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Designing Unstable Landscapes

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ABSTRACT

The concept of «unstable landscapes» refers to sections of territory produced by the contact/crash between different and conflicting morphological conditions. Contexts irrevocably exposed to the dynamics of the world, natural events and use way; processed, rejected, forgotten and recycled over the centuries; in-between lands grew up without a permanent order that however can be recovered.

This condition is typical of the rivers, whose untamed nature, combined with the necessity to exploit their resources, has produced a particular condition of instability related to different conditions: the urgent requirement of infrastructural intervention due to a constant and increasing risk both for urban and rural areas; the request to reduce the marginality of these spaces whose landscape is impossible to recognize because fragmentary and dominated by the disorder; the necessity to find solution useful to readdress unsustainable ecological conditions.

The urgency of intervention, combined with the lost potentialities and the latent richness of these spaces requires an integrated approach within which the role of architectural and landscape design is crucial.

The purpose to minimize the risk, to return a sense to these territories, especially working on the public space, and to re-establish sustainable ecological conditions are singular objectives to express through a plural vision. In this sense the ability of the architect to address each problem from the point of view of the space (shape, values, relations) is fundamental.

Thinking to the design process as a "therapy" or "treatment" implies an "anamnesis" process (collection of data related to the conditions of the landscape), the formulation of a "diagnosis" (development of a strategic view) and the identification of possible solutions (proposals of construction, maintenance and care). Those are indispensable preconditions to the formulation of operative strategies oriented to clear, to protect, to connect and to restore order within different the parts and to the disposition of architectural works characterized by technical and formal rigor, relationship with the spaces, multi-functionality and open possibilities of completion over time.

KEYWORDS: rivers, risk, landscape, instability, urban and architectural design

1 INTRODUCTION

This study is aimed to identify the role that architectural and urban design can assume within transformative processes concerning particular landscapes defined as "unstable", focusing on fluvial

contexts. The new interest expressed towards rivers and waterscapes, due both to the growing of a new sensibility and to the urgent necessity to recover and make safe these spaces, is only the starting point of a wide excursion into the examination of features, values and problems of these spaces. The outcomes will be focused on the aspects of interference and interplay between design and riverscapes and on the reasons of a territorial project that should have an interdisciplinary character. From this point of view will be examined the fundamental instrument of mapping, and will be defined some key concepts that must be taken in account during the design phase of these contexts.

2 INSTABILITY, RIVERS, AND LANDSCAPE

The choice to apply the adjective “unstable” to the word “landscape” comes from a deep reflection around the particular condition of contexts involved in complex dynamics, related both to natural conditions and use way. Those are territories extremely rich in values (history, form, nature and meaning) but, at the same time, subject to unpredictable morphological mutations and then difficult to fix into a persistent structure. Spaces that have been highly exploited over the centuries and transformed into a succession of episodes whose landscapes is only partially recognizable in form of fragments.

Riverscapes are ascribable in this category. Water courses of different sizes and flows, are still shaping the landscape by digging, eroding and transporting, meandering with unpredictable variations. Their role was fundamental into the civilization process and, during the ages, the objective of their control and use has led the man to struggle to subvert their natural order; with results that however are still showing deep uncertainty. (Middleton, 2012).

Figure 1: Reggio Calabria: The Valanidi Stream. (Author).

Today urgent interventions are required for safety and landscape quality. The huge modifications that have been applied to the rivers; necessary for their use and their involvement within the territorial dynamics, combined with the effects of climate changes, have led to increase their dangerousness and to produce uncertain spaces along their banks. (Mitchell et al., 2006). Riverscapes are often unsafe, marginal, and refused by the people. For this reason there are countless examples of cities that have to develop strategies useful to recover positive relationships with their rivers, allowing people to assimilate and recognize them as specific landscapes. The rethinking of river landscapes requires a broader debate that starts from placing these natural arteries at the centre of a more complex reflection on the city. (Dawson, 2007; Langenbach et al., 2006).

The design of these "unstable" parts is extremely difficult both in relation to specific fields of knowledge that inside of the same discipline, such as architecture. If, undoubtedly, engineering plays a key

role respect to the risk assessment, the hydraulic reconfiguration, and the determination of the constructive characteristics of the technical devices; design disciplines instead have yet to clearly codify prerogatives and limits of their contribution that is central in comparison with the opportunity to transform these spaces into places. In this sense it is extremely important reconsider one of the most relevant statement of the European Landscape Convection: the possibility to create or re-create landscapes starting from neglected, abandoned, forgotten or weak territories. (Aa.Vv., 2006). This fact is a further demonstration of the responsibility that design has to assume thanks to its disciplinary tools.

