	**2.1**	**3.5**	**2.8**	**3.0**

Table 3. Excerpt of the real estate market rent survey.

		Market Survey Samples for SALE									
characteristics	weights		€ 85.000 90 € 944	€ 140.000 140 € 1.000	€ 195.000 110 € 1.773	€ 55.000 80 € 688	€ 175.000 100 € 1.750	€ 169.000 135 € 1.252	€ 115.000 110 € 1.045	€ 87.000 90 € 967	€ 150.000 120 € 1.250
location	30%	Infrastructure qualification	3.0	3.0	3.0	3.0	3.5	2.5	2.5	3.0	3.0
		Accessibility Services Centre	4.0	3.5	4.0	5.0	3.0	3.5	4.0	3.0	2.5
		Parking facilities	2.0	4.0	2.0	3.0	4.0	2.5	2.5	3.0	3.0
intrinsic	10%	Environmental qualification	2.5	3.0	3.0	2.5	3.5	2.5	2.5	3.0	3.0
		Air quality. noise and amenities	2.5	3.0	3.0	2.5	4.0	2.5	3.0	3.0	3.0
		Floor level	5.0	3.0	2.0	1.0	5.0	5.0	2.0	5.0	5.0
		Landscape; overlook and brightness	4.5	4.0	2.5	1.0	5.0	5.0	2.0	3.5	5.0
technologic	25%	Structure; supplied plants	1.0	4.0	5.0	1.5	4.5	4.0	3.5	1.5	3.0
		Finishes; State of conservation	1.0	4.0	5.0	1.5	5.0	4.0	3.0	1.5	4.0
	30%	State of maintenance	2.0	4.5	5.0	2.0	4.5	4.5	4.5	1.0	2.0
		Technological plants	2.0	4.0	4.5	2.0	4.5	4.0	4.0	1.0	2.0
		Sound insulation	1.0	2.5	3.0	1.0	3.0	3.0	3.0	1.0	2.0
architectural	5%	Dimensions (open. open spaces, . . .)	3.5	4.5	5.0	2.0	3.5	4.5	3.5	2.5	3.5
		Box or parking	1.0	5.0	1.0	1.0	5.0	1.0	1.0	1.0	5.0
		Decoration of the prospectus	1.0	2.0	2.0	1.0	2.0	1.0	1.0	4.0	1.0
		total	**2.2**	**3.8**	**3.9**	**2.0**	**4.3**	**3.7**	**3.2**	**2.0**	**3.1**

Figure 7 displays the simple linear regression function for the calculation of the real estate market price and the yield.

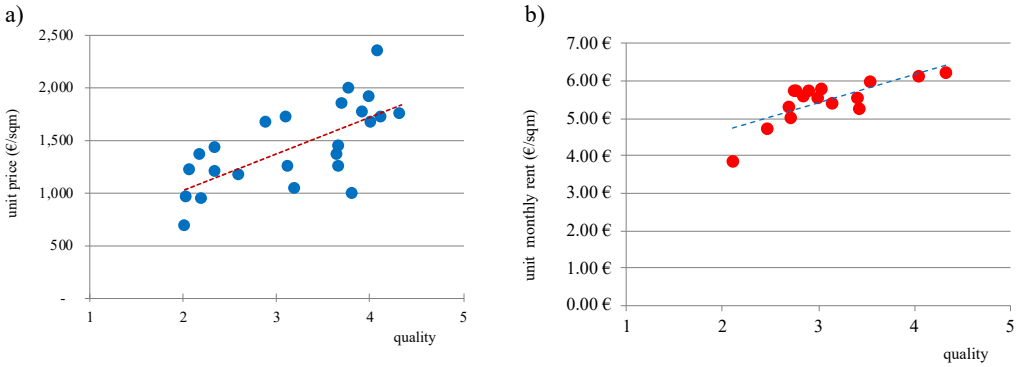


Figure 7. Graphical synthesis of the sale (**a**) and rent (**b**) real estate market surveys.

The residual method was applied, taking into account some local real estate features, the socio-economic profile of the urban context and the potential development prospects, as well as criticalities (Table 4).

The proposed estimates highlight the remarkable gap between market values and sale prices (Figure 8). This gap has an original categorical nature and concerns the inadequacy of the agricultural average value (AAV) to represent both the phenomenon of transformation that the choice of the residual value method relates to, and the associated and implicit speculative tendencies affecting rare and irreproducible urban assets.

Table 4. Residual value of the land parcels in the sample urban area of Corso dei Mille in Palermo and the calculation of the difference (surplus) between market value and sale price.

