

RIVER IMAGINARIERS. THE RENATURATION OF THE PO REGION

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RIVER IMAGINARIES

PLANNING A SETTLED NATURE

The renaturation of river banks is a recurring theme in contemporary landscape practice and research, in response to many issues due to global warming, concerns over soil depletion, the reduction of lowland forests and their capacity for soil drainage, as well as the consequent need to better address water management. The National Recovery and Resilience Plan has approved a massive planning intervention in the Po River Region to protect biodiversity and provide ecosystem services: the Agenda aims at fostering the ecological transition to achieve sustainable, green, and inclusive growth. The project for the renaturation of the Po River banks was signed on October 29, 2021 by the Ministry of Ecological Transition (MiTE) in Rome. This project involves interested entities from Piedmont, Lombardy, Emilia Romagna, and Veneto and is valued at approximately EUR 360 million and will impact the entire river basin where 37 Natura 2000 sites and the MAB Po Grande and Po Delta Reserves are situated.

The project involves the Po River District Basin Authority and the Interregional Agency for the Po River, and aims to intervene in 56 areas along the river's entire course. Five types of interventions are planned: redevelopment, reactivation, and reopening of abandoned oxbows and branches; reduction of riverbed artificiality, including adapting the *groins*†; diffuse naturalistic reforestation; and containment of invasive alien plant species. *The Action Program*⁸ was approved in the spring of 2022 and implements an alternative approach that considers the environmental context from an ecological, geomorphological, and landscape perspective while taking into account flood defense and water resource use and fruition. The project proposes an integrated approach that combines hydro morphological and naturalistic interventions, such as the decommissioning or reduction of works in the riverbed and the reactivation of secondary branches of the watercourse, and others considered *natural*, such as those referring to the recreation of river habitats and the control of alien plant species. This monumental intervention has the objective of satisfying the needs and requirements of individuals and communities in line with European trends. The success of these goals heavily relies on the environment's health and the natural capital's ability to support human life. Natural capital, like other types of capital, provides a flow of ecosystemic services that fall into four classes: Support, Regulation, Supply, and Cultural. To fulfill these needs, the plan involves a participatory process in the area to engage local communities and stakeholders.

PNRR Interventions.

This map displays the estimated positions of the 56 intervention sites along the Po River Axis. The *Medio corso* region will see the largest number of interventions, as it is the most developed area. Additionally, this section of the river has more curves and is where the majority of changes in the riverbed shape occur. Map elaborated by Giulia Cazzaniga, 2023.



According to the authors, the innovative character of the Po renaturation project is based on an interdisciplinary and integrated approach. The Scientific Committee is therefore made up of experts with proven knowledge and experience on the various aspects of the Po Valley territory and in particular of the Po River and with professional expertise in the following disciplines:

- Physical geography and geomorphology
- Stratigraphic Geology and Sedimentology
- Hydrology and Geomorphology
- Fluvial Hydraulics
- Hydraulic engineering
- River ecology
- Botany
- Natural sciences
- Ecology and Ecosystem Services
- Biology and Hydrobiology
- Ornithology
- Ichthyology
- Agronomic Sciences
- Forest Sciences
- Environmental Economics

After analyzing the available documentation, it becomes apparent that the planning aimed to control and organize the river area through technical solutions. However, the contemporary perspective questions the frameworks that shape our thinking about nature restoration and conservation. The fluvial landscape seems to be considered as a purely ecological or hydraulic matter. This contribution attempts to stress the cultural, narrative, and historical implications of the reconversion program on the natural imaginary and to bridge the gap between the current functionalist method and a multi-layered, multi-scalar interpretation of the landscape in which the soil is a living being beyond the faith in ecoculture, 'green' and settled nature.

ECOCULTURE AND LANDSCAPE DESIGN

If nature is to be considered a dynamic and evolving system rather than a collection of static objects, using the metaphor of a terrarium, then the various technical components involved in the approved plan require a direction and field of expertise to bring them together in a well-balanced relationship. However, there is a notable absence in the list of specialists involved: the discipline of architectural design.

There is no mention of an architect to manage the design phase or supervise the execution of works. Specifically, the ex-

