The project in landscapes at risk.
Back to architectural design

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This contribution traces the research conducted within the extended partnership PE3-Return (multi-Risk sciEnce for resilienT commUnities undeR a changiNg climate) and is aimed at explaining the role that architectural design can and must assume in response to the contemporary condition, characterized by the profound changes imposed by climate change. Through the analysis of

Introduction

In 2009, the United Nations published the first official definition of the term 'resilience' in the UNISDR glossary on Risk Disaster Reduction in which it states

> [resilience is] The ability of a system, community or society exposed to hazards to resist, absorb, accommodate and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions. [...] Resilience means the ability to 'resile from' or 'spring back from' a shock (UNISDR, 2009, p. 24)

Fifteen years later,'resilience', 'mitigation', 'adaptation' and 'prevention' still seem to represent the key words of the contemporary designer, who is called upon to contend with an era of profound changes, not only cultural, economic, social but, above all, environmental, ecological, and climatic. Confrontation with a natu-

four case studies, chosen with the aim of comparing interventions at different scales – the temporary device, the architectural artefact, the urban landscape and the low-density landscape – the study explores the possibility of overcoming the 'sectoral' and 'deterministic' approach that tends to break down the project into isolated disciplinary and operational domains. 'Resilience' is thus adopted in its humanistic, physical and sociological meaning, becoming a potential research tool for a 'new balance' to be achieved through methodological and design approaches capable of engaging with complexity, synthesizing diverse forms of knowledge, and fostering a conscious relationship with the built environment.

ral system that is constantly changing in radical and pathological ways has often led to a preference for solutions selected from the abacuses of technical alternatives, to react to sectoral stimuli, and to confuse tools and objectives, often producing partial responses.

In this context, the notion of resilience often invoked in the design field to urge 'adaptive' and 'reversible solutions or, rather, reactions', seems to penalize the 'creative and spatial' dimension of design activity. A deepening of the term and its meanings in the physical, humanistic and sociological spheres, focused on the 'search for a new balance', instead legitimizes new methodological approaches to design, capable of addressing complex situations through synthesizing actions[1] based on reasons rooted in established methods and approaches to which the same prefix 're-'of the term resilience also refers.

Indeed, in the topical and token prefix re- lurks the idea of re-thinking in order to find a new idea; of re-doing in order to do better; of re-recovering and re-cycling, in order to save and build; of re-trying in order not to give up; of re-birthing, re-living, re-dying in order not to kill a system that is already collapsing and yet does not yet completely fall (Marini, 2016, p. 533).

In this perspective, the contribution explores, from the architectural design side, the methodological issues that have emerged in the research experience conducted within the extended PE3-Return (*Multi-Risk sciEnce for resilienT commUnities undeR a chaNging climate*[2]) partnership and, in particular, in the context of the Spoke TS1 - Urban and metropolitan settlements activities that aims to develop models capable of assessing and predicting the impacts, present and future, of climate-related events on the built environment, urban settlements and cultural heritage, taking into account their multiple conditions of vulnerability to multiple hazards, as well as models to estimate urban resilience and the

potential benefits of adaptation and mitigation of impacts[3].

With respect to these general objectives, drawing on the disciplinary background of architectural, urban and landscape design, and through a multi-scalar inquiry, both inductive and deductive, general methodological issues were investigated through the study of responses to multi-hazard conditions developed in the context of some case studies considered exemplary as expressions of a critical synthesis of solutions that respond, through solutions for different scales, to mutual intertwining between the modes of project development and specific local conditions related to hazards.

Overcoming a 'sectoral' and 'deterministic' conception that breaks down the project problem into distinct scalar and disciplinary domains, according to working schemes that operate 'in succession' or 'cascade', which correspond to partial solutions to be 'assembled' together without a careful analysis of the repercussions (positive or negative) that each action brings into play contributes to making explicit the key role that the approach developed through interscalar design can and must play in response to multiple contemporary 'crises'.

Architectural and Urban Planning towards new forms of balance

Contrary to passive notions of resilience as mere reaction, emerging interpretations based on new potential balance, drawn from the humanities and physics and based on prospects of new equilibria, restore agency to architectural and urban design, positioning it as a cultural and operational tool for governing territory through critical, synthetic responses.

As landscape architect Nunes notes, this design attitude begins with perceiving transformation potential within nature, an 'invested' observation that anticipates and enables change (Nunes, 2022). This combination of scientific analysis and creative intuition underpins resilient design strategies embedded in systemic, regenerative processes that address cultural and social needs.

