

NATURE AND HERITAGE

Approaches to transform urbanised water landscapes

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ABSTRACT

Each design project on the water landscape requires the acquisition of a specific behaviour towards nature: clarifying the requirements of the observed attitudes is fundamental to considering which value system should be shared in the ecological conversion of the urbanised environment. Among the most used approaches, the contrast between an anthropocentric and ecocentric debate shows the existence of a crippling dichotomy between nature and culture, that some environment-oriented approaches try to mend and overcome. In the experiments aimed at this objective, heritage has a crucial role in the territory project, even with the wide range of interpretations and practices, as it emerges from the analysis of three case studies: the new paradigms originated in the Netherlands in river and heritage management, the experience of the Landscape Observatory of Catalonia catalogues, and the Territorialist School's concept of territorial heritage.

KEYWORDS

landscape, territory, urbanised environment, nature, heritage

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Complexity, dynamism and plurality have always characterised water landscapes, especially those where human presence has added to the exceptional ecological wealth the settling of anthropic legacies while increasing its vulnerability to natural agents. Today we witness a ferment of ideas to reshape the relationship between urbanisation and the natural environment, fostered by a growing awareness of global and local issues. Although the need for a new attitude toward nature is constantly reminded, each strategic vision adopts its own approach, often contrasting with alternative visions that also share similar goals. For instance, it is clear in the contrast between a radical ecologism and a compensatory and mitigating approach. The concept of sustainability, as the concept of nature, is often considered as starting data.

The aim is to explicit the requirements of different attitudes toward environmental transformation to stimulate considerations on which system of values to share to address not only environmental but also urban, social and cultural problems. We will describe a framework of approaches to the ecological conversion of the urbanised environment, particularly referring to, but not limited to, water contexts. It will highlight the different ways to intend the relationship between human beings and nature, investigating the possibility for the heritage to have a key role in reconciliation strategies between human intervention and the natural environment. In particular, we will find experiences and theories aimed to truly overcome that dichotomy between nature and culture that seems to be the foundation of the modern era.

In the first part, we will examine different types of approaches, classifying them within three ideal categories; in the second section we will deepen the third category, having the most interesting insights on overcoming the nature-culture dichotomy; finally, we will deal with the heritage subject through three case studies: the new paradigms originated in the Netherlands on river and heritage management, the experience of the Landscape Observatory of Catalonia with landscape catalogues, and the Territorialist School's concept of territorial heritage. In the last part, we will deal with critical issues and future research trends.

Three Conceptual Approaches | Every project on water lines concerns a series of problems and subjects that need to be dealt with in a project plan. However, before that, redefining the relationship of the urban landscape with water means reinterpreting reality with a naturality that can never be entirely eliminated. Ventura Pujolar, Ribas Palom and Saurí Pujol (2002) attribute the practical and theoretical approaches to the management of rivers to two opposite models, anthropocentric and ecocentric. The first one considers the river as a source of natural resources, and the second refers to an ideal natural status, before human intervention. To the two models correspond different concepts of the relationship between nature and society, considered by both as opposite poles of a dualism. While the anthropocentric view aims to increase the material well-being of society, the ecocentric one aims to reach a natural balance. Different disciplines refer to them: water quality and quantity control, and river ecology.

They present the river on the one hand as a controlled object without a context, and on the other, as the subject to a return to an original – but still hypothetical – place and time. Both views, when some problems arise – such as an extreme weather event – identify the cause in the opposite view and propose as a solution the radicalisation of their conceptual and scientific principles. According to the authors, the inflexible contrast blocks the solution of conflicts that would be possible by adopting an ‘environmental’ model, therefore considering a dialogue in the dualism between a complementary ‘anthropic view’ and an ‘ecosystemic view’.