clusion of landscape architecture from the intervention plan for the Po Valley landscape reflects a certain scientific and cultural attitude within the Italian public administration. While the intervention plan provides authoritative studies and technical solutions, it fails to consider the cultural implications and the violent impact that the transformations envisaged by the PNRR will produce in the territory. Although the ecosystem and resources aims are addressed, the landscape - which serves as a mediator between nature and culture by invoking natural processes over time and stimulating imagery and representations that reveal transformations and dynamics¹¹ - is often overlooked as an autonomous matter. It seems that the various disciplines involved in the plan have put the question of landscape interpretation in brackets, neglecting to consider what conservation and restoration of nature mean in today's context and whether they should be viewed as solutions to problems or adaptive responses to contemporary conditions. The extensive work carried out by the commissioned team competently and professionally addresses the challenges imposed by climate change for each specific area of expertise, but the overall coordination of the plan surrenders to a functionalist resolution that seems to renounce the contemplative, aesthetic and ethical dimension of the project. The Program approach tends to analyze the river issue as a hydraulic and ecological concern whose comprehension stops at the detection of problems. The punctual solution of these instances through a system of circumstantial interventions envisages a set of codified actions that endorse a method to measure the success of the transformations in terms of performance and capital. Some approaches continue to perceive the environment as a mere means of exploitation, where living beings and natural occurrences are regarded as tools for our own advantage. This outlook often results in targeted efforts with distinct limits that segregate them from the rest of the ecosystem. Unfortunately, taking such a narrow approach may result in overlooking the intricate interdependence of the environment as a whole. Mathur / Da Cunha's studies in their fundamental investigation of the forms of rivers, starting in 2001 with the publication *Mississippi Floods*, reveal how the approved project provokes a detachment from the dynamic reality of phenomena and struggles to interpret the signs of the land as a Palimpsest (Corboz 1983; Besse 2020) with which the landscape architect can interact, recreating a new system of values and polarities.

There is an absence of that audacity to imagine the territory as a fact more powerful than just mechanical and hydraulic implications, to act within the reality in which we are immersed

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and of which we are a part. The project centers on treating the river as a purely engineering problem, as seen in the document. However, comprehension appears limited to identifying fragilities and resolving them through massive interventions that involve a set of predetermined actions. The interventions are identified on a map, but their clear boundaries seem to interrupt the relationships with what exceeds the perimeter. These actions aim to measure the success of the transformations in terms of performance and capital and the project tends to consider the landscape as a resource for consumption and management, where non-human elements like flora, fauna, and natural phenomena serve as subordinates to human well-being. Recent studies on river territories, particularly the extensive research on the Rivers phenomena by Mathur and Da Cunha, have established a landmark in the field of Landscape architecture. They highlight the importance of recognizing the dynamic nature of the landscape and engaging with the layers of history that shape it (Corboz 1983). In line with Mathur and Da Cunha's approach, a landscape architect can create a new set of values and polarities by envisioning the territory as a powerful entity beyond its mechanical and hydraulic implications where the ground is a subject to interact with, not a support to be manipulated. Banks, oxbow lakes, sediments, lowland forests and wetlands constitute habitats that, like a terrarium, we can replicate artificially, restore, reconstruct, and safeguard, but they also represent possibilities for imagining a new river territory that architects can help design. In light of climate change, it is crucial to explore and implement new techniques to adjust to changing circumstances and avoid disastrous consequences and, in this perspective, the involvement of a landscape architect is crucial, not only to execute the necessary changes but also to shape them in a way that takes into account their impact on the surrounding area on a regional and local level. In such an extensive context of intervention, it would be important to conceive of soil movement as a structural modification of the territory that, on the one hand, responds to defensive, containment, or protection needs and, on the other hand, represents an opportunity to relaunch an idea of territorial infrastructure that from a technical solution becomes an architectural matter.

THE UNFORESEEN FACTOR

Over centuries The Po Valley's river land has developed a complex system of fortifications that arms the territory against the floods. This system includes the riverbed and various overlap-

ping planes, dams, dikes, incisions, elevation jumps and slopes but the five actions described in the Program tend to give mechanical and rigid solutions. These limited interventions focus on specific risk assessment areas, but paradoxically they are still bound to a generalized approach that lacks differentiation and context, resembling abstraction. On the contrary, this reflection tries to understand landscape architecture as the discipline for an open negotiation of transformations in which one does not assume "nature as a repertoire of forms to be reproduced, but on the contrary of behaviors to be interpreted and with which to collaborate in dialogic terms"^Λ. Moreover, a comprehensive approach to territorial scale intervention necessitates a creative dialogue with history. When considering consolidating existing embankments, it's not just about the muscular intervention or using the latest technology to resist river floods. This task also presents an opportunity to design by creating a dialogue with new phenomena, by organizing them in a way that supports processes, acts and reacts to the dynamics and identifies aesthetic and ethical values within the process. This implies reflecting on what landscape means nowadays and exploring the broader concept of nature beyond environmental efficiency. For instance, the renovation of the River Aire in Geneva by Atelier Descombes provides an excellent reference. On this challenging renaturation project, Atelier Descombes demonstrated how the architect's task cannot be limited to the pragmatic application of ecological principles but, instead, they proved how geometry can be the tool to spatialize a technical solution. Before arriving at the lozenge design we know, in fact, the design went through several compositional phases of trial and error, experimentation and adaptation. The design engraved in the ground, in fact, responds to the functional mandate by understanding the ability of water to autonomously shape the surface needed to flow without causing damage to things, people and animals, and furthermore proves that architecture shouldn't be reduced to the pragmatic calculation of water flow. The project is ongoing and unfinished yet defined to the finest detail: it creatively negotiates practicality and beauty dealing in a dialogic way with the questions of space and time. The pragmatic aspect takes into account the size of the excavators and the possibility of maneuvering, while the creative aspect uses these tools as instruments for design, engraving, and chiseling the ground.

