

WATER, HERITAGE, CITY: URBANIZED DELTAS ON THE LINE BETWEEN NATURE AND CULTURE

Giulia Luciani

Sapienza University of Rome – DICEA, Via Eudossiana 18, Rome (Italy),
phone +39 3343552595, e-mail: giu.luciani@uniroma1.it

Abstract – Deltas are unique dynamic environments, extremely rich in natural resources and cultural heritage, but also vulnerable to extreme events and environmental degradation. They are areas of complex transition between land and water, where the water lines take many different shapes: coasts and waterfronts, rivers, irrigation or drainage canals, and more. From an overview of the main issues identified for each type of water line in the context of spatial planning and design, a plurality of values, demands, and materials emerges, that flow into the project in an often-conflictual way. A recurring conflict is that between anthropocentric and ecocentric attitudes towards nature, which could be overcome through the introduction of an integrated and nonconflictual “environmental” approach. A case study from the Netherlands illustrates a paradigm shift in this sense, within the sectors of water management and heritage preservation. It also provides the basis to discuss the possible active roles, role heritage can play in the search for a new synergy between natural and human actions.

Introduction

Deltas are unique dynamic environments with respect to both natural and human activities. Since ancient times, they have attracted people and settlements because of the strategic position offered by river mouths and the abundance of natural resources. The formative power of the deltas has in fact generated the richest and most diverse ecosystems in these areas, while making them subject to rapid morphological variations due to the particular river, sea and wind dynamics. Consequently, while on one side a dense stratification of cultures has left a vast material and immaterial heritage, on the other side, as the process continues, an increased urbanization growth – with more than half of the world population already driven to these areas - threatens both ecosystems and heritage, as well as human activities and settlements. Dynamism here also means vulnerability, actually. Soil exploitation for urban land uses has dramatically reduced the ecosystems’ ability to absorb the impacts of extreme events, and in the case of deltas has also undermined their formative power. Growing consciousness of issues such as rising sea level, subsidence, saltwater intrusion, extreme events, habitat loss, has been fostering new ideas to rethink the relationship between urbanization and the deltaic environment [22].

The first part of this contribution aims to show the complex conflictuality that emerges when urbanized water lines are addressed through planning and design, providing an overview of some key themes in urban and spatial regeneration theory and practice, linking them to three types of transition places that often coexist in delta areas – coast and waterfront, river, irrigated fields. In the second part, different attitudes to nature in the context

of spatial planning and transformation will be associated to two opposed visions – anthropocentric and ecocentric discourses – in order to introduce a third possibility that may offer an integrated and nonconflictual approach. A case study from the Netherlands has been selected to illustrate a paradigm shift in this sense, aiming to also reconcile the Nature/Culture divide. In the last part, other insights from different contexts will be discussed as to the role heritage can play in such search for a new synergy between natural and human actions.

A complex transition: coasts and waterfronts

In terms of urban form, the interface between land and water assumes multiple shapes, hard to trace back to the idea of a single uniform line or waterfront. In delta regions, one or more river branches meet the sea, the ocean, a large inlet or a lagoon, with vast plain areas formed by the alluvial sediments. Among these, lowlands are often drained with huge infrastructural works, so that a network of canals for drainage and irrigation is added to this system of water lines. A variety of physical – spatial, urban, environmental – and cultural issues, widely connected with each other, meet on such borders. Some of these issues, that appear to be key themes in urban and spatial regeneration theory and practice, can be linked to three types of transition places – coast and waterfront, river, irrigated fields.

The abandonment of large areas previously accommodating ports or industries gave impulse to the first waterfront redevelopments in North America and Europe, starting with Baltimore in the Eighties. The rescue of these areas was primarily a matter of returning to the city parts that had long been landlocked, so that public space and its relation to water became a key theme [12]. As ports in Italy were never massively dismissed, unlike the international context, interventions mostly regarded the integration between port and city, city and landscape [26].

Culture and leisure were central to the first American experiments, which became models for overseas requalifications onwards, and are still present in today's practices. In fact, the circumstances leading to waterfront renovation processes is often a grand cultural o sports event, as in the case of the 1992 Olympic games in Barcelona or the 1998 Expo in Lisbon. The design, then, addresses the desire for an attractive image of the city. The waterfront becomes the façade of the global city, the scene of competition, creativity, and innovation [6]. Though literature tends to be quite celebrative about such renovations, some authors underline the risks of homologation and spectacularization within a global-oriented approach [13][14].

