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# The territorial framework of the river courses: a new methodology in evolving perspectives

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## ABSTRACT

This paper focuses on the importance of watercourses, on the presence of historical, naturalistic and environmental factors and on the necessary requirements to be strongly considered in planning tools that involve spatial development processes. The theoretical approach to this topic is then experimented on the case of the Tiber River in a particularly critical area of its course, which falls within the province of Rome. In order to overcome the complex difficulties that the river encounters along its path, the creation of a River Contract is conceived, as an innovative tool for the development of the river territory as a public space. The main issue of this article is to expose a methodology developed for the definition of landscape quality aims: it is mainly aimed at strengthening the idea that the River Contract could be an implementation stage of the Landscape Plan. The River Contract can play an important role in development strategies in Inner Areas and at the same time be an effective tool for recovering identity values. Effort was concentrated on the production of a territorial survey matrix that could be exploited by Local Authorities with the spirit of including the needs of the inhabitants.

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## 1. Introduction

River courses have always been a focus of the planner's attention, nowadays more than ever, with the growing popularity of River Contracts. The River Contract, which is the core of this paper, is a tool capable of including the multiplicity of territorial values and the multiplicity of interests of the inhabitants who interact with the river on a daily basis. Therefore, this tool could be the way to combine the interventions for environmental protection – strictly related to the resolution of flood safety problems – with the needs of local urban regeneration.

The River Contract, therefore, can be defined as an agreement oriented to the

integrated water resources management, that includes the planning and management of water resources, both conventional and non-conventional, and land. This takes account of social, economic and environmental factors and integrates surface water, groundwater and the ecosystems through which they flow. It recognizes the importance of water quality issues. (World Water Council, 2000)

This paper focuses on the Tiber River, one of the largest waterways in Italy, which has its source in the Region of Umbria and crosses the Region of Lazio to flow into the Tyrrhenian Sea. At present, the Tiber is thus covered by River Contracts over the majority of its entire course, except in a portion within the province of Rome. The proposal in question, therefore, is to create the ‘Middle-Low Tiber River Contract’ as a missing piece of the puzzle to implement the redevelopment of this natural infrastructure, through the creation of public spaces, aimed at the protection and enhancement of the Tiber landscape.

The research approach is the ‘theory of practice’ and follows the ‘practice-theory-practice model’. Thanks to the analyses of several case studies, it allows one to identify and categorize common issues in order to elaborate a theory of rating system. The research application starts, therefore, from these assumptions, but the innovative aspect is the inclusion of possible interventions on the current urban planning tool. In order to show the move from the theory to the innovative proposal, a synthesis/interpretation model for the participatory planning processes in the specific case of RCs was created.

The research is being developed due to the main author’s participation as a member of the Steering Committee of the National Table of River Contracts – committee established with the aim of identifying national addresses and implement the RC policies and strategies. This study will also be used in the drafting of preparatory documents for the 2020 National Meeting.

This paper is divided into four sections: the introduction (Section 1) describes the main issues of the paper, including the literature review. Section 2 defines the methodology, which also includes an explanation of choice of the proposed participatory process. Section 3 explains the results and section 4 contains the conclusion, geared towards stimulating future research.

### **1.1. The River Contract: overview and new perspectives**

Italian River Contract procedure was born out of previous experiences in other countries such as France or Belgium (Bastiani, 2011; Berruti & Moccia, 2016). The most interesting aspect is undoubtedly the decision-making process that involves the territory and the landscape of natural and anthropic settlements. It is therefore essential to recall the legislative references on this topic. Some European directives, as commonly known, have dealt with environmental matters. The Directive 2000/60/EC, for the redevelopment of surface and ground waters, establishes a framework for Community action in water management, identifying the ‘river basin’ as the correct territorial reference. Article 14 states that ‘the success of this Directive relies on close cooperation and coherent action at Community, Member State and local level as well as on information, consultation and involvement of the public, including users’ (European Parliament and Council, 2000). Subsequently, the Habitats Directive 92/43/EEC (European Commission, 1992) of the European ecological network and the Directive 2007/60/EC on flood risk (European Parliament and Council, 2007) were issued.

In relation to the environment, in Italy, specific norms have been issued, deriving from the European directives, such as the legislative decree 152/2006 (Repubblica Italiana, 2006) on environmental issues. It contains ‘environmental regulations,’ which implements Directive 2000/60/EC and reiterates the objectives of pollution prevention and reduction.

To this end, it provides a national division into river basin districts and provides the management plan for each district.

But the most interesting aspect, from the authors' point of view, is that which specifically concerns the 'landscape'. In 2004, in Italy the Code of Cultural and Landscape Heritage was issued (Repubblica Italiana, 2004): it is considered particularly relevant for this dissertation, above all because nowadays regions are required to provide measures aimed at landscape conservation.

In this context, the River Contract can be experimented, in the implementation phase of landscape planning, in a different way in the differing contexts of each river basin to achieve the 'landscape quality aims' set by the mentioned National Code, highlighting the peculiarities of the places, in relation with the real needs of the territories and of the inhabitants. In particular, the River Contracts, as negotiated planning processes, favour the definition of objectives through the sharing of intentions. In fact, the law 662/1996 on 'Measures for the rationalization of public finances' – Article 2, subparagraph 203 – incorporates the planning issues negotiated between agreements able to regulate 'interventions involving more public and private bodies and commit institutional decisions and financial resources from the National Government, Provinces and Local Authorities' (Repubblica Italiana, 1996). The contract, therefore, is an act of commitment, shared by various public and private bodies, for various reasons interested in water courses, for the sharing of agreements for environmental rehabilitation and socio-economic regeneration of the river system.