Estimate of the Real Estate Market Values of the Land Parcels in Palermo Corso dei Mille. Regia Trazzera n° 139 "Palermo-Ventimiglia"																
	Unit Value	**Extraction Value**	**Final Market Value**	**Cost Value**	**Profit Rate**	**Profit**	**re**	**rd**	**r1**	**r2**	**r3**	**r4**	**r5**	**r6**	**r7**	**Surplus Market Price-Sale Price**
1	€ 131	€ 8.379	€ 111.008	€ 86.400	5.4%	€ 16.229	3.8%	7.0%	0.2%	0.0%	0.1%	0.2%	0.0%	0.0%	−0.1%	€ 7.379.39
2	€ 138	€ 9.911	€ 124.884	€ 97.200	5.3%	€ 17.773	3.5%	7.0%	0.0%	−0.1%	0.0%	0.0%	0.0%	0.2%	0.0%	€ 10.194.68
	€ 37	€ 926	€ 4.000	€ 2.500	5.3%	€ 574	3.6%	7.0%	0.0%	0.2%	0.0%	0.2%	0.0%	−0.2%	0.0%	
	€ 36	€ 358	€ 1.600	€ 1.000	5.6%	€ 242	4.2%	7.0%	0.2%	0.0%	0.2%	0.2%	0.0%	0.0%	0.2%	
3	€ 26	€ 618	€ 2.400	€ 1.440	5.3%	€ 342	3.5%	7.0%	−0.2%	0.0%	0.2%	0.0%	0.0%	0.1%	0.0%	€ 347.23
	€ 26	€ 729	€ 2.800	€ 1.680	5.1%	€ 391	3.3%	7.0%	0.0%	−0.1%	0.0%	0.0%	0.2%	−0.2%	0.0%	
4	€ 206	€ 169.378	€ 1.494.487	€ 1.110.484	5.3%	€ 214.626	3.6%	7.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	€ 148.850.04
5	€ 51	€ 1.022	€ 3.300	€ 1.800	5.4%	€ 478	3.7%	7.0%	0.2%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	€ 21.81
6	€ 208	€ 142.426	€ 1.242.476	€ 923.226	5.3%	€ 176.824	3.5%	7.0%	0.0%	0.2%	0.0%	0.2%	−0.2%	0.0%	−0.1%	€ 159.467.59
	€ 138	€ 21.474	€ 270.583	€ 210.600	5.3%	€ 38.508	3.5%	7.0%	0.0%	0.1%	0.0%	0.0%	0.0%	−0.2%	0.2%	
	€ 142	€ 13.648	€ 166.512	€ 129.600	5.1%	€ 23.265	3.3%	7.0%	0.0%	−0.2%	0.0%	0.2%	−0.1%	0.0%	0.0%	
7	€ 37	€ 9.204	€ 40.000	€ 25.000	5.4%	€ 5.796	3.7%	7.0%	0.0%	0.0%	0.2%	0.1%	0.0%	0.0%	0.0%	€ 6.978.81
8	€ 206	€ 53.138	€ 468.859	€ 348.387	5.3%	€ 67.334	3.6%	7.0%	−0.2%	0.0%	0.0%	0.0%	0.2%	0.2%	0.0%	€ 46.886.05
9	€ 140	€ 11.734	€ 145.475	€ 113.226	5.2%	€ 20.515	3.4%	7.0%	0.0%	0.2%	−0.1%	−0.2%	0.0%	0.0%	0.1%	€ 10.965.87
	€ 28	€ 1.138	€ 6.000	€ 4.000	5.3%	€ 862	3.6%	7.0%	0.0%	−0.2%	0.0%	0.2%	0.0%	0.0%	0.2%	
10	€ 135	€ 32.498	€ 416.281	€ 324.000	5.3%	€ 59.783	3.6%	7.0%	0.0%	0.2%	0.0%	0.1%	0.0%	0.0%	−0.1%	€ 31.225.37
11	€ 206	€ 169.378	€ 1.494.487	€ 1.110.484	5.3%	€ 214.626	3.6%	7.0%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	€ 148.850.04
12	€ 133	€ 5.327	€ 69.380	€ 54.000	5.4%	€ 10.054	3.7%	7.0%	−0.1%	0.0%	0.0%	0.2%	0.2%	0.0%	0.0%	€ 4.326.65
13	€ 376	€ 3.818	€ 20.323	€ 13.718	5.0%	€ 2.786	3.1%	7.0%	0.0%	0.0%	−0.2%	0.0%	−0.2%	0.0%	0.1%	€ 5.403.99
	€ 28	€ 842	€ 4.500	€ 3.000	5.4%	€ 658	3.8%	7.0%	0.2%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	
	€ 29	€ 2.292	€ 12.000	€ 8.000	5.3%	€ 1.708	3.5%	7.0%	0.0%	0.0%	0.2%	0.0%	−0.1%	0.0%	0.0%	
		€ 6.953	€ 36.823	€ 24.718		€ 5.152										
14	€ 211	€ 24.459	€ 210.986	€ 156.774	5.2%	€ 29.753	3.4%	7.0%	−0.2%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	€ 21.354.41
15	€ 213	€ 16.489	€ 140.658	€ 104.516	5.1%	€ 19.652	3.3%	7.0%	0.0%	−0.2%	0.0%	0.0%	0.1%	0.0%	0.0%	€ 25.954.67
	€ 213	€ 13.191	€ 112.526	€ 83.613	5.1%	€ 15.722	3.3%	7.0%	0.0%	0.2%	0.0%	−0.1%	0.0%	0.0%	−0.2%	
		€ 29.681	€ 253.184	€ 188.129		€ 35.374										
16	€ 131	€ 23.043	€ 305.273	€ 237.600	5.4%	€ 44.629	3.8%	7.0%	0.0%	0.0%	0.2%	0.0%	0.0%	0.2%	0.0%	€ 21.936.11
17	€ 142	€ 41.228	€ 503.006	€ 391.500	5.1%	€ 70.278	3.3%	7.0%	−0.1%	0.0%	0.0%	0.2%	0.0%	−0.2%	0.0%	€ 39.935.45
18	€ 204	€ 13.133	€ 117.215	€ 87.097	5.4%	€ 16.985	3.7%	7.0%	0.0%	0.0%	0.2%	0.0%	0.0%	0.1%	0.0%	€ 11.206.95
19	€ 133	€ 21.307	€ 277.521	€ 216.000	5.4%	€ 40.214	3.7%	7.0%	0.0%	0.2%	0.0%	−0.1%	0.0%	0.2%	0.0%	€ 20.236.20
20	€ 148	€ 5.933	€ 69.380	€ 54.000	5.0%	€ 9.447	3.5%	7.0%	0.0%	0.0%	−0.2%	0.0%	0.1%	0.0%	0.2%	€ 4.933.20
21	€ 37	€ 2.221	€ 9.600	€ 6.000	5.3%	€ 1.379	3.6%	7.0%	0.0%	0.2%	0.0%	−0.2%	0.2%	0.0%	0.0%	€ 1.221.33

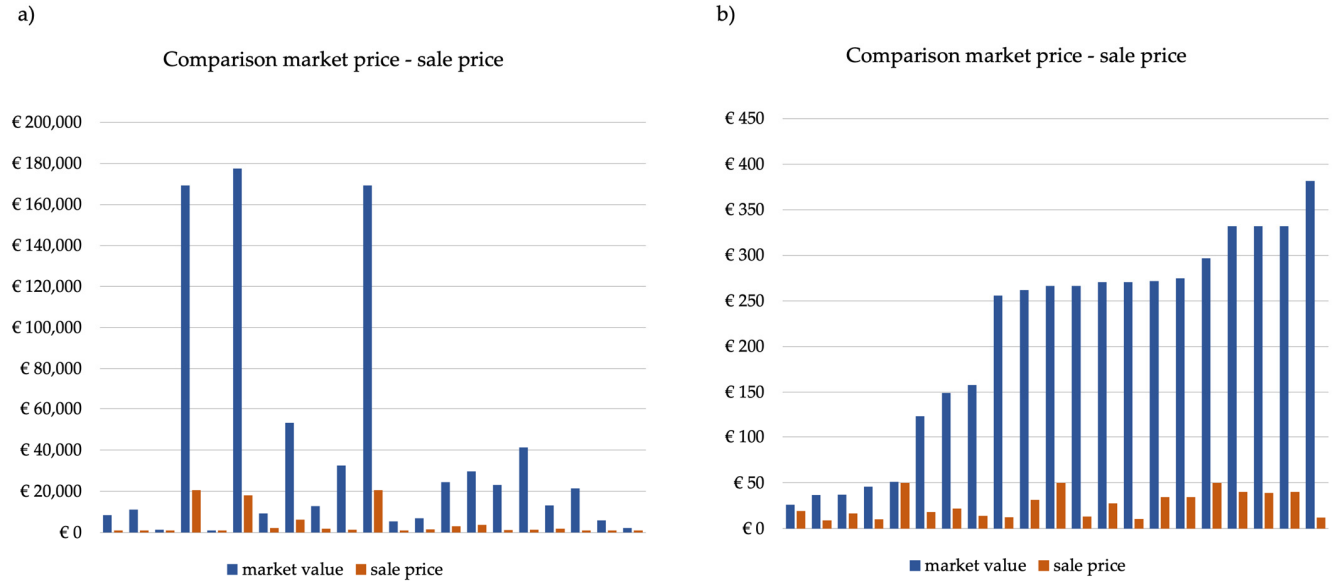


Figure 8. Gap between market value and sale price: (**a**) total values (EUR); (**b**) unit values (EUR/sq.m).