It can be noted a similarity with the three attitudes towards the territory described in the same years by Magnaghi (2001): dissipative, typical of industrial modernity, of which ecomodernism is its most up-to-date version; conservative, mostly typical of ecological culture; a third attitude, finally, bases the development on the enhancement of the heritage, in the global meaning of interaction between environmental, territorial and urban systems, society and local cultures. Although the two models are clearly not superimposable, they share the idea of an insufficiency of both dominant attitudes in the contemporary culture on the needs established by the cultural and environmental crisis and try to trace a third path with an integrative and interactive method. With the aim to find approaches similar to this third way of conceiving the environment, it was attempted to attribute to the three models some of the main trends in project and nature. Table 1 summarises and confronts the main characteristics of the two models as described by the authors, and those of the environmental model derived from the examples given in this paper.

Concerning anthropocentrism, there is a category of approaches and considerations denoted by the formula ‘sustainable management’. Sustainable management embraces the institutional and globalised view of the Anthropocene (Barca, 2020), follows development and progress objectives and considers nature as a resource. An asset to be handled wisely in the long term and using the best available technology, on which we rely to turn the tide of environmental deterioration, but especially of climate change (Pavia, 2019). Although the list of usable resources includes nature-based solutions and ecosystem-based approaches, grey solutions are still the most used (UN Water, 2020). It adopts definitions and tools such as Natural Capital and Ecosystem Services to promote the sustainable nature management practice. The ecosystem services concept is increasingly diffusing but shows problems and inconsistencies, including considering nature only as a commodity with instrumental and exchangeable values, placing it fully within the logic of exploitation that it wants to contrast (Poli, 2020).

At the opposite pole, there are biophilic approaches, which consider nature and its processes as the main reference to design the built environment as a human biological need. The main focus is to reestablish the connections between the human and natural spheres, moving the first towards the second. The ‘sense of place’, of which the cultural dimension is a part, has mostly this reconnection function – only partially similar to the ‘place consciousness’ of the territorialist approach mentioned below because it

Model	Anthropocentric	Ecocentric	Environmental
Society-nature relationship	Demand and consumption	Preservation and restoration	Democratic care and enhancement
Aim	Increase of material wellbeing	Natural balance	Natural and human balance
Reference	Fluxes	Pristine nature	Human environment
Scientific discipline	Water regulation (quality and quantity forecast and control)	River ecology (natural values preservation)	Territory and landscape sciences (human and natural values formation)
Time	Linear progress	Retrospective	Longue durée
Space	Anonymous	A (new) previous place	Identitarian, historic, relational place
Social aspects of the river	Economic-rational	Identitarian-emotional	Relational
Management model	Contractual	Balance between minimizing human impact and allowing for contemplation	Holistic
Origin of conflicts	Ecocentric model	Anthropocentric model	Uncompromizing opposition of models

Tab. 1 | Main characteristics of the anthropocentric, ecocentric and environmental models.

is mostly linked to an aesthetic-perceptual sphere. It favours a regenerative-based design, capable of self-sustaining because it uses models of energy flows and cyclic materials, and makes extensive use of nature-based solutions, leaving nature ‘letting nature do the work’ (Lyle, 1994).

The Environmental Approach | One of the distinctive features of the third approach is the research of a dialogical reconstruction of inflexible dualisms. On the other hand, the attempt to overcome the dichotomy between nature and culture characterising the modern era (Latour, 2018) is a standard subject nowadays. In environmental ethics, the discussion on the tension between anthropocentric and non-anthropocentric ethical systems has been fundamental. It was enhanced by some points of view, such as ecofeminism, whose main contribution is a radical critique of all centre-based systems. The trend, however, was to take on one polarity or the other without being able to address the dilemma between social and environmental concerns, and thus the nature-culture paradox (Proctor, 1998).