Finally, in 2010, the National River Contract Charter (Agenda 21 Contratti di Fiume, 2010) was signed, which resulted in a progressive number of agreements by an increasing number of regions. It defines the relationship between environments and waterways to be 'living landscapes' (Jønych-Clausen & Fugl, 2001; World Water Council, 2015) by their 'principles of democratic participation in EU decisions, which form the backbone of the recent Lisbon Treaty'. However, it also highlights how the local participatory processes fully understand the 'regional and local dimension,' which the European Union intends to deepen through its consultations and legislative proposals (European Union, 2012).

The River Contract process is already widespread particularly in France and in Belgium, where it combines with structured forms of maintenance and recovery of naturalness (Le Contrat restauration entretien de rivières et zones humides). This experience, already applied for three decades especially in these European countries, is still struggling to establish itself in Italy, despite the advanced experiences made in recent years in regions such as Lombardy and Piedmont.

The already mentioned National River Contract Charter was produced in Italy by the National Table, which – created in 2007 – is a collective body with the aim to produce a sort of itinerant 'agora' that gives everyone the same opportunity to access it, to express and contribute. In 2015 the National Table of River Contracts, with the coordination of the Ministry of the Environment and the ISPRA (Italian Institute for Environmental Protection and Research), drew up the document 'Definitions and basic qualitative requirements of river contracts' (Agenda 21 Contratti di fiume, 2015). The Table naturally deals with the Italian situation, in connection with the EIP (European Innovation Partnership) Water Action Group 'Smart Rivers Network'. The National Observatory of the River Contracts at the Ministry of the Environment was created later (2017) and recently (2019)

the Steering Committee was established with one representative for each Region, of which the main author is a member.

At present, the Committee is preparing a preparation document for the next National Meeting about the next challenges for Italian River Contracts. In the first instance, it is a matter of launching a RC National Strategy (also on an experimental basis) to give local communities the ability to take advantage of the National and Structural Funds.

In addition, an equally important objective is to support the local dimension and the participation from the bottom of the RC processes. Overall, negotiated planning allows one to

identify a territorial redevelopment able to pursue the so-called balance of the three E (Ecology, Equity, Economy): local communities define the shared measures for the redevelopment of their land [...] without threatening natural, built and social systems on which environmental, social and economic facilities depend. (European Union, 2012)

All this is done in accordance with the inspiring regulatory framework, represented mainly by the Framework Directive 2000/60/EC, by the Habitats Directive 92/43/EEC, by the Directive 2007/60/EC and nationally from the Code of Cultural Heritage and Landscape (Repubblica Italiana, 2004).

And it is precisely the relationship with this last regulatory reference that is the object of interest of the research that the authors of this work are leading to the National Table. We are bearers of the proposal that the RC could become an implementation plan deriving from the Regional Landscape Plan: the River Contract could become the driving element of a new lease of life for these places, as a territorial management tool that starts from the bottom, and therefore from the needs and desires of citizens who live on the territory (Cialdea & Quercio, 2017; Corrado, 2014). This work aimed at making a contribution to the next National Meeting (which will take place in 2020) of the National Table bringing the application case of the in-depth study on an emblematic case of a shortage of RC in a stretch of one of the major rivers of Italy, the Tiber River.

## 2. Methods and materials

The research interest is based on the analysis of real experiences related to the participatory planning processes of River Contracts (hereafter called RCs), in the context of the regeneration of the areas along the river. In these areas, the main aim is that citizens reclaim contact with the ‘genius loci’, to become resilient and able to cope with ever-changing waterscape.

### 2.1. Methodological framework: preliminary considerations

A first consideration should be made on participatory processes within RCs and on urban regeneration interventions.

As known, these are processes of political participation for which the ‘representative phase’ is skipped and inter-sectoriality, inter-institutionalization and monetary resources are called into play. The first forms of political participation in urban planning, in the 60s and 70s, were processes that started from the bottom, from direct social pressure coming from the different categories of people who asked to be involved. These people formed

movements, such as the workers and students, and as they were not technically organized, they were not always able to find a satisfactory solution. On the contrary, starting from the 1990s forms of participation used are 'proximity practices' (proposed and institutionalized) requested by the institutions not for an effective and present social pressure, but to facilitate the subsequent validation of actions sometimes already defined. Both forms described above have advantages and disadvantages. The spontaneous forms on the one hand guarantee sincere and interested participation of the citizens, on the other, they risk leading to continuous pretexts without concrete and lasting project solutions. The organized forms, if on the one hand facilitate implementation and guarantee the project functional objectives, on the other they risk being configured as procedural drifts, since they become habits, leading political institutions to lose credibility.

The processes of participation in the RCs are shown as forms halfway between the two described above: they highlight an essential problem, which is at what moment the various stakeholders must be involved. In fact, they are all those who have direct involvement or who want to take part in the analyses and projects for the areas affected by river problems. This issue underlines how necessary it is to start the participatory processes from the moment of territorial analysis, to transform them into vital producers of ideas. This means that the participatory process, involving the citizens, must always be activated in the analysis phase, after the professional analyses or in the same moment, but never only in the final project phase. The main issue is the interaction between different promoters with different backgrounds and different skills in analysing the territory, so a satisfactory and effective project is only possible if the interaction is well managed (Cerreto & Fusco Girard, 2016; Farsagli, 2017). Thus, to understand how this interaction can be achieved, it is necessary to refer to the sociological, economic and managerial language field that explains the interaction modalities among stakeholders classifying them in three models: top-down, bottom-up and middle-up-down (Carmagnola, 1997; Nonaka & Takeuchi, 1997; Profili, 2004). In the current planning processes, the most commonly used are the top-down model and the bottom-up model.