A further categorial aspect that is relevant in a public asset fair management process concerns the distributive nature of these two valuations, since the sale price calculated as an automatism on the basis of the AAV addresses the land rent, while the market value reflects the urban rent. In fact, the residual value method considers all of the components of the creation and distribution of real estate wealth, which, once created in terms of volume, accumulates in terms of value due to the progressive enhancement of the urban context; accordingly, the residual value method highlights the conflict between rent and profit, hence between real estate property and business.

The difference between sale price and market value is more marked in land parcels that were developed before they were given building capacity, so the sale price was calculated based on its land rent and not its urban rent.

The residual value procedure, although influenced by aspects of uncertainty and risk, makes explicit all the main trends and characteristics of the local market. A measure of urban rent intensity is the capitalization rate, whose range is 1.9–4.5% and is calculated as the ratio between yields and market prices, which can be considered as a reference consistent with the current state of the economic system and reflects its economic, financial and monetary tensions and prospects.

While the proposed approach can be generalized due to its direct reference to the market, its application needs more detailed surveys and observations than those provided by the National Land Agency Real Estate Market Observatory.

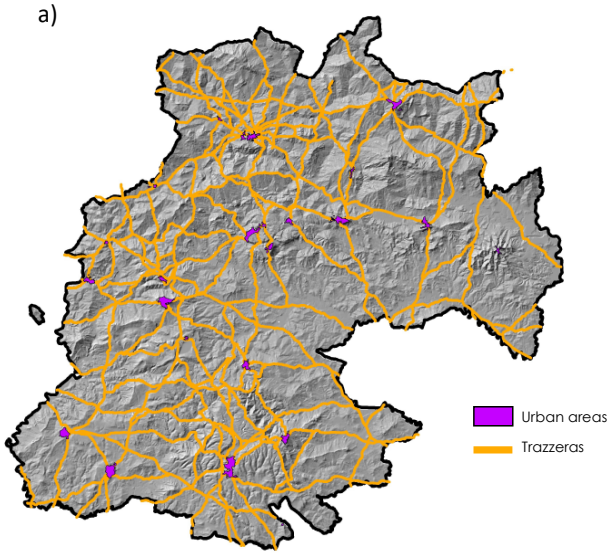
4.2. Social Landscape Value

The social and landscape value of the TRP is defined as the intangible value component that compensates for a low market price in those agricultural and pastoral contexts where it is spared from urban and property development.

The case study presented involves the Enna Province territorial landscape context, by means of the ICT-GIS tool, referred to as the Territorial Landscape Province Plan database, according to which the relevant data of each *trazzera* are provided with reference to its unit standard components, the above-mentioned 250 m segments.

Figure 9 displays (a) the map of the Enna Province TRP and (b) an excerpt of the database whose records are the segments, and the location codes are identified in the fields.

a)



b)

shape	length	sub arch id.	distance from the item	item cod.	ambit	number	item location	
polyline	250	1	1003,108	SR206d	17	245	Tracciato FF.SS.	...
polyline	250	2	860,701	SR206d	17	245	Tracciato FF.SS.	...
polyline	250,000	3	804,374	SR206d	17	245	Tracciato FF.SS.	...
polyline	250,000	4	846,315	SR206d	17	245	Tracciato FF.SS.	...
polyline	250,000	5	981,234	SR206d	17	245	Tracciato FF.SS.	...
polyline	250,000	6	1054,544	SR196	17	232	Monte d'Oro	...
polyline	250,000	7	1083,267	SR196	17	232	Monte d'Oro	...
polyline	39,953	8	1097,625	SR196	17	232	Monte d'Oro	...
polyline	250,000	9	1310,806	SR206d	17	245	Tracciato FF.SS.	...
polyline	223,877	10	1160,066	SR206d	17	245	Tracciato FF.SS.	...
polyline	250,000	11	1272,709	SR300	17	341	Cava S. Anna	...
polyline	28,153	12	1362,649	SR300	17	341	Cava S. Anna	...
polyline	56,635	13	1256,909	SR300	17	341	Cava S. Anna	...
polyline	189,045	14	1172,716	SR300	17	341	Cava S. Anna	...
polyline	110,976	15	1220,494	SR300	17	341	Cava S. Anna	...
polyline	250,000	16	913,500	SR206d	17	245	Tracciato FF.SS.	...
polyline	250,000	17	666,140	SR206d	17	245	Tracciato FF.SS.	...
polyline	250,000	18	487,484	SR206d	17	245	Tracciato FF.SS.	...
polyline	250,000	19	469,352	SR206d	17	245	Tracciato FF.SS.	...
polyline	250,000	20	393,072	SR206d	17	245	Tracciato FF.SS.	...
...	...	...	...	...	...	...	...	...
polyline	250,000	3598	503,072	SR206d	17	245	Tracciato FF.SS.	...

Figure 9. (**a**) Map of the TRP in Enna Province; (**b**) excerpt of the database of the ICT-GIS tool.

The following figures synthesize the assessment process of the paths making up the Enna Province TRP based on the detailed information units referred to as the four values of the above-mentioned quadrangular axiological pattern.

As the first point, the "practical values" (Figure 10) referring to the "continuity" of the path—according to the sleepwalker's axiological profile—are associated with the characteristics that the tool can model by means of the contents of the value functions (Figure 10a). These characteristics are displayed in the corresponding maps (Figure 10b).

Some specifications of the practical values related to the functionality of the landscape experience are as follows:

- Safety, depending on the proximity of the path to urban settlements that allows the user to get help more quickly, the part of the path within landslide or hydrogeological risk areas and the part of the path on a driveway.
- Comfort, depending on path acclivity and presence of hosting facilities near the path.
- Accessibility, depending on the road intersections and parking areas easily allowing users to reach the path by car.

As the second point, the "critical values" (Figure 11) referring to the "non-discontinuity" of the path—according to the professional's axiological profile—are associated with the characteristics that the tool can model by means of the contents of the value functions. These characteristics are displayed in the corresponding maps.

Some specifications of the critical values are related to the efficiency of the landscape experience as for its density, in terms of the following:

- Perception, depending on the extension of the intervisible area, measured as the ratio of intervisible area to path length (sq.km/km).
- Knowledge, depending on the abiotic components, such as the geologic and geomorphologic interest areas crossed, biotic components, such as vegetational interest areas, anthropic components, such as protected areas, and in particular, hydrogeological interest areas and communitarian interest sites (CIS); all of these characteristics are measured as a percentage of the path that crosses these areas.