This is a crucial problem for some authors that link it productively to the contemporary urban condition and its contradictions. Augustin Berque (2016) questions why



Fig. 1 | Parco Regionale dell'Appia Antica, for which V. Calzolari coordinates since 1973 a project proposal, is an example of the unbreakable integration between history and nature, that characterises the landscape of the Roman area (credit: Lorenza Campanella, 2016).

the past generations – which did not have the concept of landscape – have left admirable landscapes, while the current one, which has made high-end considerations on this subject, in practice, is destroying landscapes and territories. At the base of the paradox, there would be the Modern Western Classical Paradigm that, by relegating nature to a neutral object in a universe independent from the subject, would produce a ‘decosmicisation’ of the human environment. The idea of decosmicisation can be found also in the considerations made by Anna Marson (2008). According to her, this process – eliminating the sense of sacrality of the earth and the relationships between human microcosm and macrocosm – contributes to deteriorating the relationship with the environment. It is the abstraction of the modern subject from its own ‘milieu’ that destroys the conditions of its permanence on Earth. According to Françoise Choay (2008), the result of the abstraction concerning the organization of the space consists of a series of deprivations, expressed through the neologisms: dedifferentiation, decorporealisation, dememorisation, and semantic decomplexification. The way to ‘reco-smise’ human existence, according to Berque, goes through recognising what he names ‘médiance’: while the concept of environment reproduces an object foreign to the human being, the médiance conveys the idea that we are not only part of the environment, but that the environment is also part and parcel of our being.

Following these considerations, we notice in the ‘environmental’ approaches the constant of seeing the natural context not as absolute, but as co-evolved, so that its an-

thropic component and the transformations it originates are its part and parcel. The idea of an environmentalism joining landscape, environmental and anthropic matrixes was already written by Elena Croce, founder of Italia Nostra and protagonist of environmental battles since the 1950s, whose influence has also inspired the approach of the Fondo Ambiente Italiano. The defence of the territory from chemical and urbanistic aggressions, in old towns and landscapes, joins the protection of the reasons for life and humanity embodied in history and nature (Fava and Caputi, 2018). The close bond between history and nature appears in the design perspective by Vittoria Calzolari, also linked to Italia Nostra, and probably influenced by the Roman landscape, to which she has dedicated much of her work (Fig. 1). According to her idea, materiality and historicity of the territory are always associated: historic and environmental patterns, especially hydrographical patterns, are conceived as parts of a system where tight interconnections take on a structural aspect (Calzolari, 1999).

In the contemporary scene, the idea of nature and culture considered as unicum is progressively cementing in the field of heritage conservation, and in particular in the so-called cultural landscape protection, in which the contributions of the research lines followed by the two UNESCO branches converge. It is increasingly acknowledged that the biological diversity is often paired with great cultural richness and variety, since biodiversity and other natural values are not menaced, as was believed for a long time, but are boosted and enhanced by the care of people (Brown, Mitchell and Beresford, 2005). At the same time, it emerges the need to overcome the protectionism paradigm, and consequently a synergy between conservation, management and planning.



Fig. 2 | The works for the project Room for the River along the Reno-Maas delta (processing by the Author).

The Role of Heritage | The fact that environmental approaches have been established in these fields seems to suggest the importance of the (also) cultural heritage, which might prove to be a crucial key for urbanised water landscapes, rich in stratifications of civilisations and ecosystems. Is there a virtuous relationship between heritage and the ‘environmental’ transformation of the territory? Can it have a role in closing back the gap between nature and culture at the design level? To attempt an answer, we analysed three case studies belonging to the category of environmental approaches.

In the Netherlands, since the beginning of the 2000s, a new approach to nature project entwined with a new approach to water heritage. The cultural ferment as a response to the disruption after Hurricane Katrina marked a conceptual transition from the old model ‘drain, dredge, reclaim’, to a new one, whose motto is ‘working together with water’ (Meyer, Nijhuis and Bobbink, 2010). In the area of Rotterdam, from 2005 to 2015, a bank and canal redesign, and flood control strategies, in general, were experimented, aimed at ‘making space for the river’ (Fig. 2, 3). The second objective is spatial quality, intended as a balance between hydraulic efficiency, ecological robustness, and cultural and aesthetic sense. The attitude towards history is intentionally selective, unlike the procedures adopted for UNESCO sites, where the past chooses the present and not vice versa. The cultural and aesthetic factors are fundamental for the residents to accept the change. We see a redefinition of the relationship between humans and water – that is the environment – where dichotomies and strict separations are no longer considered, but a logic of coexistence is introduced. In the past, it was about implementing human values to nature, now about making the natural element contribute to defining the value system of the human environment. Continuity and change stop being two opposing categories and become one premise of the other, becoming side-by-side rather than opposing elements.