The renaturation succeeds in unveiling the traces of time taking the decision to re-signify the imprints of human/non-human interactions on the land and demonstrates a sensitive understanding and appreciation of the territory and river dynamics.

To draw the Po River.

This map displays the middle stretch of the Po River, from Piacenza to Cremona, where meanders and oxbows intensify due to orographic conditions. Moreover, this area has been heavily altered since the construction of a hydroelectric power plant near Isola Serafini. Map elaborated by Giulia Cazzaniga, 2023.



"We must admit this paradox: the more the starting grid is defined, the more the river feels free to establish its new bed"¹. The project is an expression of a clear design will that extends its influence beyond the boundaries of practice to embrace an aesthetic result in an interweaving of technology and imagination, of function and representation.

The limitation with which the plan for the Renaturation of the banks of the Po River clashes is a Biologization of the landscape issue (Besse 2020): by focusing solely on practical necessities, the risk is to overlook the significant role that this kind of territory plays in producing imagery and representations. The gravels, sands, riverbeds, meanders, and defensive infrastructure systems all contribute to the ways in which different creatures experience the landscape, both now and in the future. The Program's model considers changing needs due to environmental conditions as a malfunction, underestimating its global and local impacts. To achieve the goals outlined in the action program, it's essential to implement a unified strategy throughout the entire Po River axis and streamline the process through simplified points. However, without considering a landscape architecture perspective, there's a possibility of reducing the project to a list of predetermined interventions that quickly resort to automated solutions. This approach is like reducing architecture to the mere fulfillment of minimum health requirements by inserting a correctly sized window. Instead, we must consider the form, material, and relationship between inside and outside, full and empty space, and possibilities of looking and being seen. Recognizing the significance of a site-specific crafted plan that comprehensively assesses the Po River cannot be overstated: through a careful examination of the topography and seizing the opportunity to gauge the undertaking's potential, a novel viewpoint of the river scenery can be envisioned. Rather than rushing towards the final result, traces and features already present in the area should be detected and redefined as a trigger for future trajectory. When it comes to the consolidation works, for example, it's unclear what role they can play in adapting to changes and being flexible elements. They have the potential to serve other purposes, such as providing viewpoints over the river, observation sites, or infrastructure to protect biodiversity and encourage its growth.

Instead, it seems that these edges are conceived and concretized as limits rather than thresholds for exchange and hybridization, a space that can establish new relationships and rediscover the marginalia as part of a value system that goes

beyond performative evaluation. The practice of participation is crucial, as well, but it must extend beyond gathering data; moreover, to truly understand the implications of all living creatures, including non-human entities like birds, fish, and rodents, is desirable to consider them as co-participating allies in the project, rather than mere components of an ecological system. While the current participatory process is well-organized, it still operates within an anthropocentric framework, where human actions direct the rest of the world from a privileged perspective. A well-designed terrarium should prioritize not only ecological, morphological, and geological aspects, but also sensitive, narrative, compositional, and space-enhancing elements. Regarding the PNRR-funded project, the terrarium metaphor could be employed to replicate a man-made ecosystem, yet the absence of artifice in understanding the potentialities is noticeable. The primary aim of the Program should be to construct the perfect condition for an evolving landscape that not only simulates optimal environmental circumstances but also acknowledges the complexity of the relationship between nature-related events and human actions. This should encompass a focus on the negotiation and on the unforeseen factor - the unpredicted element that sets apart artificiality from true artifice. The Action Plan for the renaturation of the banks of the Po River could be the catalyst in finding the artifice in the design and may lead to discovering ecology's expressive structures (Metta 2022) and utilizing them for the construction and creative organization of the landscape with site-specific design gestures. While there are no fixed landscape formulas to face the challenges of global warming, droughts, and floods, using a terrarium could be a helpful tool to test the architectural approach in a multi-layered, multi-scalar interpretation of the landscape in which the soil is a living being beyond the faith in eco-culture and settled nature.

Productive landscape.

This photograph was taken from SS9 Street, near the village of San Rocco al Porto. In the early morning, the fog covers the main embankment, giving an illusion of an infinite horizon. The fog is a distinctive characteristic of the region and its presence and thickness are linked to the abundance of water collected in the aquifer. It's also an indicator of the good health of the hydrogeological system. Photo by Giulia Cazzaniga, 2023.



As described by the Basin Authority, these are hydraulic works that act transversally on the current. By protruding from the bank to which they are rooted, they divert the current's impetus. They make an area downstream sufficiently calm and protected for a distance of approximately 1.5 to 2 times their projection.



It is an extensive document created by the Technical Secretariat of the Po River District Basin Authority in collaboration with AIPO, Piedmont Region, Lombardy Region, Emilia-Romagna Region, and Veneto Region.



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