As the third point, the "utopian values" (Figure 12) referring to the "discontinuity" of the path—according to the explorer's axiological profile—are associated with the characteristics that the tool can model by means of the contents of the value functions. These characteristics are displayed in the corresponding maps.

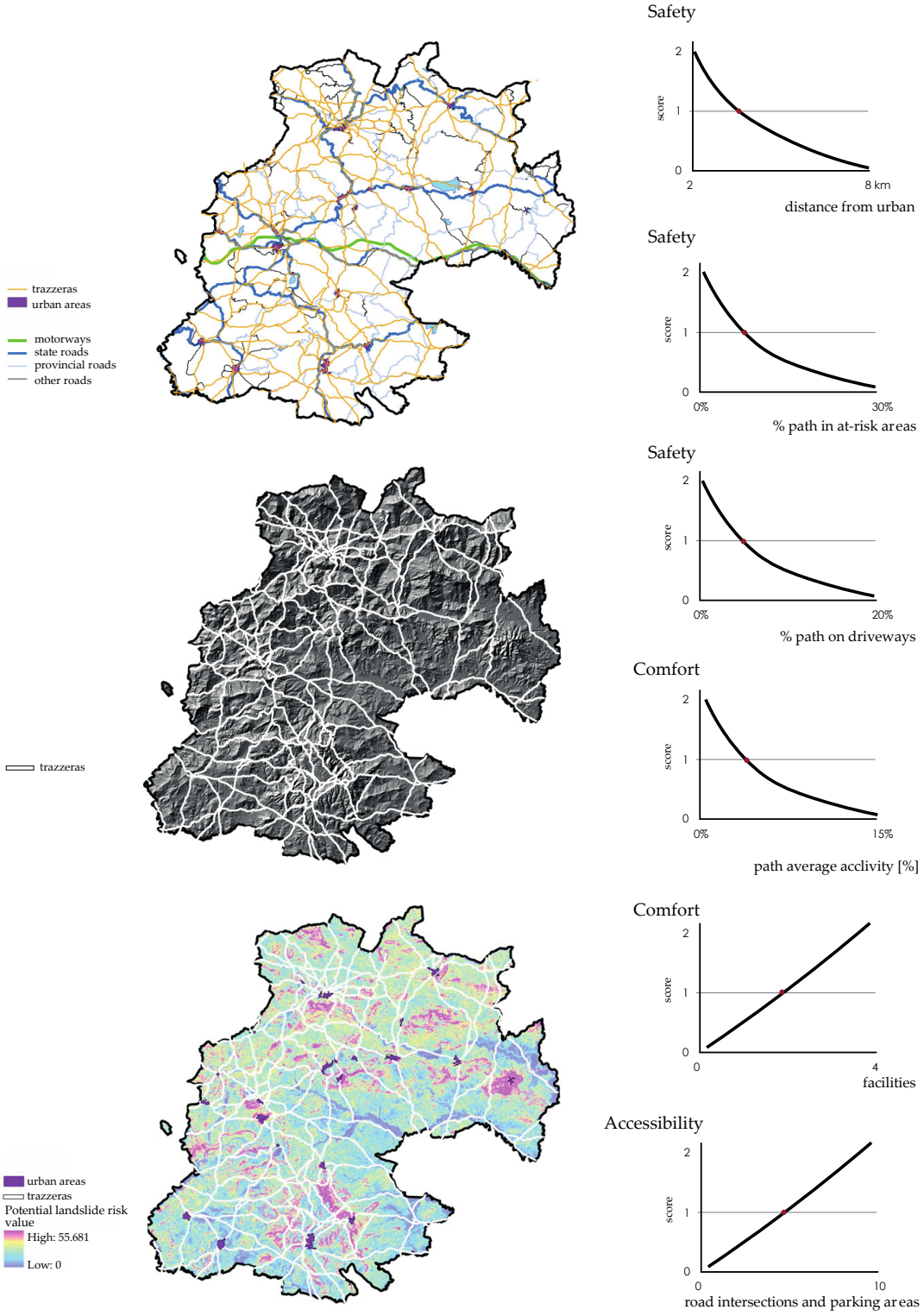


Figure 10. Practical values. Mapping and value functions.