In this way to imagine continuity and change, we can see the similarity to another change happening in the management and conservation of the wide heritage of hydraulic systems of local tradition. There is a debate between the promoters of a total change – who emphasise the traditionally innovative nature of water management strategies and technical solutions – and the supporters of the conservation of historic structures. But, a national program has been implemented since 1999 for the integration of material heritage into a new spatial territory plan with a dynamic approach, promoting the creative reuse of the existing heritage or the creation of new buildings based on the reinterpretation of historicised approaches (Hein, 2020). In this case, heritage is made of material structures, in their physical presence and their interaction and integration with the landscape, without which they would be unintelligible; and intangible structures, including narratives that inform collective identity, such as the resourcefulness and creativity in the relationship with water.

The Landscape Observatory of Catalonia was born in 2005, implementing the European Landscape Convention. Its main activity is creating landscape catalogues (Fig.



Fig. 3 | View of Rotterdam within the Maas river delta (source: Emma/stock.adobe.com/it/).

4). The novelty of catalogues compared to their antecedents, atlases, is the role of tools to guide the transformation (including SWOT analysis, quality objectives, guidelines, measures and action proposals) and the close integration with plan tools. Concerning the method, the Observatory has an integrated vision of natural and cultural aspects of the landscape, in which it finds and analyses a wide range of values (Nogué and Sala, 2008). The landscape is structured as an operational tool, a cross-disciplinary mechanism integrating physical, cultural and spiritual aspects, aiming to direct the territorial transformation according to the intrinsic characteristics and aspirations of the natural and human environment. Mostly about the subject of water, thinking about the landscape means interacting with the wide range of uses and actors involved. In 2016, the Observatory has dedicated a publication to the relationship between landscape, water and heritage, where it was underlined that water is both a structural and transversal element for the landscape, and speaking about water is ‘almost like speaking about landscape’ (Nogué, Puigbert and Bretcha, 2016).

According to the idea of the Observatory, the concepts of heritage and landscape ultimately tend to converge, while the main difference remains at the disciplinary level



Fig. 5 | Processing of a detail of the territorial heritage map from the Landscape Plan of the Tuscany Region and an excerpt from the legend (source: PIT Toscana, Scheda ambito di paesaggio ‘Bassa Maremma e ripiani tufacei’).

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Fig. 4 | Processing of detail of quality landscape objectives of the Landscape Catalogue of the Province of Girona and an excerpt from the legend (source: Catàleg de paisatge de les comarques Gironines, Mapa 12 – Objectius de qualitat paisatgística).

Case study	Netherlands	Territorialist School	Landscape Observatory of Catalunya
Heritage definition	Material structures, considered in their physical consistency and interaction/integration with the landscape, and immaterial structures shaping their values (identity structures and narratives)	Territorial heritage, made of the elements, goods, and environmental/urban/rural/infrastructural/landscape systems that shape a region's identity in a material (because of their permanence), perceptual and cultural way	Merges with that of landscape, a process through which people negotiate the relationship between past and future. Set of inherited, valuable, and threatened things/concepts/ ideas, components of space perception and individual and collective identity
Actions on heritage	Preservation, creative reuse	Patrimonialization, enhancement	Cataloguing, objective definition
Roles of heritage	<p>Shape and preserve awareness of the environment and its risks</p> <p>Strengthen social cohesion in response to extreme events</p> <p>Define collective identity</p> <p>Add cultural and aesthetic meaning to spatial quality</p> <p>Mediate between human activities and landscape</p>	<p>Shape place consciousness</p> <p>Reactivate care actions</p> <p>Grow wealth (not profit but goods, services, employment)</p> <p>Provide basis for self-sustainable local development models</p>	<p>Maintain and improve life quality</p> <p>Integrate disciplines contributing to territorial transformation</p> <p>Express the community's aspirations</p>