This position asserts the cultural value of the built heritage as the outcome of a 'collective manifestation' and as the 'locus of collective memory' (Rossi, 1966), whose preservation cannot be subordinated solely to the protection of human and environmental systems.

In this approach, the critical reading of specific contexts becomes an indispensable prerequisite for any design action. Rooted in the disciplinary tradition of urban analysis, it unfolds across an interscalar dimension aligned with the growing relevance of the 'landscape area' concept. This conceptual framework seems to revive the cultural heritage of Italian urban studies from the 1960s (Gregotti, Renna, Bisogni), proving effective in making sense of type-morphological relations within the built environment and their perception by communities.

Understanding the nature of heritage exposed to risks entails identifying the identity structure of that heritage, knowing its constitutive and evolutionary rules, and, through them, assessing its vulnerabilities. Such knowledge is essential to evaluate the adequacy of adaptation and mitigation measures, aiming at the desired 'contextuality' and systemic coherence of interventions.

The methodological issues that emerged during research within the PE3-Return align with these approaches. While the initial goal was to define design solutions for multi-risk prevention, adaptation, and mitigation at various scales, the methodology employed seeks to reaffirm the interpretive and performative prerogatives inherent to architectural, urban, and landscape design.

The proposed methodological hypothesis assumed that systemic solutions could be identified through the analysis of specific responses developed by exemplary case studies, selected for the clarity of their design strategies. In this regard, the research conducted within PE3-Return expands on a method developed in the research *Horizon 2020 Clarity*[4], which – through analysis and cataloguing of successfully implemented projects – seeks to identify and disseminate the 'added value' of each project as it reverberates through specific contexts, beyond its direct response to the expected risks.

Compared to the Clarity research, which focused on meteorological risks (such as heatwaves and flooding), the distinctive feature of the PE3-Return methodology lies in its focus on multi-risk scenarios across an interscalar dimension anchored to geographical contexts.

The cataloguing activity was developed within an interdisciplinary group[5] through the creation of a matrix that cross-references 'sustainable interscalar design actions' with multi-risk indicators. These design actions represent a finite set of multiscale interventions aimed at achieving sustainability goals in response to specific risks. They were derived by comparing tables of virtuous technical alternatives with critical analyses of recent projects, 'deconstructing' their design frameworks.

The set of multi-risk indicators is based on the inclusive classification proposed by the European Commission in *Science for Disaster Risk Management 2020 – Acting today – Protecting tomorrow*, (Casajus Valles, A. et al., 2020) covering geophysical, hydrogeological, meteorological, climatic, and anthropogenic risks. The framework was expanded to include risks related to the intangible cultures of place – those that generate social and economic environments by establishing regimes of inclusion/exclusion and that are embedded in settlement principles and type-morphological relations. This new macro-category, termed 'cultural impoverishment risk', was further articulated to include the physical aspects tied to

local typological traditions and the capacity to respond to community needs.

The selected case studies – WHATAMI, STARTT, Rome, 2011; Capela do Monte, Álvaro Siza, Algarve, Portugal, 2016; Bastide Niel, MVRDV, Bordeaux, 2010; Paseo de Platja Llarga de Salou, b2b Arquitectes, Cap de Salou, Spain, 2003-2022, allowed for a stress test of the matrix across four thematic fields to assess its adequacy and explore its scope of application.

These thematic fields – each embedded in the broader interscalar design framework – represent different project contexts: temporary installations, architectural artifacts, urban landscapes, and low-density landscapes. They were chosen to define a catalogue of comparable solutions based on contextual, dimensional, and programmatic differences.

The work employed both inductive and deductive investigation methods: the case studies were critically analysed and tested using selected indicators, enabling the derivation of general principles regarding intervention methods for risk response (in terms of prevention, adaptation, and mitigation) and for assessing systemic capacity.

The experimental evaluation of case studies using the matrix – combining sustainable interscalar design actions and multi-risk indicators – demonstrates that it is both possible and necessary to pursue objectives related to 'natural environment defence and reclamation' alongside those concerning 'cultural environment conservation and enhancement'.

Indeed, many key actions simultaneously address multiple objectives, sometimes even across different objective families. A detailed analysis of the sustainable interscalar design actions implemented in each case study, regardless of intervention scale, reveals how project 'scales' interact to achieve a 'new equilibrium'.

This research highlights the positive impact of projects that transcend 'sectoral' and 'deterministic' design frameworks. In projects like WHATAMI, Capela do Monte, Bastide Niel, and Paseo de Platja Llarga de Salou, it is possible to recognize an architectural conception of space that hierarchically organizes all objectives – whether related to risk mitigation, prevention, and adaptation, or to functional requirements.