On the other hand, turning to the sea – and the people, product and information fluxes - more than the mainland is considered a distinctive feature of the maritime cities, which craft their identity in the combination of maritime and urban cultures. Some authors stress the importance of shaping the city from the point of view of the sea, too often forgotten nowadays due to contemporary transport habits [7]. Maritime identity has become key in the cases of Lisbon and Naples, where the most recent UNESCO guidelines for historic cities' management, the *Historic Urban Landscape Approach*, were adopted, redefining the concept of urban heritage and its relation to post-industrial areas and waterfronts [8].

The guidelines also aim to foster an integration different issues with sustainability. Urban coasts actually gather a mixture of often conflicting values, ranging from culture and identity to economy and production. Reconciling hard and soft values, hard and soft infrastructures, is one of the main challenges for maritime urban sustainability [13]. Another important challenge is that of climate-proofing the cities, which is increasingly present in

urban policies but is still not well integrated into spatial planning, with some exceptions from Northern Europe and USA where sea level rise and extreme events are being addressed. It must be noticed, however, that the focus on resilience is often dealt with as a marketing operation, one more variation on the theme of competitiveness [27].

On a broader scale, embracing territory and landscape, soil sealing, and ecosystem loss is one of the consequences of the building aggression of seaside destinations and coasts in general, where speculation and abusiveness have created vast areas of dispersed and de-structured urban land [12]. A relatively new strategy interprets the coastal line as a green/blue infrastructure, a concept which has been increasingly explored for rivers but still seems marginal in relation to coasts.

Rivers

Rivers have been considered biological corridors par excellence since the first studies on ecological networks, because of their inescapable continuity in contrast to the increasing ecological fragmentation. With the concept of green infrastructures, emphasis shifted from species and ecosystem preservation to the benefits they bestow. Rivers, with their linear shape, gain new meanings, as soft mobility infrastructures, green equipment for the urban space, cultural infrastructures, social relation spaces [12].

The river is interpreted on one side as a resource, on the other as a risk, with reference to unpredictable flooding or water pollution from industrial and civil plants [9]. The dualism leads to a conflict between what can be named a hydraulic landscape, focused on water dynamics control, and a hydric landscape, focused on the aesthetic dimension of water. At the same time, this same dualism explains the fluctuating relationship between the built environment and the riverside, which alternates osmotic and repulsive phases [2]. Despite the tendency towards a reconnection of cities and rivers, there is a persisting awareness decline, as the river is not perceived as a living and dynamic entity anymore, which points out the need for a renewed “hydraulic culture” [19].

Multiplicity of functions, complexity of hydraulic dynamics, linear extension of the rivers, etc. also raise the issue of management. If on one side large scale planning is needed, on the other an urge for a shared management and an engagement of multiple actors emerges at a local and supra-local level, within an increasingly multifunctional fluvial landscape. In this context, tools like the river contracts are growing in importance and are influencing institutional policies towards integrated and participative rather than sectorial projects. In this additional sense the river can be understood as a space or “structure of relations” [3].

Irrigated fields

Some tendencies observed for rivers and coasts are also shared with water landscapes which originally had an agricultural vocation and whose shape is determined by a widespread hydraulic infrastructure for irrigation and/or drainage.

The issue of dispersed urbanization is even more poignant in periurban and metropolitan areas grown – at least in Europe – out of the explosion of the city, which in turn was enhanced by the parallel loss of importance and viability of traditional agriculture [16]. In

coastal and pre-coastal Mediterranean environments, this process has fostered abandonment, degradation, crop replacement, introduction of elements that are alien to the landscape, lack of interest from the institutions [20]. The relationship between urban and rural domains is blurred, and while the popularity of urban agriculture grows, agricultural soil is turned to urban uses. The previously rigid limits between city and farmland grow into vast indetermined border landscapes where uses mix but social and territorial dynamics are of urban or metropolitan kind [23].

On the other hand, during the last thirty/forty years, some opposing trends have emerged: a counter-exodus towards the countryside, an appreciation of landscape as a life quality driver and an instrument for spatial planning. Rural landscape is thus interpreted as part of a territorial strategy. On one side, the preservation of a functioning rural landscape is seen as a prerequisite for the achievement of environmental and economic sustainability, especially when strategies to encourage slow tourism are put into place. Historical paths, notably those along water lines, become tourist routes and green/blue infrastructures [5]. On the other side, the large urban voids generated as an externality of the urban explosion are now valued as opportunities to regenerate the surrounding urban areas and restructure the urban landscape at a territorial level. Seen from a metropolitan dimension, in fact, “rururban” space can turn into a new kind of public space if multifunctionality is implemented, as in the case of green infrastructures and agricultural parks [29]. Nutrition as a cultural issue has a key role in the idea of ecosystem multifunctionality, urban resilience, place reappropriation, and water gains new values in this sense, as a source of life. An interesting example was the rediscovery of water lines and the “water civilization” in the Lombardia region during Expo 2015 “Feeding the planet” hosted in Milan [30].