The top-down model has a trend of exclusively 'descendant' decisions. It is the case of regional and provincial level planning, in which there is an authority which decides and the subordinate bodies, at best, can implement the general provisions according to the pre-established modalities.

In the bottom-up model, the organization is informal and reduces interactions, as each stakeholder is autonomous and exchanges limited information within their own sphere of interest with other stakeholders. This is the case of the appropriation of 'urban waste areas' for their requalification by citizens. These 'appropriations' were later reconverted into top-down processes, but only to avoid the definition of 'misappropriation of public land'. These models cannot be applied everywhere, because they are based on the knowledge and autonomy of individuals who all have their own distinct vision of what they imagine the outcome to be. For this purpose, some interventions are significant, as the examples of 'sharing green spaces' or the 'public flowerbeds' (spread mainly in northern Europe where there is a stronger sense of community), or even the 'bookshop on the street', born in the US. It is the case of Place au changement in Saint Etienne (made by the Collectif ETC in 2011) and also of the mural paintings of Tormarancia in Rome in 2015, for which a street artist named SETH gave a new face to the urban area, requalifying it (Clemente, 2017).

The middle-up-down model tries to mediate between the two previous approaches: the organization and the management must take place within cycles of continuous interaction, but it is always necessary to have a guarantor and the catalyst for the people involved. In the case of planning procedures, a figure, which guarantees and catalyses all the information coming from the various stakeholders, is an obligatory requisite (Albrechts, 2003). The aim of this model is not only to produce territorial data and social knowledge, but also to indirectly build a shared heritage of practices and know-how, thanks to the continuous interaction of participatory processes (Amdam, 2003).

The RC process as a middle-up-down model is a political experience of co-production of urban and social practices for the transformation of the territory (Albrechts et al., 2019; Ostanel, 2017). The River Contract could be identified perfectly by this model, in which the intervention of intermediary ‘Middle’ figures is essential to dialogue both with ‘Top’ figures (authorities) and with ‘Down’ figures (citizens), in order to make the river become a network of public spaces. Moreover, the organization and the modalities of dialogue between the various stakeholders are fundamental, in order to make the requests and the proposals of each one possible. The University’s role becomes more and more crucial due to its scientific competences. Territorial analyses become more efficient for urban actions, thanks to the integration of communication channels with the citizens and authorities who intend to actively contribute to shaping the future of the city, even to a greater extent than the neighbourhood laboratories or the ‘Urban Centres’ (as they are defined in [www.urban-center.org](http://www.urban-center.org)).

Secondly, one should also consider the representative phase of the territorial analyses and the resulting contents of the dialogue with the citizens.

Regarding this, there is an interesting possibility of expanding the use of GIS (Geographical Information System), to increase the usability/quality of information with the creation of PPGIS, *Public Participatory GIS*. See, as a pioneering example, the PPGIS service developed by the city of Manchester (University of Manchester, 2008). In fact, in the mid-1990s, the idea emerged to not limit the GIS to managerial aspects but to use new technologies to support spatial planning governance. With the construction of these platforms (aimed at promoting the meeting, the management of forums and the expression of the community) it is possible to involve all the stakeholders in the participatory process for the definition of the actions to be shared, immediately having the picture of the needs and intervention priority:

Lead to simplifying the methods of comparison starting from the reality of the places and, according to *map algebra* criteria, enhancing the different points of view, directing them towards a common denominator of reading the impacts and opportunities of the territory in order to create a cooperative plan strategy on which to converge multiple administrations. (Seravalli, 2019)

In this case, the Public Institution acts as guarantor and facilitator of information sharing, with simple mechanisms that favour the exchange of information and opinions: for this reason, it is necessary to create refined mechanisms that are easy-to-manage topographical *databases*, which are open to recording reports and positive and negative impacts usable by all participants.

The basic idea is that, as the regions are currently called to draw up new landscape plans in accordance with the urban code, they all have, although only a few have completed the

bureaucratic process, up-to-date knowledge of their territory, often drawn up by the universities on behalf of the regions themselves (as is the case of the assignment received by the main author for a southern Italian region). The wealth of territorial information, therefore, can be put at the service of the creation of river contracts and the University can also implement the management of the content of the questionnaires (not only directing the creation by linking the territorial data with the perceptive ones).

The intent of this dissertation is precisely this: try to emphasize that participatory processes should start from the beginning of the analysis, something that is not yet widespread in Italy. In fact, in the case of river contracts, the authorities establish participatory processes that are actually ‘consultative,’ since questionnaires are filled out to legitimize or ask for opinions on decisions already taken and not to identify the places or elements on which to make decisions. The reason is to be found both in the fact that there is often no training of the authorities on the subject and a lack of models to follow to carry out participatory processes in the true sense of the word.

## **2.2. The methodological framework: the proposed approach**

The methodology is explained in this paragraph and described in [Figure 1](#). It compares the different approaches for the development of river contracts.