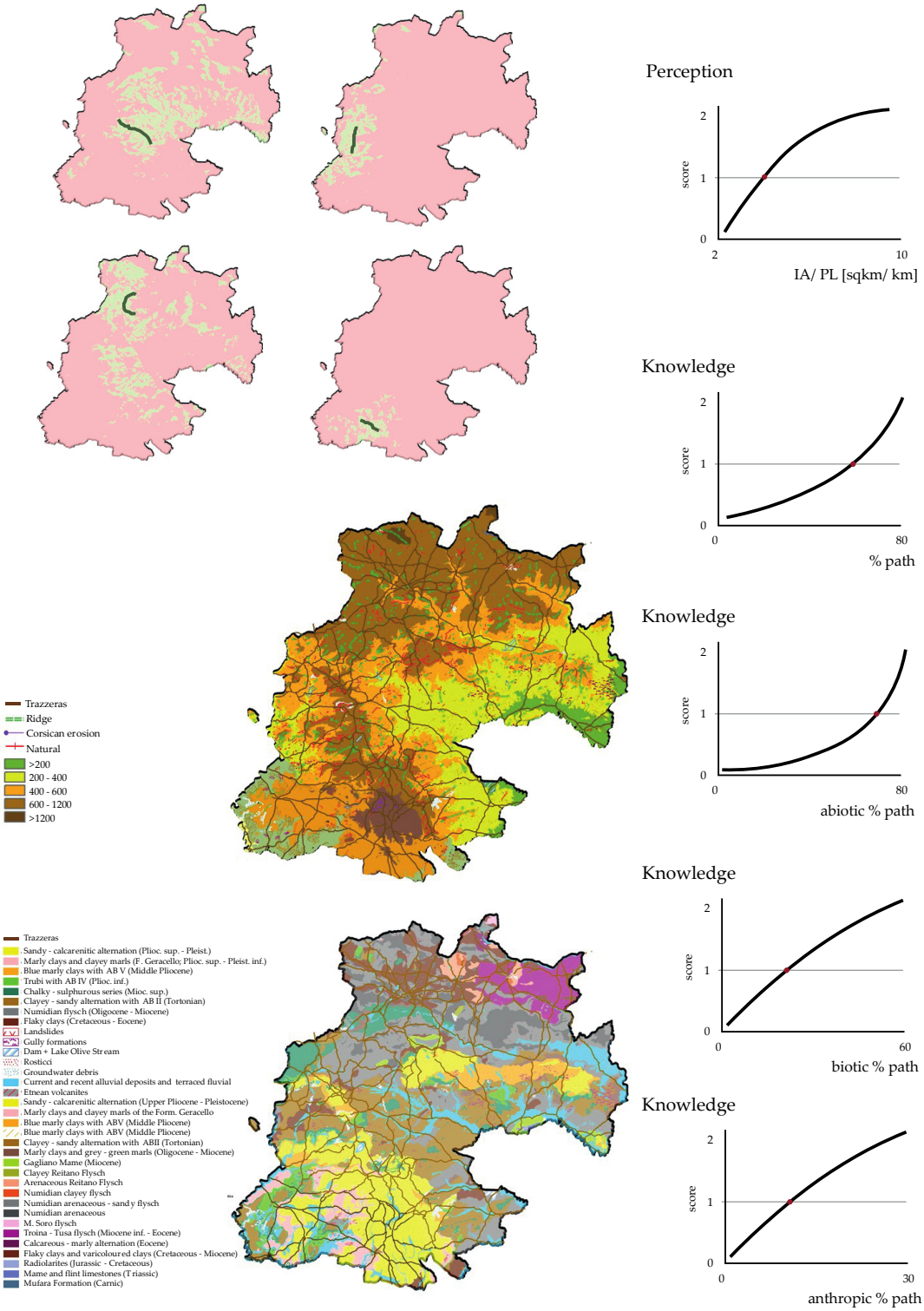


Figure 11. Critical values. Mapping and value functions.

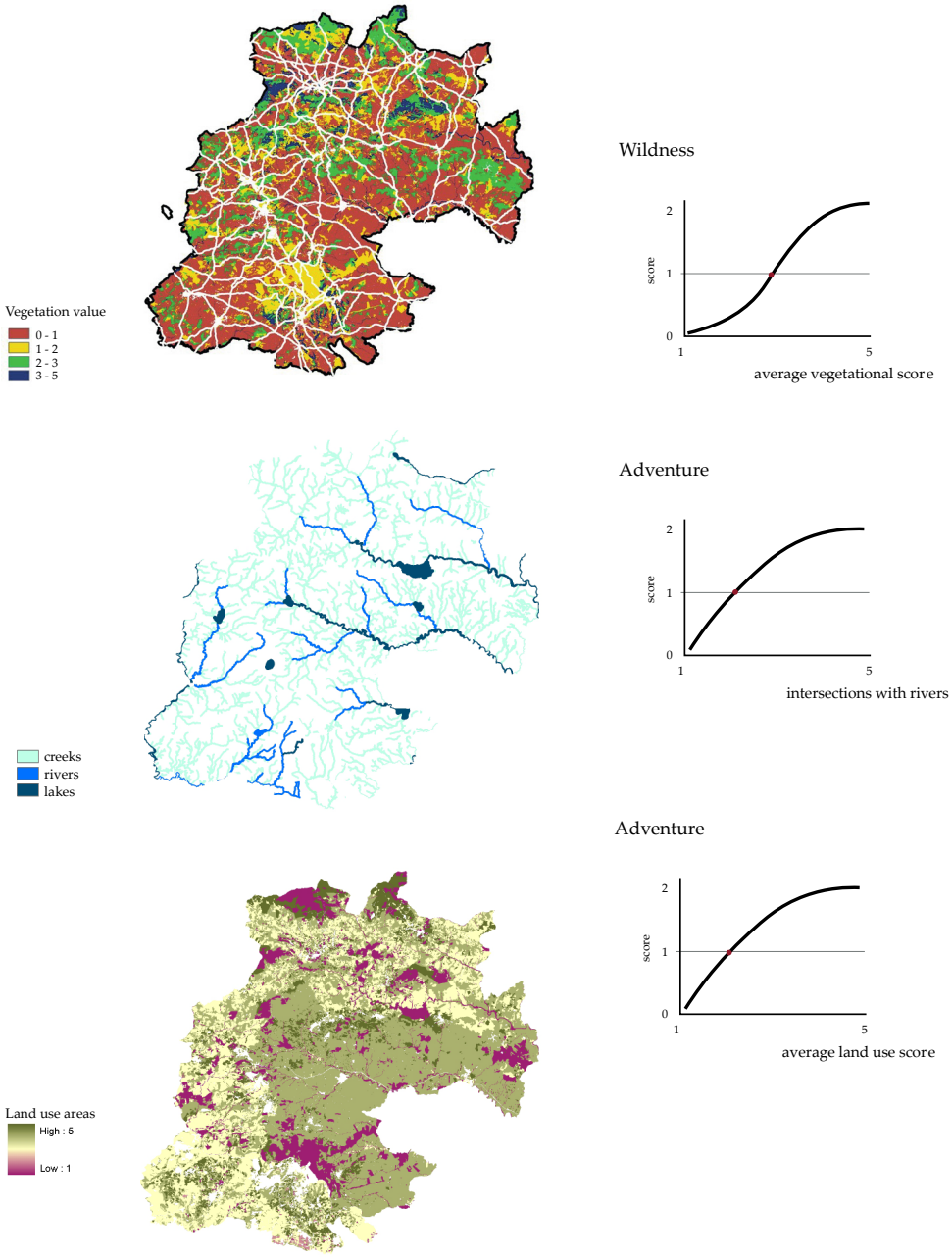


Figure 12. Utopian values. Mapping and value functions.

Some specifications of the utopian values are related to the existential dimension of a challenging landscape experience, such as the following:

- Wildness, depending on the portion of the path in natural areas, measured by the related average score;
- Adventure, depending on the kind of land use (average score), intersections with rivers and so on (number of intersections).

As the fourth point, the "playful values" (Figure 13) referring to the "non-continuity" of the path—according to the loafer's axiological profile—are associated with the characteristics that the tool can model by means of the contents of the value functions. These characteristics are displayed in the corresponding maps.