Thus an immediate analysis shows that along the rivers can be identified incoherent urban materials among which reside some latent qualities in form of residuals. Only the critical eye of the architect can be able to recognize, list and reorganize these materials within an approach based on space, integrating them to construct new narrations. To do this the architect has to work in close contact with other specialists, acting as director of the whole transformative operation.

3 FORMS OF INSTABILITY AND DESIGN ROLE

The condition of "instability" cannot be related to a singular reason, but depends at least on three main problematic conditions, often overlapped, that are directly related to space problems, and can be solved by the fundamental contribution of architectural and urban design.

In the first one instability is physical alteration, it is related to the natural dynamicity of the rivers. Each catastrophic event may produce morphological mutations able to destroy structures and to change extended parts of the territory. (Mc Guire, 2002). The safeness of many territories depends on man-made modifications of rivers areas, but these interventions are directly responsible for the indirect results of the transformations. Sometimes, in fact, the urgency of intervention and the mono-disciplinary approach, forces to neglect the relationship between the structures provided and their spatial consequences. In this sense it extremely important to ascribe each operation into a broader territorial strategy involving architectural and urban design.

A clear vision of the space is crucial in consideration of the determination of the intervals (sections) between water and surrounding spaces. This means to consider the consistency of each interval, evaluate the potential system of relations, set the disposition of the structures and their design.

If the engineer will assess the correspondence between drawing and technical criteria, the architect will evaluate the aesthetic qualities of the object, its disposition and relation with the spaces. In addition to this he will work researching around the architectural typology, trying to combine a plurality of functions inside of the same object, to produce "hybrid" and consequently "living" piece of architecture.

In the second condition the link between landscape and instability is made of marginal urban condition, abandonment phenomena, ways of usage, and negative people's perception.

River spaces have been exploited, modified and subverted during the years, in accordance with the typical rules of the industrial era, producing fringe spaces, where the instability lies into a constellation of waiting spaces.

In this case the role of architecture is fundamental if compared to the possibility to re-create sensible spaces as indispensable prerogative for new landscapes. This means to extent solution able to ensure quality and liveability of these spaces, giving spatial quality and including them within a larger system of public places.

Finally, in the third condition, the instability is related to the environment and regards the precarious ecological conditions of rivers and their spaces. This aspect is extremely complex because involves different problematic and affect urban systems in different ways. Starting from the aspects related to the quality of the water, it is possible to extend the discussion to the ecology of the river basin and then to the river area up to understand how rivers ecology is influenced by the characteristics and forms of use of extended parts of urban systems. We can think only to the drainage of rainwaters, to its relation with pollution, and, especially, to the amount of water that the system directs to the rivers during downpours and thunderstorms.

All these aspects are really important in comparison to the role of architectural and urban design because the relations between rivers ecology and project are multiple and layered. It is possible to take in

account not only the implications related to urban form, but also those dependent on the design of each building. The rehabilitation of unstable landscapes implies their ecological remediation and this implies a direct and deep involvement of architecture.

The brief examination of the three main implications of architecture in the design of riverscapes has shown the level of complexity and coexistence of various topics inside of contexts defined as "unstable", the urgency to involve architecture and to define instruments and process useful to define a design methodology.

4 MAPPING AS DIAGNOSTIC TOOL

The comparison between modification and caring is not new within the context of architecture (Emery, 2007, 2008) but its significance may be extended to the entire process at the base of the link between anamnesis, diagnosis and treatment in medicine.

The diagnosis process requires to follow specific operational practices, flexible but logical. The doctor starts gathering initial information trying to relate symptoms, origins, organs involved, patient's medical history, passing then to a physical examination. He collects additional information, confronting them with statistical data, and making a comparison with similar cases. He can require scientific exams to verify his suspects and exclude other possibilities. Only after he has built other supposition and has moved from one finding to another one, trying to reach the most accurate idea, he is sufficiently sure and ready to recommend treatment. (Richardson et al., 2008)

The confrontation with the process of design is immediate. Project means working with site. The team starts with a careful survey, establishing a confrontation with the history, and the development of the territory. The process follows a path that leads to the discovery of the place, to the acknowledgement of weaknesses, limits and potentialities, to a forecast about possible outcomes and, finally, opens the possibility to start the definition of the amending process.