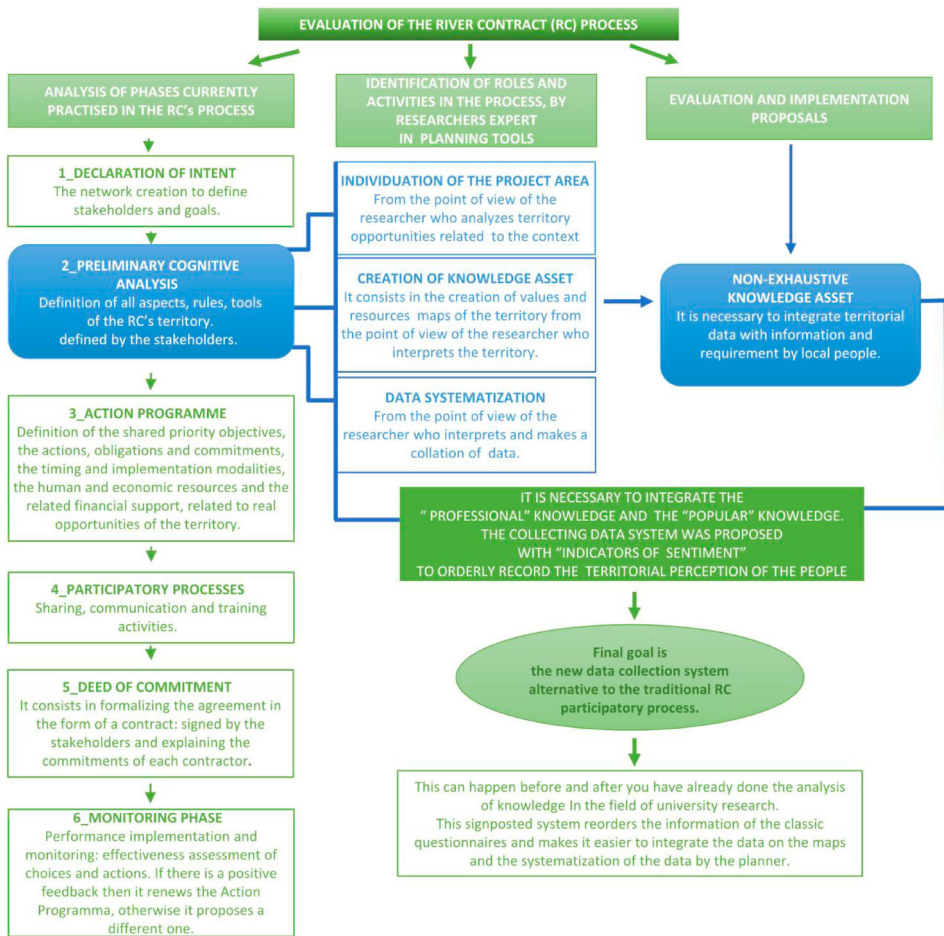
The left column describes the current approach.

This work produced the proposal for a modification/integration to the existing river contracts procedure, in the phase called ‘Preliminary Cognitive Analysis,’ integrating the part of the territorial analyzes with the citizen participation process. The existing procedure is defined in Italy by the National River Contracts Table with the document ‘Definitions and basic qualitative requirements of river contracts’ in which the purpose and consistency requirements are firstly defined with applicable environmental laws and plans and landscape and secondly the setting requirements that define the structure and process of the RCs (Agenda 21 Contratti di fiume, 2015).

This procedure begins from the first phase, drafting of the declaration of intent, during which the stakeholders are identified and the main aims for the river valorization are defined. Then, territorial data, resources and interests of all stakeholders are collected and everything is systematized by the planner through thematic maps, useful for the ‘preliminary cognitive analysis’. In this phase the citizens interests are collected only by questionnaires (which are various and different for the already implemented RCs). The following step foresees strategies to define the interventions to be realized on the territory. In addition, the deed of commitments and the financial resources to implement the RC are defined. Furthermore, the ‘participatory process’ and the ‘act of formal commitment’ are implemented, with which the RC is publicized through the citizens or some particular stakeholders and everyone can share his own interests on the RC and assumes his role in its application. Finally, the monitoring phase is carried out, to verify the effectiveness of the actions and the state of the river health.

During the work, analysing what has been done for the creation of the RCs in Italy, it has been observed that the citizens interests are collected after or during the preliminary cognitive analysis only by questionnaires, without a particular compliance among them that are different for each contract of river, although they have in common the involved topics. This has led to propose an evaluation method for the citizens interests which





**Figure 1.** Research methodological framework (Source: Authors' own work, 2018).

can be integrated with the territorial analyzes carried out by professionals (planners or researchers) in order to be able to best define the territorial assumptions at the local project scale (i.e. for every single place).

This hypothesis in Italian governing RC processes is not made explicit. In fact, the planner (University) often finds itself dealing with territorial issues and with simulations or hypothetical applications of planning tools (Albrechts, 2010; Albrechts & Balducci, 2013). This often leads to the identify potentialities for territorial development in terms of planning, even before those who are directly involved (Municipality), because they are trapped in more local urgent issues.

Moreover, this investigation deepens the possibility to integrate so much information from so many stakeholders in a systematized modality. Therefore, some implementations of the analysis phase were proposed. The integrative data collection strategy has been defined with respect to the simple collection of questionnaires, which are usually used in RC participatory processes. To facilitate the synthesis of the questionnaires information, a table system was proposed with indicators: each stakeholder can express his own

‘assessment of sentiment’ towards the area (which takes into account the citizens feelings towards and perception of the landscape) and the resulting requalification proposals.