It is evident that these design ideas arise from the study and creative reinterpretation of context – sometimes through assimilation, as in the Capela do Monte and Paseo de Platja Llarga de Salou; other times through dissonance, as in WHATAMI and Bastide Niel. These ideas introduce an 'infiltrated program' (Zenghelis, 1985), deeply rooted in the interpretation of geographical contexts and the recognition of foundational myths. They demonstrate the ability to reframe technical issues as broader cultural propositions.

Following the trajectory of these projects, it becomes possible, on the one hand, to reaf-

firm the driving role of architectural design and to understand how we might 'build new paradises' (Nunes, 2022). On the other hand, it becomes untenable to support processes that deconstruct design problems into separate scalar and disciplinary domains, working through 'sequential' or 'cascading' diagrams that generate partial solutions to be 'assembled' without a thorough analysis of the (positive or negative) repercussions that each action may entail.

The matrix employed, based on the intersection between interscalar design actions and multi-risk indicators, however, presents certain limitations that deserve to be made explicit. The first and most evident issue concerns the availability and consistency of data across different contexts, particularly in relation to the "lifecycle of projects", which may limit predictive capabilities in areas lacking established practices.

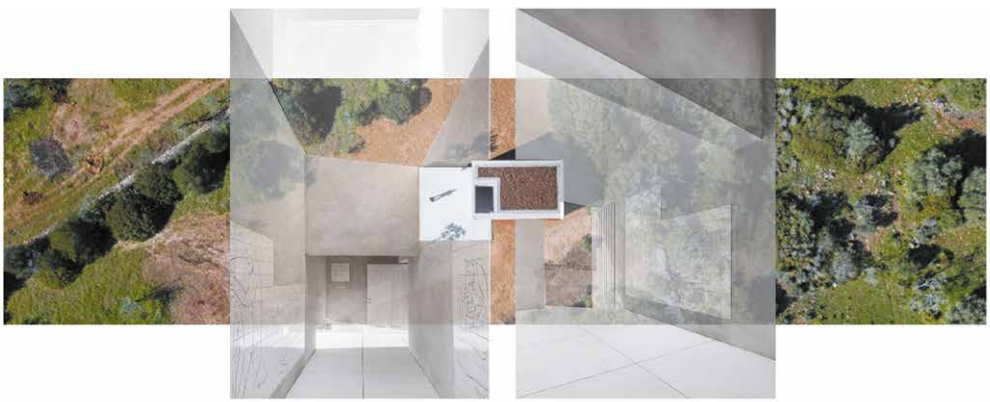
The second issue relates to the objectivity of assessing the added value of projects in terms of cultural environment conservation and evaluation. In fact, the assessment of whether objectives have been met often relies on critical interpretations that are not automatically comparable.

These considerations open the way to potential methodological developments. Among these is the introduction of a temporal dimension into the matrix, which would allow the modelling of the evolution of risks and design responses over time, enabling an assessment of resilience in future scenarios. Cross-validation of the matrix in different contexts would help to identify recurring elements and replicable solutions. The integration of participatory processes could enrich the range of indicators with social perceptions of risks and resilience strategies. Similarly, integration with probabilistic scenarios would make it possible to simulate the effectiveness of design actions under extreme events, identifying optimal combinations of interventions based on matrix data and new case studies. In any case, the explicit articulation of the evaluator's scientific approach may enable a more critical and informed interpretation of the results.

Such developments would enhance the effectiveness of the matrix as a decision-support tool in multi-risk contexts, while maintaining the interpretative and design-oriented perspective that forms the core of the present research.

Exploring resilience in Architecture, Urban and Landscape design: four case studies

Nowadays, responding to multi-risk conditions through contemporary design means translating the concept of resilience in terms of variable relationships to the context, which is often deeply rooted in the risk condition. Therefore, all the projects described below adopt a methodological approach that combines the continuous contextual change – driven by natural,



but also cultural and human-made risks – with a temporal change in the composition of architectural and urban space as a tangible form of dynamic rebalancing. Each case study offers a critical exemplification of a widespread design attitude, in which architecture, in different forms and at various scales, functions as a continuous reinterpretation of places, capable of recognizing, even in the most fragile and inhospitable contexts, the opportunity for innovative use of both natural and anthropic spaces. The aim is not to provide univocal or replicable models, but to validate the proposed experimental method through examples that, despite their specificity, demonstrate architecture's ability to engage simultaneously with risk and with the resilient potential of places. This deliberately limited yet diverse selection – both in scale and type of intervention – makes it possible to see how the notion of resilience translates into radically different design solutions, while maintaining a shared interscalar and contextual approach that mediates between risk and spatial quality.