The essence of this process is well outlined by different scholars. It is really interesting to build a parallelism between the two definitions given by Girot and Marot that present a similar basic idea. The first one, defining the design process, speaks about four trace concepts. "Landing", as first act of understanding, "grounding", as orientation and assessment decision, "finding", as identification of the solution, and finally "founding", as constructions act. The second one named the first principle "anamnesis", with an explicit reference to medicine, talking about site interpretation, and then he defines the phase of "preparation", recalling the "grounding" idea. Finally he introduces two operative concepts called "three-dimensional sequencing" and "relational structures", related to a phase of assimilation of the place and birth of project idea, but connected with a strong idea of relation, between things and spaces, that is extremely important compared to a possible interpretation of the idea of landscape. (Marot, 1999; Girot, 1999)

This is only a partial demonstration of the validity of this theory whose universality is asserted more by a widespread use than by its theoretical definition. It emerges the idea that is fundamental to develop a process of knowledge able to lead towards the interpretation of the more meaningful data and capable to shape the design assumptions. In this regard is fundamental to define the privileged tool to imply during this phase. Assuming that the formalization of this phase has to be implemented through the drawing, the main tool that can be assumed cannot be that the map.

Investigating the complexity of unstable landscapes implies a deep reflexion; not only about the space, its morphology, its forms of use, and the ways by which it is perceived and lived, but also about the connection between risk, form and use of the city. The map is a way to collect, classify and disclose information. The map is also a powerful instrument, rich in critical and interrogative power, which allows the transcription of theoretical data into design choices. In recent years many researcher have shown the value that the map can assume into territorial projects such as that of "unstable landscapes". (Beelen, 2009; Amoroso, 2010). Actually one of the matters that is hide behind the difficulties of interdisciplinary dialogue is due to the absence of a common comparison tool. The map provides a solution, allowing the layered representation of the data through a common and comparable support, consistent into the real representation of the space. A collection of maps will be the demonstration of a careful attitude towards the territorial

background and will constitute, as well as evidence of the design process, a means to make intelligible the design choices and facilitate the assimilation of the new landscape.

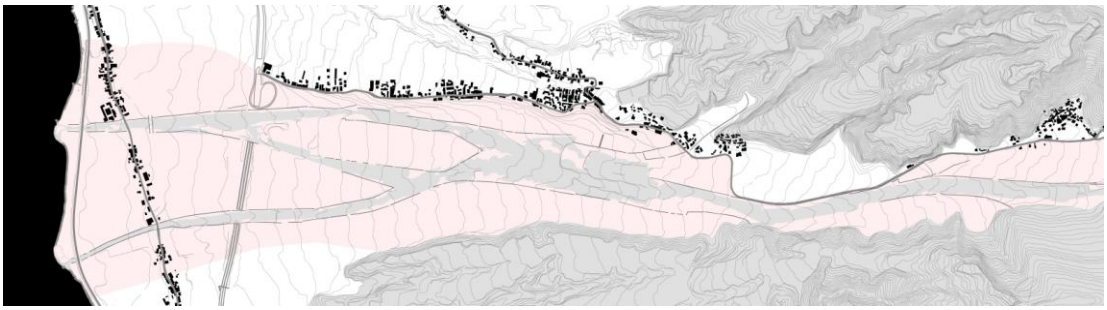

Figure 2: Valanidi Stream, Map of the constitutive elements of the landscape. (Author)

The process of mapping has to be flexible and modelled in accordance with the specificity of each situation. For this reason it is impossible, and harmful, to define a specific course to follow in the investigation. Nevertheless some key concepts that, according to my opinion, have a methodological character should be treated.

5 DESIGN OF RELATIONS.

One of the most important nodes to untie compared with the "unstable" landscapes, is related to their changeable nature. For this reason during the mapping phase it is indispensable to search for all the components, even minimal, that can contribute to the identification of stable connecting systems. Two concepts assume a relevant significance according to this purpose. The first one is the sign, the second the idea of relation or connection (not merely physical).

A careful investigation into the system of signs characterizing a determined part of the territory it is primary if compared with the necessity to define the value of territorial elements in comparison with their preponderance and permanence. Sometimes those signs can be hidden within dense and stratified palimpsests and their disclosure requires an intense penetration into the structure and the history of the spaces. Frequently the concealed elements are the most significant for the remediation, just because survived in the course of events. The identification of enduring parts allows also the better comprehension of the soil nature, because they underline the parts most geologically stable.