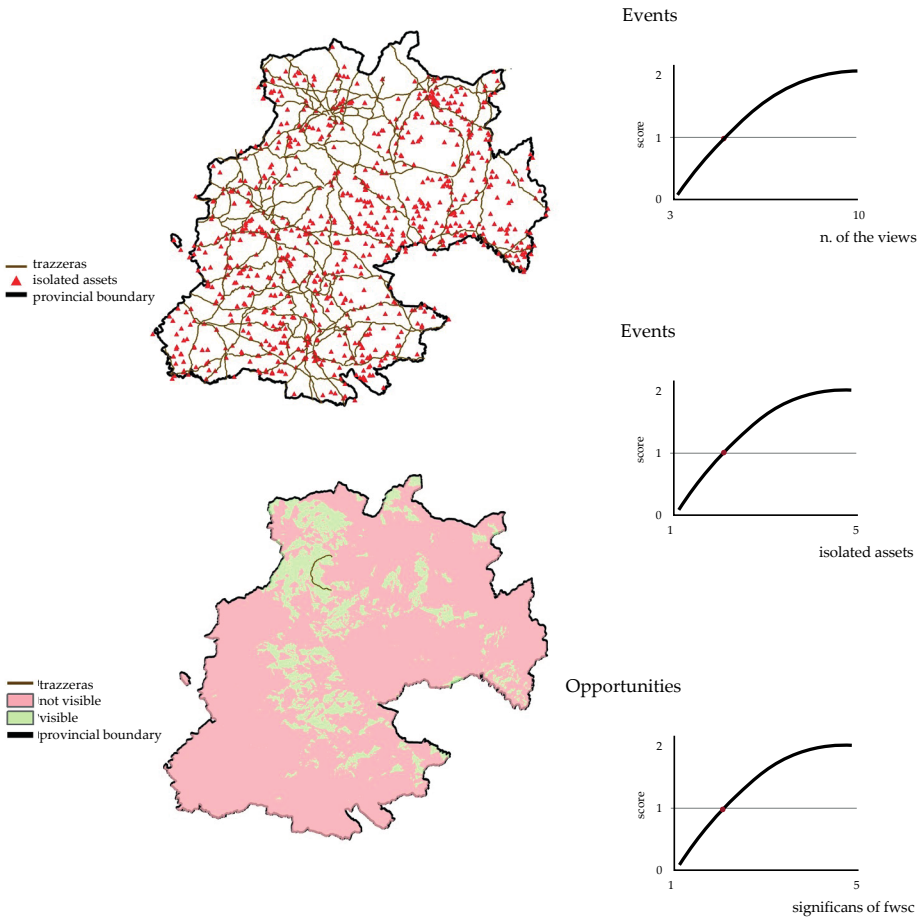


Figure 13. Playful values. Mapping and value functions.

Some specifications of the playful values are related to the efficacy of the landscape experience as for its gratuitousness, surprise and unpredictability, due to the following:

- Events of cultural and/or natural type: amazing views (number of views), proximity to isolated assets and architectural complexes and trails dedicated to events of anthropological value (number per 10 km);
- Opportunities of meeting people and communities: proximity to facilities related to the food and wine supply chain (measured by the significance of FWSC).

The ICT-GIS tool can be queried by a WebGIS interface allowing the user to apply his/her preference system according to the three spheres of instances: the object, performance and axiological ones.

Figure 14 displays the application of the user's profile and the two path options selected. The form allows the user to perform the following:

- Enter the goods/items which he/she is most interested in, and their maximum distance from the main path (objects section);
- Enter the maximum path length, degree of risk, accessibility and continuity of the path (performances section);
- Outline preferences in terms of the degree to which they identify with each of the four types of travelers, by entering their weightings (axiological section).

Figure 15 displays the different path options corresponding to two different preference profiles on a provincial scale.

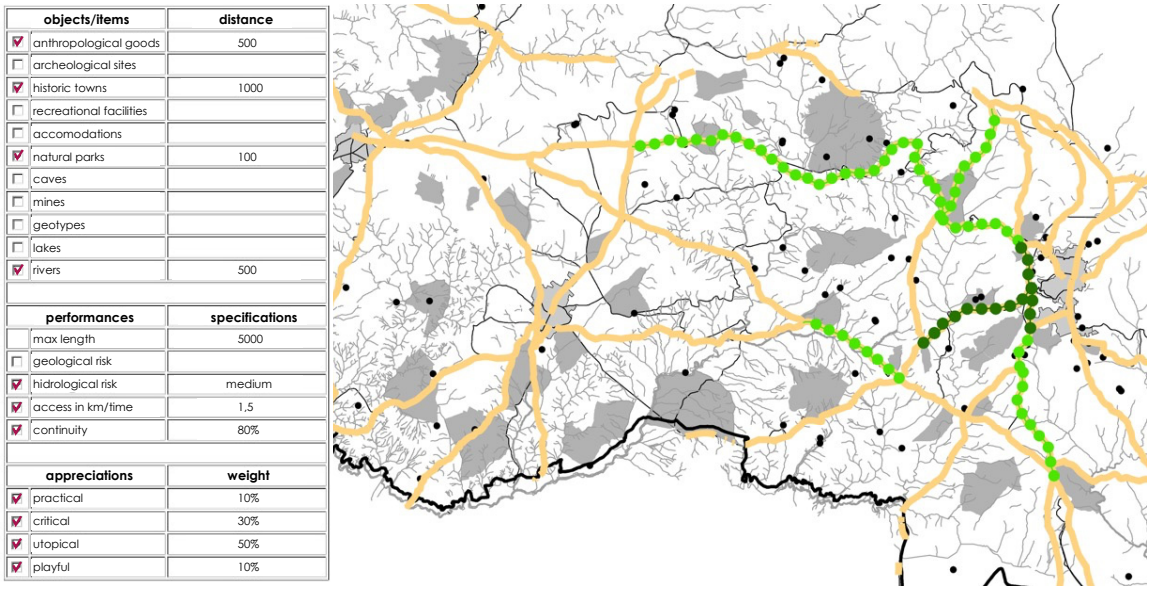


Figure 14. WebGIS interface. Selection of the two path options consistent with the user's profile entered.

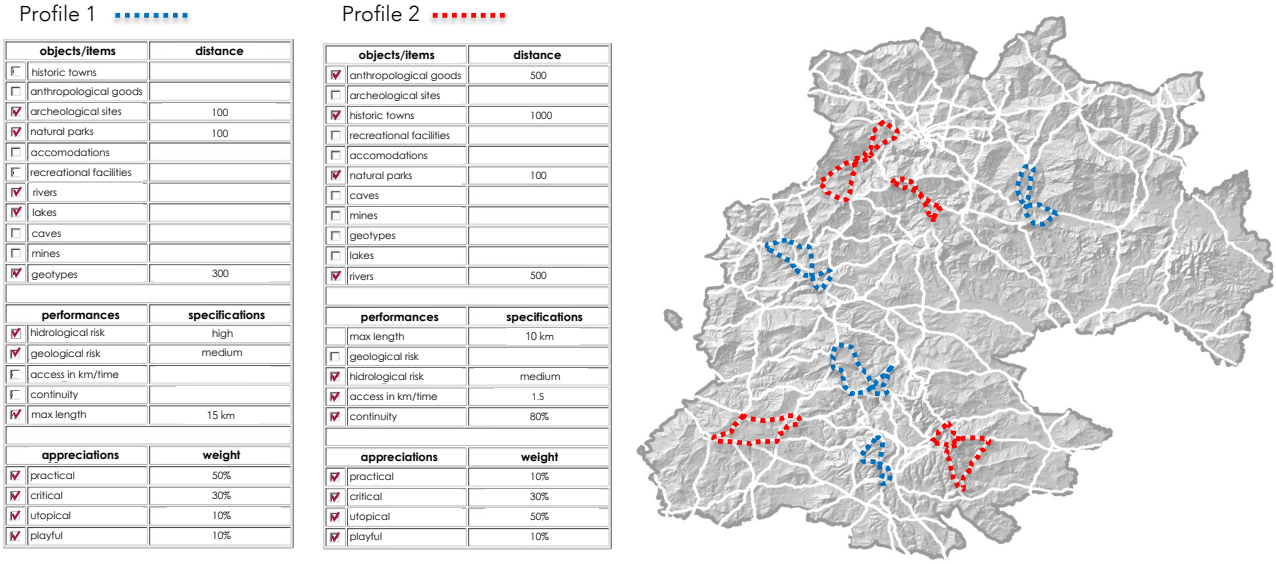


Figure 15. Comparison of the paths corresponding to the two different traveler's profiles.