Figure 1 – Three water lines of the Tiber delta: the Ostia seafront, the Fiumicino river branch, a canal in the “rururban” area Piana del Sole.

Conflictual discourses

Given that water lines are places of conflicts between opposed values, views, cultural trends, even actors, it should be taken into consideration that any transformation or intervention implies a particular approach to the natural element, water, that can never be eliminated. Conflict here takes the shape of a dualism between ecocentric and anthropocentric attitudes towards nature. In the context of river management, Ventura et al. [31] proposed a conceptualization of the two dominant approaches, where the anthropocentric discourse interprets the river as a resource with the aim of increasing the material well-being of society, while the ecocentric

discourse deals with an ideal natural state of the river, aiming to reach an ecological balance. On one side, the disciplines of water regulation treat the river as a controllable object without any context; on the other, those of fluvial ecology strive to return it to its original – though hypothetical – time and place. The uncompromising dualism, for the authors, makes it hard to solve conflict, as each identifies the other as the cause, and radicalization of its own principles as the solution. Conflict, instead, could be overcome through a third “environmental” discourse, where ecosystemic and anthropic realms form a complementary dualism.

Some of the main approaches to planning and design can be traced back to these models. Anthropocentric approaches like “sustainable management” or development consider nature as a resource to manage with caution, using the best available technology, which in turn is trusted as the solution to counter environmental degradation, especially climate change. And while “grey” solutions are still prioritized, definitions like Natural Capital or Ecosystem Services are used to mainstream sustainable management of nature [25]. Biophilic and regenerative approaches, on the other hand, consider nature as a biological need of human beings, and aim to bring it into the built environment prioritizing natural cycles and processes [18].

Finding a third way also implies striving to overcome the nature/culture divide and the dichotomies of modern times [17]. The splitting of domains and the reification of what was once a “cosmos” tied by sacred interrelations is often placed at the root of the environmental-aesthetic degradation taking place in our cities and landscapes [1]. Among those trying to shift towards a model where nature and culture are taken as one, is the landscape preservation sector. The two branches of UNESCO respectively responsible for natural and cultural heritage, IUCN and ICOMOS, are recognizing that landscape and its community are deeply tied and inseparable, and the protectionist paradigm must be overcome in favour of a synergy between conservation, management, and planning [4].

A paradigm shift in the Netherlands

From the standpoint of water management, a significant turn seems to have taken place since a few years. Following hurricane Katrina’s disaster in New Orleans (2004), a discussion was initiated that has led, at least in some representative cases, to a move from an approach focused on hard infrastructures and containment to one that aims at working in synergy with nature instead of opposing it. In the USA and the Netherlands – whose experts traditionally contributed to water management knowledge dissemination – the “Dutch Dialogues” opened a debate on the efficacy and exportability of the Dutch model. The initiative was promoted by American architect D. Waggonner, P. Farmer from the American Planning Association (APA), and D. Morris from the Royal Netherlands Embassy. Later on, in the wake of the Dialogues, the APA started the “Delta Urbanism” research project [21], confirming the step taken from the old method “drain, dredge, reclaim”, to a new one whose motto is “working together with water”. The Rotterdam region implemented the “Room for the River” program (2005-2015) to reshape the shores, the canals, and the strategies to deal with river flooding, while New Orleans started the “Mississippi River Delta” project (Hein, 2020), based on the same principles, which also informed some years later the design of the winning project in New York’s “Rebuild by Design” contest following hurricane Sandy (Pavia, 2019).

Meanwhile, another shift was occurring in the field of water heritage management and preservation. Beginning with the “Belvedere Memorandum” (1999), the material and

immaterial heritage linked to the water management tradition was to be “preserved through planning”. The strategy encouraged a dynamic approach, including creative reuse of existing heritage and construction of new structures based on a reinterpretation of historicised approaches [15]. Initiatives promoted from 2013 by ICOMOS Netherlands contributed to strengthening the ties between heritage and water management, and introduced heritage in climate resilience building, starting from the richness and vulnerability of delta areas. Outcomes of the first conference, “Protecting Deltas, Heritage Helps!”, were synthesised in the Amsterdam Declaration [32], stating that a deep understanding of places and a conscious historic continuity with knowledge of the past are needed to live with water, and creative reuse can provide strategies for the future, as well as spatial quality and wellbeing in the present.