Assuming the landscape as a system of relations between physical elements, objects and people, implies the rebuilding of this plot if lacking. In the case of "unstable" situations this becomes crucial and dependent on less specific persistent elements. For this reasons each sign assumes an absolute role.

These relations have to be intended as flexible and conceptual, not always based on physical relationships, but especially on extended references and perceptive or sensitive agreements.

The modification of each part of this relational landscape implies the reflection around the sense of one element in comparison with the whole system whose nature will be based on a hierarchy of parts whose role depends from their stability. This solution, dealing from a vision set on foundational and persistent elements, offers a double perspective. Each project may be completed over time without losing its sense, and it will be resistant in comparison with disruptive events, because dependent from few significant signs that, if damaged, can be repaired or restored according to the original meaning.

6 KEY CONCEPTS FOR UNSTABLE LANDSCAPE DESIGN.

Making architecture within the unstable landscape means dealing with a plurality of scales that lead from the territorial project to the detail. This transversality can coexist in the cross-section that is the first key concept characterizing the architecture of these contexts. The same morphology of river landscapes requires working from section to section moving from the large scale to the structures. However the

innovation relies on the complexity of its design. The section into the architecture of unstable landscape must be not only the link between the space and its uses and the embodiment of the dialogue between architecture and engineering, but also the element through which the concept of relation, earlier discussed, is generated.

The generative point of each section is the significant sign inscribed in the series of stable elements identified and integrated during the design phase. Each section must represent the variability of this spaces offering different intervals, adaptable to various uses, in accordance with the different levels that the water can reach. In the same time this instrument has to physically define the connection with the existing public spaces and the emerging elements, ensuring the progress of landscape. Furthermore the section acts as instrument for the melting of different uses and space categories, offering the possibility to develop programs both horizontally and vertically.

This consideration introduces the second key concept that can be expressed by the idea of hybridization as well as plurality. The multiplicity should become a distinctive nature of the architectural works ascribable to riverscapes. The achievement to exclude the marginality, whose reasons have been highlighted in the first part of this paper, is the first justification for the deployment of this concept.

The essence of plural architecture reaches us from an ancient knowledge that has been transmitted through many notable architectural works. Examples belonging to precise typologies, in some cases even disappeared, such as the inhabited bridge that was so common in the past ages. (Flanigan, 2008). But also objects of recent experimentation, sometimes remained on paper as examples of too visionary researches. (Mimram, 2008). Hybridization can be used to solve a particularly sensitive question into the unstable landscape. In fact the power of the plurality allows transforming the works of engineering into hybrid objects whose nature is technical, but their function is social. By this way simple structures, such as the river's banks, can become space receptacles, offering new spheres to the city and arranging themselves as intermediaries between spaces with different but equivalent quality. One of the primordial and probably well known example of architecture, based on this concept, can be identified into the banks of the Ljubljanica River in Ljubljana designed by Jože Plečnik, whose scope is to connect the river with the city and its most relevant public spaces. (Podrecca, 1982). Thinking about plurality today does not exclude to bring this concept to its maximum expression considering the hypothesis to implement housing solutions inside of river works. It is a challenge, partly accepted, that deserves to be further investigated.

There are many European cities that are exploring the potentialities of the hybridization process applying it to different systems of public space connected with riverscapes. The example of Rotterdam, coordinated by the town council, is particularly interesting because they have transformed a technical problem into an opportunity (social and economical) for the city. The final result of the research, a sort of abacus of the different solutions, allows understanding the potentialities that are hidden behind a plural vision. (Veelen et al., 2010). The necessity to protect the city from increasing rise of water level becomes the pretext for an intense and ambitious process of urban renewal. The solution to extend these effects beyond the merely fluvial spaces could provide a starting point for the regeneration of a wide range of cities and contexts.