Tab. 2 | Comparison between approaches and interpretations of heritage.

values, made up of the environmental, urban, rural, infrastructural and landscape elements which contribute, to their historical permanence and in the way they are perceived by the population, to shape the identity of an area from a material, perceptual and cultural point of view (Fig. 5). To define what is to be considered as heritage, and therefore what needs to be well-kept and maintained to be at the core of the project, is incremental and non-universal, to be built collectively by the community and experts. As a consequence, the heritage receives particular attention not only as data but as the heritization process that leads a community to select and decide what to value the most. These processes constitute a fundamental step to create a project in the community (Poli, 2013).

In Table 2, some aspects of the three experiences are compared. A similarity can be noted between the Territorialist school and the Observatory in using an extended defi-

dition of heritage compared to the more specific one in the Dutch case. This contributes to attributing more transformative roles, particularly in the territorialist case, where heritage is an active subject and not only the object of creative operations. Of course, the Dutch particular environment and culture about water and hydraulic structures partially explain the difference from the others. Instead, what emerges is a mediating role between society and the environment, supporting the building of community resilience when facing traumatic events and necessary changes.

Final Considerations | In this paper, we have tried to reason on the possible approaches to the ecological transformation of urbanised water landscapes. We have started from the idea that these places, in particular river deltas, are an insoluble twine of nature and culture, full of priceless biological and heritage assets. We have set a way of reading the methods through which the project of territory deals with the environment through three categories having at their core, one the human material well-being, the other untouched nature, and the third the search for a non-confrontational but mutually enhancing integration. We have deepened some aspects of the third category, noting its capacity to balance unbalances occurring when one polarity prevails over the other in a conflict and imagined how the local heritage can be the key in the transformation process, finding a rich topic still in need to be explored.

Clearly, the approach classification proposed should not be considered valid for every case. Since it is a model, there could be contaminations and overlaps of approaches that rarely correspond exactly to a category specific to the subject, therefore, many other classifications are possible and not every approach can be included. Tracing a pattern is a difficult job, moreover, we are working in a time of cultural turmoil, with a growing number of interpretations of the environmental crisis and scenarios of meaning. This opens up for the human race and other species, present and prefigured hybridisations between the organic world and technologies (Perriccioli, 2021), transhuman and geo-engineering tendencies (Wallach, 2019) that would redefine the terms of human and natural in reference no longer to mutual relations but to the third term of artificial origin.

Moreover, thought schemes and languages have an innate difficulty, where the dichotomy between nature and culture could only be eliminated by using new words, and new concepts, such as the ‘collectives’ present in *Gaia* by Bruno Latour (2020). Even the will to label, and set logical boundaries to the ‘weird’ complexity of the real world, according to some writings, is a symptom of the original violence that separates humans from the rest of the world (Morton, 2016).

However, some key points originating from this point of view can be underlined. The existence of dichotomous patterns makes it difficult to understand relations between cultural and environmental heritage besides the more obvious ones between heritage and society. Many works, also by Institutions point out the importance of heritage in the environmental crisis but are limited mostly to framing it as an endan-

gered object, or as a factor of social cohesion in response to extreme weather events (ICOMOS/ICORP, 2013). Therefore, the need and opportunity to integrate the subject areas stand out, hoped for not only in the context of ‘environmental’ approaches but also in the research on ecosystem services, for example, whose problems could find a partial solution in the convergence with the research on the landscape (Martin-Ortega et alii, 2015). Along with sectoralism, another tendency to overcome is ‘expertism’. A shared design should be favoured, starting from the idea that there is no single valid sustainability scenario for every place, but that the suited solution originates from the context: environmental, biological, human, and social-cultural. Finally, the most important incentive coming from these experiments is to shift from a resistance logic to a project one, aiming to the construction of a world that reproduces neither an idealised past nor a present without alternatives.

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