Human needs and nature’s needs don’t have to fight within flood management, since they can adjust to one each other, just like heritage preservation doesn’t need to counter time, since continuity can accommodate desired and meaningful change as its prerequisite.



Figure 2 – Fort Vuren, part of the New Dutch Waterline defense system, whose restoration inaugurated the new approach to water heritage (credit: <https://nederlandsglorie.nl/>).

An active role for heritage

The experience and research line followed in the Netherlands, despite its openness to other contexts, remains tied to a very specific setting where the relationship to water has always been the backbone of national identity. One may wonder, then, how and to what extent heritage can contribute to reconstituting and strengthening the environmental balances within an anthropized landscape. In literature and in national policies attention is increasing towards community resilience, heritage community resilience – the virtuous circle initiated by collaborative care of heritage - and cultural resilience – the ability of a community to adapt thanks to the use, management, and maintenance of its biological and cultural resources [10].

However, beyond the positive mechanisms it activates in response to disasters, heritage plays a decisive role in the construction of the territory's everyday life, and therefore in the quest for wide-ranging long-term solutions to territorial imbalances and environmental degradation.

In the experience of the Landscape Observatory of Catalunya, the concept of heritage tends to blur with that of landscape [11]. Landscape, in turn, is conceived as an operational, integrative tool, through which physical, cultural, and spiritual issues can guide the transformation of the territory in compliance with the aspirations of inhabitants. The Observatory's method integrates natural and cultural features in the preparation of the landscape catalogues, which have the primary objective of integrating an articulated range of landscape values – aesthetic, natural, ecological, productive, of social use, historical, religious or spiritual, and symbolic - into spatial planning [24], also targeting global environmental issues from the standpoint of the social and cultural realm where they come from.

Landscape is also central as a democratic governance instrument within the approach developed by the Territorialist society in Italy. The eco-territorialist project aims at safeguarding and enhancing the human environment rather than nature *per se*, by building back the physical and cultural ties with the territory. It is the community that, in a bottom-up process, decides the rules, behaviours, cultures and techniques for dwelling and producing accordingly. Such a process is possible only if a virtuous circle is established in which the growth of “place consciousness” increases the community's identification with the “territorial heritage”, which is in turn cared for, treated, and enhanced, to produce durable prosperity. Heritage, here, is meant in an even broader sense than in the Observatory's practice and is more actively involved in the process of territory-making. The concept of territorial heritage is close to that of a common good and is defined as an ensemble of elements, goods, and environmental, urban, rural, infrastructural and landscape systems which in their permanence and perception form a region's identity [19]. What matters, hence, is not only heritage as something given, but the process through which the community decides what should be valued or put into value in its own project for the future territory [28].



Figure 3 – Agroforestry mosaic in the plain below Capalbio, part of the landscape unit “Bassa Maremma e ripieni tufacei” in the landscape plan of Tuscany (photo by the author).

Conclusion

The previous lines have attempted to trace an overview on how water lines are being dealt with from the standpoint of spatial planning and what conflicts arise in the process. The conflict between Anthropos and Nature has come into focus, as well as some strategies that strive to overcome it. A key role of heritage has been identified and is currently under investigation in different contexts.

Cultures developed along water lines, especially in delta areas, have grown a heritage of techniques, of scientific and spiritual knowledge of the natural processes they had to deal with. In the XIX and XX centuries, faith in progress and in the possibility for mankind to break free from nature has too often erased what had been built and passed on from one generation to the other. Today, new opportunities can arise from the encounter of the recent urban and ecological disciplines with the reflections concerning the *longue-durée* structures the territory still preserves, considering historical processes a succession of phases, each with its own relationship between its pasts and its present time, rather than a linear path. It is hence necessary, since so many voices agree we are living in transition times – as to economy, environment, culture – to reconnect the urban and environmental evolution trajectories, while anchoring them to their material ground, the territory. Rediscovering the art of living with water means, on one side, becoming aware of possibility and risk, on the other, learning new and old strategies to coexist, to give sense and value to the environment that allows and permeates the life of the city itself.

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