For planner or researcher in RC processes, the in-depth analysis of the territory is the most important phase, because it represents the support for the participatory process, from which we can apply all the future transformation proposals (Rossi, 2016).

For this reason, in order to draft and implement the project on a local scale, respecting the target community (citizens), the territorial analysis was integrated with the ‘local knowledge’.

Therefore, the second and third columns of the [Figure 1](#) identify the phases which, following the considerations made in this work, require further implementation, that is the phase ‘Identification of roles and activities in the process, by researchers expert in planning tools’ in which emphasized the ‘Preliminary Cognitive Analysis’ and its description. This phase facilitates links with planning tools (with landscape plan for implementation) and with local plan (for final effects).

[Figure 1](#), in conclusion, shows current and proposed processes involving a variety of opportunities in order to qualify the ‘Knowledge Assessment’ phase. Subsequently, territorial analyses were refined to make the results more complete and more inclusive.

### 3. Results and discussion

To apply the middle-up-down model proposed in this paper, starting from the methodological framework and the identification of the study area, two main phases were carried out: the investigation of the ‘nature of the place’ and the interpretation of the ‘nature of the place’. The first one allowed us to build a representation of the *real features* of the place from the professional knowledge point of view, analysing the several territorial dataset at the European level (the land use of Corine Land Cover), at the National level (maps and laws edited by the Environment, Forestry and Cultural Heritage Departments, database related to restricted and protected areas drafted by the Natura 2000 and Parks Networks), the Regional and Supra-Municipal planning tools (Landscape Regional Plan, Regional River Basin Plan, Province Territorial Plan), and the local planning tools.

The second one led us to define the method of collation and evaluation of *hidden features* of the site. The analyses based on the local knowledge, through interviews already carried out for another project by a specialist team, were integrated with other questionnaire models used for River Contracts (Comune di Orvieto, 2014; Provincia di Novara, 2008).

Therefore, they are not configured as simple collections of opinions to understand what to do in general, but they are considered as qualitative expressions to direct action on the territory in terms of time, always respecting emergencies in environmental terms. Like architecture, in fact, planning must consider the client’s requests, the citizens and the city where they work, with a further complex variable, namely that of the demands of the territory itself – which must be analysed by the environmental professional sector. Specifically, the questionnaires’ issues and themes have been transformed into quantitative-qualitative indicators, with reference to the places, so as to allow a comparison between the state of affairs and the future results following the realization of the projects, to evaluate how the affection and perception of the places have changed and to evaluate the effectiveness of the actions (Bezzi et al., 2017; Fornara et al., 2010; Meneguzzo et al., 2004). The

two aspects so defined have allowed us to create a landscape setting of integrated investigation and interpretation phases, in order to define a local regeneration design solution too.

### 3.1. The case-study: between resources and valorization

The study area identified for the implementation of the River Contract is located in the metropolitan area of the Province of Rome and, as expressed in the introduction of the paper, it is interesting due to the multi-scalar dimension as determinant for the application of the middle-up-down approach.

As shown in the Figure 2 – Part a, the area is located in Italy, along the Tiber River which presents several RCs to manage and solve hydraulic problem, like for other cases in Italy. The first Tiber section is covered by the Alta Umbria RC (2008) and it is