5. Discussions: Estimates and Assessments

The results of the monetary evaluation of the transfer price of public land parcels to private land parcels have measured the gap between the actual market value and the sale price calculated through the scheme used by the TRP administration. This difference is remarkable in urban and peri-urban areas built-up over time. The market, in this valuative context, is the most appropriate social communication device to ensure the most equitable fee extraction and thus to represent using the quantitative–monetary measurement the social relevance of this asset. Further approaches such as the social opportunity cost could be applied by simulating the public goods markets. In these cases, one of the main obstacles is to identify the possible uses that the community has given up by transferring public assets, usually fragmented, and appropriated at different times, in the absence of a unified plan about the collective use of these resources.

In this monetary valuation context, the dialectic public–private differentiation has also been taken into account by means of the application of corrective factors to the dis-

tributive variables such as the profit rate for the application of the residual value, and the capitalization rate for the calculation of the real estate value after the development process.

This issue is strongly influenced by the imbalances in the allocation of urban wealth that are gradually accumulating with varying degrees of intensity between the public and private sectors, and that the distributional variables proposed here allow to be considered in more accurate estimates. The calculation of the sale price, which the public administration has standardized believing that greater simplicity can be matched by greater transparency, has created imbalances in the relationship between private and public wealth.

Different, however, is the approach to the issue of territorial rebalancing.

In fact, the process of redistribution between public and private urban real estate wealth involves the agency of the public administration, which, based on knowledge of the real estate value of urban areas, has the responsibility to provide the "political-administrative context" appropriate for rebalancing through monetary and fiscal measures capable of internalizing urban externalities.

The process of redistribution of territorial wealth, on the other hand, involves the agency of the collective subject; this, based on a more extensive and structured knowledge of the territory, and the sharing of ecological–environmental instances, manifests a system of preferences more appropriate to a renewed "demand for context," which in the specific case of the redevelopment of the TRP is identified in the demand for landscape.

In summary, urban rebalancing is entrusted to the public administration's supply of context that drives the expectations of the private sector; territorial rebalancing is entrusted to the community's demand for landscape on the condition that the swarming of individual axiologies can be interpreted from the perspective of a consciousness of landscape as a synthesis of cultural institutions and natural laws.

6. Conclusions

The Trazzera Royal Property constituted an economic–territorial infrastructure of great importance for Mediterranean agricultural civilizations to the extent of etching a physical imprint that is still fully recognizable today. Transhumance routes have been arousing growing interest for several decades due to local governments being engaged in the recovery of cultural and anthropological identities at risk of extinction and still capable of generating new sensitivities, economies and awareness.

This relevant heritage is a constituent part of the social and landscape capital of Sicily because of its extension, historical–anthropological value, rootedness in the body of law of many eras and due to its cultural and economic potentials in the more general sphere of economies related to slow mobility.

The management of this infrastructure faces two opposing problems. The first emerges in peri-urban areas with a high density of real estate value, where the legitimization of illegal occupations carried out through very low sale prices has created forms of inequality between private interest and public value of these ancient civic uses. The second, related to the recovery of transhumance practices from a contemporary perspective and even apart from pastoralism, is one of the many manifestations of value not supported by the adequate funding needed for their recovery.

Nowadays, Trazzera Royal Property needs to be identified as being part of the eco-socio-systemic communication network, by means of which new codes, values and programs spread throughout the physical territory generating adaptive landscape consciousness and stimulating new individual and collective agency able to reduce the gap between social system and natural, artificial and human environment. The undeniable evidence of the different forms of territorial socio-economic disadvantage affecting the inland depopulating areas, and on the other hand, the progressive increase in the different types of risk coming from natural and anthropic driving forces, point to territory as being the main immaterial public and common good whose value has an unreducible landscape connotation.

The landscape value is a bundle of messages passing through territory by means of the tactile experience of slow mobility routes that Sicilian TRP can support due to its extension and widespread capillary.

The regional TRP office supports local governments in the joint municipal planning process aimed at revitalizing the intangible value of this land heritage by stimulating new and more contemporary uses with a view to a fair coexistence of tradition and modernity, basing long-term prospects on the solid footprint of the original land economies.

According to the different criticalities affecting this heritage, whose social–civic value has been reduced in extension and continuity due to the illegal appropriations and modern transport development, this study proposes an integrated monetary and qualitative valuation tool aimed at the two above-mentioned objectives.

First, a quantitative monetary real estate valuation procedure was outlined to support the local government during the process of legitimizing illegally occupied land parcels by suggesting the correct procedure for the fair sale price of public property transfer.

Second, an ICT-GIS-based generative analysis–assessment tool was implemented for socio-landscape value assessment from the perspective of a four-dimensional traveler's preference profile in the context of slow mobility. Through a WebGIS interface, this tool allows potential users to select the route that maximizes their preference system, according to practical and symbolic instances.

The perspective of the recursive use of the WebGIS interface for feedback on travelers' landscape experience helps to progressively make the evaluation model fit in the context and identify the most valued routes, as well as the most valuable land areas.

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Data Availability Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1. Table of the body of register: ascertained occupation (excerpt).

Location							Acertained Occupation			
Plan Number	District	Land Use	Boundaries	Area in mq	Generalities	Date	Employment Is			Area for any Legal or Illegal Status of Occupation, any Legitimation Documents
							Legitimate (mq)	Fixed (mq)	Malpractice (mq)	
48	4183	use public land to alienate	Area to be alienated No. 45; municipal road occupied by Todaro Salvatore	262						
51	4201	road	Area to be alienated No. 48; area to be alienated No. 52.	70	municipality of Montallano (Podesta) road demesne	remote occupancy			70	
52	4184	use public land to alienate	Area to be alienated no. 55: land occupied by Muni Angela	460						
53	4184	agricultural cultivation (arable land)	Area to be alienated no. 52: municipal road occupied by Muni Angela and Muni Nicola	205	Muni Angelo fu Antonino M. Basile Salvatore fu Carmelo; Montalbano El.				205	
55	4185	use public land to alienate	Area to be alienated no. 52: municipal road occupied by Muni Nicola; Area to be alienated no. 58	230						
56		agricultural cultivation (arable land)	Area to be alienated no. 56: land occupied by Muni Angela and Furnari Angelo	96	Muni Nicola fu Antonino; Montalbano Elicona				96	