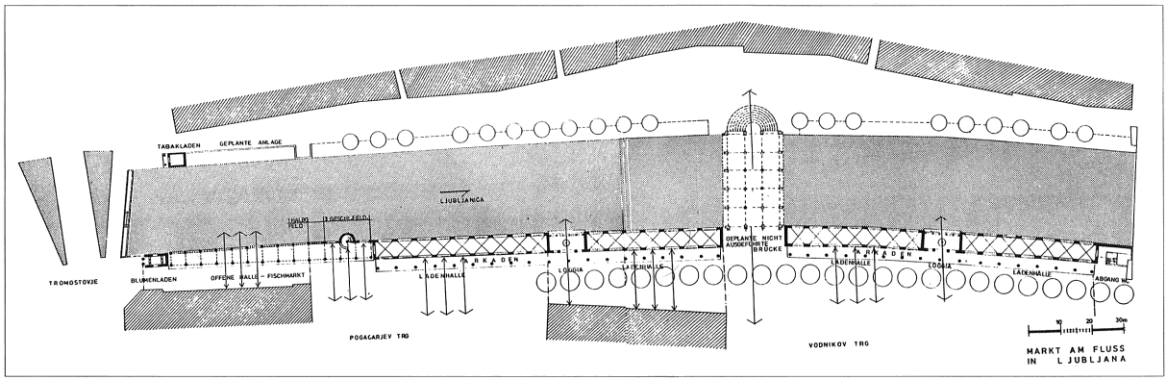

Figure 3: Drawing by Jože Plečnik for the banks of the Ljubljanica River. (Podrecca, 1982)

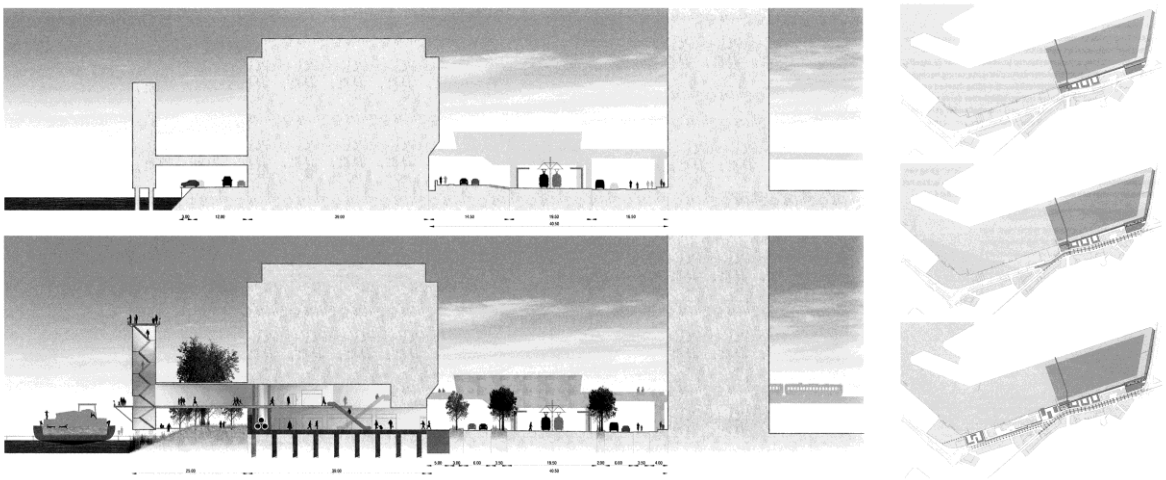

Figure 4: Safe and multifunctional urban levees in Rotterdam: Brielselaan. (Veelen et al., 2010).

7 CONCLUSION

This brief excursion within the topics related to the "unstable landscapes" allows the comprehension of the peculiarity of these spaces and to understand the specificity that urban and architectural design has to assume with respect to their modification. Beyond the small advances that the design can provide in comparison to technical and safety problems and solutions, the big contribution is related to the extension of the regeneration problem to the multiplicity of spaces that build the relationship between rivers and cities. All this is part of an extended idea of sustainability, centred on a complex definition of heritage, which also include the disqualified parts, assuming, as a premise, their recovering.

To do this, in addition to a general cultural advancement, it is required that architectural and urban design rediscovers a wide collection of tools through upgrading of their use. The itinerary proposed allows discovering the sense attributed to these spaces, to understand their problems and to appreciate their potentialities. The central theme is to specify the irreplaceable role played by the space and its shapes. This is a peculiarity that can be implemented and improved only by the contribution of architecture.

It is clear that the comprehension of the reality is a necessity and a duty, as well as its codification into a series of graphic representations. Mapping represents the best way to understand, criticize and communicate and it is the first basic step to identify problems and formulate a cure. The therapy of space requires to work on its components: sections and plural typologies, that are only two of the wide range of tools and concepts that can employed compared to the transformation of these spaces.

The recovery of riverscapes is a concrete opportunity that requires a change of attitude and a renewed sensibility. The deployment of different skills and the desire to restore the meaning of these irreplaceable territorial infrastructures is essential. The essay pursues this goal.

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