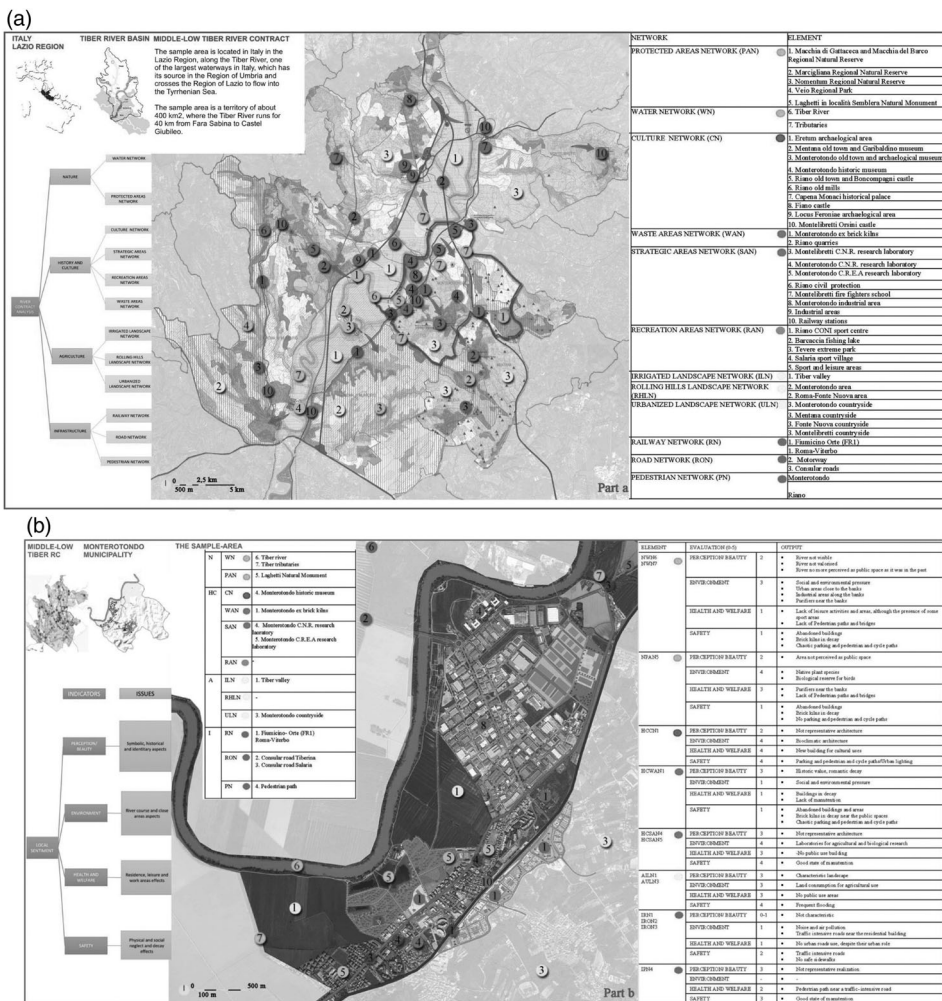


Figure 2. Part a: Map of territorial analyses – the real features (Source: Authors’ own work, 2019). Part b: Map of sample area – the hidden features (Source: Authors’ own work, 2019).

characterized by some attractive elements: the Corbara and the Alviano Lakes, naturalistic oasis. Several interventions and bike tracks were made in safety of the embankments. The second stretch is characterized by the increase of the flow. Here there is the Paglia RC (2013), with the Orvieto River Urban Park and the Nera RC (2010), which aims to the valorization of the natural and historical environment. The third section is covered by the Medium Valley Tiber RC (2012). There is the Fiasco and the Treja Valley Regional Park and the Nazzano Natural Regional Reserve too. The fourth stretch from Castel Giubileo to the Tiber mouth is covered by the proposal of the Tiber RC in the urban area of Rome (2017). In this area there is a strong interaction between urban and natural textures. Here there is also the Aniene River for which the RC (2018) was proposed.

The proposed project is based on relating the Middle-Low Tiber RC to these Tiber RCs stretches in order to create a common recreational, historical, cultural and natural network. In particular, there is a need to restore the river relationships that existed in the past with the former brick kilns and to bring the river back to its role as a public space and 'Water and Communication Route' (Provincia di Roma, 2010). The sample area is a territory of about 400 km<sup>2</sup>, where the Tiber River runs for 40 km from Fara Sabina to Castel Giubileo. The area includes 11 municipalities around Rome and the river is mostly perceived as a negative element, because of its floods at the expense of urban life, especially in the towns of Monterotondo and Fara Sabina. The territory consists partly of irrigated cultivated plains along the river shaft and partly by rolling hills cultivated with vineyards, olive groves and orchards. On some of these hills, there are inhabited towns of roman and medieval origins, which developed near the Tiber River because of the easy access and connection with Rome, thanks to the A1 Motorway, the FR1 Railway and the Via Salaria. This is the sample area in which analyses and proposals have been applied through the identification of the already mentioned real and hidden features.

### *3.1.1. The investigation of the landscape setting (real features)*

The predominant characters of this study area are the agricultural zones along the irrigated valley of the Tiber, which have an important role for the production, use and care of landscape, as well as the upholding of traditional social structures and as a multi-functional basis for other economic sectors (Cialdea, 2000, 2012, 2017; Cialdea & Maccarone, 2012; Ducci, 2017). Then there are the industrial areas that are located close to the river, its valley and the motorways and several protected areas. Other elements that are not actually valued are some Research Laboratories and leisure facilities which would instead bring the decisive impetus to safeguard the environment and the health of population, favouring its careful utilization, but also to create the possibility to recover old paths, that can be restored as greenways to slow mobility and historical buildings along them can be used by a sustainable tourism (Cialdea, 2018; Cialdea & Cacucci, 2017).

All these resources were organized in maps. Values, Interests and Resources have been articulated in the logic of the landscape urbanism networks (Gasparrini, 2015). Table 1 shows the macro-categories and the related subsystems through which the territorial elements have been organized. It is always more evident that the new urban question is stronger and stronger related to the environmental safeguard and the re-signification of environmental elements for the urban project. The new urban habitability aims to recycle the city through the water, the soil, the energy, blue and green networks. For the case-study, real features are shown in the following table:

**Table 1.** The real features networks.

The water network	It includes all the banks and embankments of the Tiber river and its tributaries
The protected areas network	It includes the various reserves of the area, as the Macchia di Gattaceca e Macchia del Barco, the Marcigliana, the Nomentum and the Nazzano Regional Natural Reserves, the Laghetti in località Semblera Natural Monument and the Veio Regional Park
The strategic areas network	Research laboratories and Industrial areas were identified. An internal connection to these centres is envisaged, almost to create a diffuse scientific park, as well as the Provincial Plan of Rome foresees for this area
The culture and recreation areas network	It identifies historical and architectural buildings, the museum network and the existing territorial sport centres
The waste areas network	The study area is characterized by disused and abandoned areas and former quarries, particularly the Monterotondo Scalo brick kilns and the Riano quarries. These constitute a strong degradation element, but at the same time a great opportunity for retraining, thanks to their historical testimony – within the urban or in the midst of protected environmental systems
The agricultural areas network	In this area, there are three predominant landscapes. The irrigated countryside landscape that is located in the Tiber Valley. The urbanized countryside landscape that is grafted in the municipal territory of Monterotondo, Mentana and Fontenuova and it presents a strong interaction between agrarian and urban matrix. Then there is the rolling hills landscape which encloses ploughed fields, olive groves, orchards in large or medium sized meshes
The infrastructure network	The railway line, the stations and the consular routes are identified. The railway assumes a very important character: being a public transport, it allows to relate quickly all the networks

### 3.1.2. *The interpretation of the landscape setting (hidden features)*

In order for these maps to be exhaustive to propose a project at a local level (municipality), they must be supplemented by stakeholder reports, especially those of the citizens, through a system of indicators, which have been elaborated with the criterion of quantifying the affection for the place of analysis, characterizing the perception that one has of it and trying to assign to each place a priority of action. The indicators are closely connected to the participation phase according to the stakeholders' perspective – even if oriented by the professionals of the territory as planners and designers – and not to the scientific evaluation of the environment, as always required by the plans and implemented regardless of the participatory phase through the quality system of environmental impact assessment.