Table A1. *Cont.*

Location							Acertained Occupation			
Plan Number	**District**	**Land Use**	**Boundaries**	**Area in mq**	**Generalities**	**Date**	**Employment Is**			**Area for any Legal or Illegal Status of Occupation, any Legitimation Documents**
							Legitimate (mq)	**Fixed (mq)**	**Malpractice (mq)**	
57	4186	agricultural cultivation (arable land)	Area to be alienated no. 58: land occupied by Muni Nicola	104	Muni Corrado fu Corrado Montalbano Eli	remote occupancy			104	
58	4186	use public land to alienate	Area to be alienated no. 55: municipal road occupied by Furnari Angelo; Area to be alienated no. 59	170						
59	4187	use public land to alienate	Area to be alienated no. 58: municipal road occupied by Muni Nicola; Area to be alienated no.62	160						
60	4187	agricultural cultivation (arable land)	Area to be alienated no. 59: land occupied by Muni Nicola and Faranda Tindaro	79	Muni Nicola fu Salvatore Montalbano Eli				79	
61	4188	agricultural cultivation (arable land)	Area to be alienated no. 62: land occupied by Muni Nicola	82	Faranda Tindaro fu Fortunato intended Scuzzetta Montalbano Eli				82	
62	4188	use public land to alienate	Area to be alienated no. 59 and 63: municipal road occupied by Faranda Tindaro	250						

Table A1. *Cont.*

Location							Acertained Occupation			
Plan Number	**District**	**Land Use**	**Boundaries**	**Area in mq**	**Generalities**	**Date**	**Employment Is**			**Area for any Legal or Illegal Status of Occupation, any Legitimation Documents**
							Legitimate (mq)	**Fixed (mq)**	**Malpractice (mq)**	
63	4189	use public land to alienate	Area to be alienated no.62 and 65: municipal road occupied by Marguccio Gaetano	200						
64	4189	agricultural cultivation (arable land)	Area to be alienated no. 63: land occupied by Faranda Tindaro and Pagano Giuseppe	47	Marguccio Gaetano fu Salvatore Montalbano El.	remote occupancy			47	
65	4190	use public land to alienate	Area to be alienated no. 63 and 68: land occupied by Pagano Giuseppe	380						
66	4190	agricultural cultivation (arable land)	Area to be alienated no.65: land occupied by Manguccio Gaetano, Pagano Giuseppe and Codaro Vincenzo	45	Pagano Giuseppe fu Salvatore Montalbano Eli.	remote occupancy			45	
67	4191	agricultural cultivation (arable land)	Area to be alienated no.68: land occupied by Pagano Giuseppe a Todaro Vincenzo	99	Todaro Vincenzo fu Filippo Montalbano Eli.	occupazione remota			99	
68	4191	use public land to alienate	Area to be alienated no.65: municipal road occupied by Todaro Vincenzo	1010						

Table A1. *Cont.*

Location							Acertained Occupation			
Plan Number	**District**	**Land Use**	**Boundaries**	**Area in mq**	**Generalities**	**Date**	**Employment Is**			**Area for any Legal or Illegal Status of Occupation, any Legitimation Documents**
							Legitimate (mq)	**Fixed (mq)**	**Malpractice (mq)**	
69		use public land to alienate	Portella Piano Campi	33671						
70	4201	road to Braidi	Area to be alienated no.68: municipal road occupied by Todaro Vincenzo; Area to be alienated no.71: municipal road occupied by Muni Nicola	60	municipality of Montallano (Podesta) Road State Property.	remote occupancy			60	
71	4192	use public land to alienate	Area to be alienated no.74: municipal road occupied by Muni Nicola	280						

Table A2. Table of the body of register: final status proposed (excerpt).

Final Status Proposed					
Neighbouring Owners	**Destination Selling or Legitimating**	**Person to Which Allocate the Area**	**Reason for the Allocation**	**Payable Amount**	
				Unit Price	**Rounded-Off Amount**
Todaro Salvatore fu Antonino: Montalbano	selling	current possessor		970	131 − 26 = 105
...	legitimating	current possessor	free legitimate	970	35 − 8 = 28
Muni Angelo fu Antonino in Basile:Montalbano Elicona	selling	...	which neighbouring owners	970	230
...	legitimating	current possessor	admitted to the legitimacy		102 − 70 = 82
Muni Giuseppe fu Antonino: Montalbano Elicona	selling	current possessor	which neighbouring owners	970	110 − 23 = 92
...	legitimating	current possessor	admitted to the legitimacy	970	48 − 9 = 38
...	legitimating	current possessor	admitted to the legitimacy	5000 − 1000 = 4000	52 − 10 = 42
Furnari Angelo fu Nicola: Montalbano Elicona	selling	current frontrunner	which neighbouring owners	5000 − 1000 = 4000	85 − 17 = 68
Muni Nicola fu Salvatore: Montalbano Elicona	selling	current frontrunner	which neighbouring owners	5000 − 1000 = 4000	80 − 16 = 64
...	selling	current possessor	admitted to the legitimacy	5000 − 1000 = 4000	40 − 8 = 32
...	selling	current possessor	admitted to the legitimacy	5000 − 1000 = 4000	41 − 8 = 33
Faranda Tindaro fu Fortunato: Moltalbano Elicona	selling	current frontrunner	which neighbouring owners	5000 − 1000 = 4000	125 − 25 = 110
Marguccio Gaetano fu Salvatore: Moltalbano Elicona	selling	current frontrunner	which neighbouring owners	5000 − 1000 = 4000	100 − 20 = 80
...	legitimating	current possessor	admitted to the legitimacy	5000 − 1000 = 4000	29 − 10 = 19
Pagano Giuseppe fu Salvatore: Moltalbano Elicona	selling	current frontrunner	which neighbouring owners	5000 − 1000 = 4000	190 − 38 = 152
...	legitimating	current possessor	admitted to the legitimacy	5000 − 1000 = 4000	22 − 4 = 18

Table A2. *Cont.*

Final Status Proposed					
Neighbouring Owners	**Destination Selling or Legitimating**	**Person to Which Allocate the Area**	**Reason for the Allocation**	**Payable Amount**	
				Unit Price	**Rounded-Off Amount**
...	legitimating	current possessor	admitted to the legitimacy	5000 − 1000 = 4000	49 − 9 = 40
Pagano Giuseppe fu Salvatore: Moltalbano Elicona	selling	current frontrunner	which neighbouring owners	5000 − 1000 = 4000	505 − 107 = 404
...	to be hold	Municipalities of Montalbano Elicona and S. Pietro Patti	which ordinary road	4500	15152
Pagano Giuseppe fu Salvatore: Moltalbano Elicona	legitimating	current possessor	free legitimate	5000 − 1000 = 4000	30 − 6 = 24
Muni Nicola fu Antonino: Moltalbano Elicona	selling	current frontrunner	which neighbouring owners	5000 − 1000 = 4000	140 − 28 = 112

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