They were defined starting from the synthesis of the most common questions in river contexts extrapolated from the questionnaires, especially in reference to the social investigation carried out by the Folias Social Cooperative (Funaro et al., 2014) and those extrapolated from the questionnaires used for the various river contracts of Italy. In particular, they have come out from the Paglia, Torrente Agogna, Natisone, Flag coast to coast RCs (Associazione Parco del Natisone, 2017; Società Flag coast to coast, 2019). The topics emerging from this review refer especially to the environmental quality, to the fruition, to the perception of territorial values, to the behaviour of the subjects interviewed towards the river, to the historical memories of the place, to the expectations, to the evaluation of the public commitment in solving environmental issues. These issues have been transformed and categorized in four macro-areas, called indicators of 'local sentiment'. Thus, they can be used as a quantitative-qualitative parameter to express and register the 'judgments' in a scientific way and not only as questionnaire's opinions of stakeholders. They are listed in Table 2.

The values range from level 0 to Level 5 and are: 0 = None; 1 = Very low; 2 = Low; 3 = Medium; 4 = High; 5 = Very high.

**Table 2.** The hidden features indicators.

Perception/ beauty	This means understanding the extent to which the stakeholders perceive or evaluate the beauty of each individual element according to their own perception
Environment	In this case, each stakeholder defines the environmental importance and therefore the influence that every single element has on the territory, on the flora, on the fauna and on the climate of the place
Health and welfare	With this indicator each stakeholder will define the health status perception of each individual element, in terms of safety for citizens and the environment
Safety	This indicator intends to collect assessments on how each individual element can harm the population

Next to each evaluation, it can also be possible to propose actions to be carried out for each element. This evaluation grid can also be extended to all categories of stakeholders, not only to citizens, so as to have for each stakeholder, a collection report of evaluation and proposal according to the indicators of ‘local sentiment’.

In general, the various categories of stakeholders to which these reports can be administered vary, according to the place where you are, with some invariants or ‘fixed categories’: that of local authorities and citizens. These are then added in various ways to the categories of traders, farmers and so on for any interest in the territory.

This proposed data collation system can be used to reorder the data defined in an extended form in the questionnaires. This phase, in the event that the RC is proposed by researchers, can be done after the construction of the thematic maps, in order to later implement the RC. In the event that the RC is activated in the classic modality, then this system will be used before the construction of the maps or otherwise proceed in step with the activity of the planner.

### 3.2. The relationship with the local planning tool

Three groups of information are compared in the work. Each group corresponds to a typology of data and a territorial dimension. These three groups are:

- (1) *Territorial Analyses* (including the knowledge of places): in our case the spatial dimension corresponds to the Tiber river area currently not covered by any RCs;
- (2) *Planning Purposes* (which consisted in identifying the objectives of the current planning tools with the possibility of comparison with the needs of the local inhabitants): the spatial reference dimension is, in this case, the Municipality boundary (in several cases it is the most incisive level of detail). In this regard, it should be pointed out that, if the territorial area involves more Municipalities – as the case of the ‘Middle-Low Tiber River Contract’ hypothesis is – the process should be replicated, with the aim of collecting final conclusions;
- (3) *Design Strategy*, with a deepening of the design aspects. This level of investigation concerns an area of the Monterotondo Municipality, linked to the river incidence and chosen as a sample area.

The relationships between different places from regional to local levels and to supra-regional (or interregional) levels have been highlighted. The settings described above were shown in [Figure 2](#) – Part b. After collecting all the information, it was possible to apply the collected data to generate a project in relation to a specific area at the local

level. The chosen area of application is a green field located near the Tiber River in Monterotondo.

In relation to the 'Professional knowledge', at the level of the metropolitan area of Rome, Monterotondo is represented as one of the 'centres that reinforce existing potentiality or are created ex novo and they connect functionally with the metropolitan centralization of the province' (Provincia di Roma, 2010). The existing potential is represented by the presence of the infrastructures: the railway system, the consular system – Via Salaria and Via Nomentana – and the green network – that is the presence of established reserves and ecological networks like the Tiber River. To the analysis of the River Authority, the area is also a key point to solve the problems of flooding in the urban area of upstream Rome. Therefore, Monterotondo represents a privileged field of action for the implementation of projects related to infrastructures both at territorial and local level.

Even though these indications exist at the provincial level, at the regional level there is no indication that draws attention to projects or strategies for the river, even if the Regional Landscape Plan (Regione Lazio, 2007), still not approved, is very mindful in the analyses of natural and agricultural landscapes and lacking regarding the river.

In relation to the 'local knowledge', it was possible to integrate the analyses (real features) with the interpretation through the definition of indicators in relation to the needs deduced from people interviews (hidden features), already carried out by a local team, in order to identify the desires of spatial transformation of the area along the river. In particular, the river area is requested to be a public space in relation to Monterotondo Scalo, an urban settlement between two main infrastructures: the Via Salaria – identified as public space, a sort of commercial street – and the Tiber River – not visually perceived, but critical due to its flooding often blocking the road. The design strategy consists in defining a 'connective' relationship between the urban centre (inhabited) and the natural green areas, through the artificial and natural infrastructures. There are also elements of environmental interest and leisure to be integrated: the extreme Tiber Park, the fishing lakes, the Natural Monument, a centre of the National Research Council and the former brick kilns.

Therefore, an alluvial park has been defined at a design level which includes: Sports activities; Ludic activities; Sensory and natural gardens; Pedestrian networks connecting the river to the areas of the brick kilns and the historic centre of Monterotondo; Pedestrian network crossings with bridges connecting the two banks of the Tiber; Piers to enjoy the Natural Monuments in the locality of Semblera.

Since 2004, there have been many project proposals for the realization of a river park, but none have come to fruition; the lack of financial resources has been one of the major factors. Neither in the municipal plan, in fact, any river territorial strategy is mentioned. This is one of the aims that can be implemented by the Middle-Low Tiber RC. In relation to the research aims and the planning tools, this work likes to underline that the local planning purposes assume an essential value not only for the alluvial park design, but especially for the RCs territorial strategy. In fact, the purposes have been elaborated according to the RCs' participatory process since the beginning. For this, the application part of this research involved the local planning level, according to assume the main efforts as they were defined in the research aim, to allow design proposals to be legitimately introduced in the urban plan currently in force in the different Municipalities which are involved in the RC.

As a result, the natural infrastructure of the Tiber River is represented as the key to relate the local interventions of the sample area to a more general network of interventions along all the river. This approach can guarantee a successful and durable fruition of the project, both at local level – as local facility – and territorial one – as attractive touristic hub, producing inter-scalar interactions also at the social and economic level.

#### 4. Conclusion: open issues on ongoing research

This work's main focus was the methodology for territorial analyses, aimed at landscape quality aims definition, within a new instrument (not included in Italian normal planning levels) which is the River Contract.

The first step was the analysis of current RC procedures, both in Europe and in Italy; then concentrated on the national panorama, based on the current system for the implementation of the RC envisaged by the National RC Table (which is always applied in Italy). Revising the increasing number of cases carried out in recent years, in the authors' opinion, the most critical phase to explore further is the territorial cognitive phase (which currently concentrates only on physical characters, in this work identified as 'real features').

Therefore, attention was focused on two elements of the process that could be implemented, which are: the territorial analysis (to create a shared territorial matrix) and the participatory process (both of these points were described in the theoretical premises of the methodology). The part of the procedure which should be further explored, therefore, is the expansion of the participatory process right from the territorial analysis phase which, instead of providing only an objective view of the territory, should also contain indicators of population sentiment. The presence of a research body, in particular in this case identified as the university, at this time of the process, would also allow the refinement of the procedure with the use of the GIS tool containing the results of the demands of the population. This allowed the introduction of the 'hidden features' at this stage of the process.

Finally, the results of a first application approach made on the case of a RC for the Tiber area are shown. The application case led to the detection of some discrepancies in the planning tools in force in this sample area. The relationship with the vast area planning tool was analysed, which in Italy is the one in force for all regions. The new landscape plans are also being drawn up, in accordance with national law which imposes the revision of the old or the creation of new plans.

In the next phase, the planning tool of one of the Municipalities involved in the proposed RC was investigated (which is the local authority in which the planned actions are to be implemented). In particular, after highlighting some shortcomings of the current Landscape Plan of the Lazio region, the effects on the case of the local instrument were analysed (i.e. at the municipal level of one of the Municipality as a sample case, which is Monterotondo).

The proposed River Contract defines a network on a territorial level, but nevertheless, it provides for small-scale transformations. This is the main issue suggesting several further impulses of investigation. The River Contract, described in this paper, is proposed as a pioneering example of possible implementation of the existing planning tools. This is even more interesting because – as shown on the final map – the sample area involves many



municipalities and therefore the planners' attention must be oriented simultaneously to the municipal planning tool and the regional landscape tool. Thus, this case-study wishes to contribute to the debate about the relationship between local aims and the Regional Landscape Plan – as a planning tool aimed at the protection and valorization of the landscape – both from a theoretical and a practical point of view.

Furthermore, interesting ideas emerged at the municipal level. These came from the authors' first-hand experiences: University theses, PhD courses, University events for public space in Rome, participation at national and international conferences of the National Table River Contracts. Moreover, even though the new Lazio Regional Landscape Plan has not yet been approved, several territorial surveys and numerous applications were carried out by the Municipality of Monterotondo, which has recently received European funds to satisfy the demands of the citizens. In the general outline of the methodology, therefore, the procedure usually established for the River Contracts was highlighted, which is preceded or flanked by a basic hypothesis on local sensitivities or 'local sentiment'. In this approach to the issue, the part drawn up in this paper is the cognitive analysis of the area, undoubtedly essential for the process, but not exhaustive. Moreover, additional applications could be implemented and new hypotheses could be modelled and used to improve the methodology in relation to specific cases. Giving significant weight to the indicators of 'local sentiment' is an innovative solution in preparing the indicators of well-being, for an information set in which the spatial data is particularly accurate. It could also be a useful basis for the relative connections with the planning tools at various levels. The River Contract tool, in this way, would undoubtedly become a guarantor in the implementation phase of the quality aims set by the Regional Landscape Plan.

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