In the field of temporary devices, WHATAMI (fig.1) a provisional public space project designed by STARTT and realised by MAXXI in collaboration with MoMA in 2011.

Rome, Italy. WHATAMI, STARTT, 2011.
Digital collage
Source: visual elaboration: Marilena Bosone, 2025
Fig. 1

Charneca, Algarve, Portugal.
Capela do Monte, Álvaro Siza, 2016.
Digital collage
Source: visual elaboration: Marilena Bosone, 2025
Fig. 2

Engaging with the idea of a possible future for urban transformation, STARTT's intervention offers a sensitive design solution that responds to the meteorological risks associated with heat waves and extreme temperatures, the environmental risks posed by the use of non-renewable resources and the risk of cultural impoverishment due to the lack of a relationship with the existing city.

Set in a historical moment characterized by an economic, environmental and cultural crisis, WHATAMI presents itself as an experimental form of mediation between the existing city and the emerging risk conditions, proposing a model of temporary and reversible spatiality.

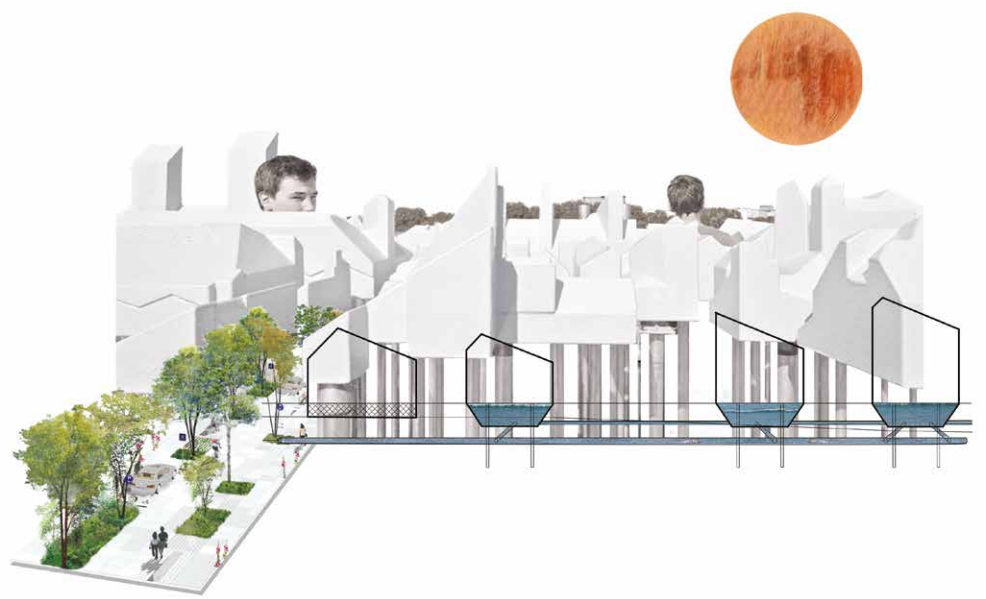
The intervention is shaped as a responsive urban device, capable of activating variable relationships with a context profoundly marked by the mono-materiality of the MAXXI concrete square, by a lack of greenery and by a limited integration with the surrounding urban space.

The design links environmental, climatic and cultural changes to a compositional transformation of the square, introducing a dynamic artificial topography – hill, mobile islands and water features – able to evolve over time and respond to climate and usage stresses.

The project applies a reversible material and construction logic, favouring dry-assembly techniques, natural materials and prefabricated modules, extending transformability to the technical dimension of the intervention. The architectural space appears as an archipelago of hills, topped by 18 approximately 3-metre-high fibreglass flowers that illuminate the park at night and provide shade during the day. They also establish a dialogue with the city by reaching, together with the base, a dimension comparable to the surrounding buildings.

The spatial system is transformed through interaction with the visitors, whose presence and activity continuously redefine its boundaries and potential uses. The intervention thus becomes a dynamic relational space, where temporality, reversibility and participation are embraced as primary design tools. Each part of the project is, in fact, conceived to be dismantled, relocated, and reintegrated into other urban contexts, following a circular logic that integrates the production, consumption and reuse of space.

Finally, the planned decommissioning of the installation – with the reuse of the materials for the creation of urban gardens in the Garbatella neighbourhood – represents the coherent extension of a design methodology based on the capacity of the architectural project to act as a transformative interface between context and risk. WHATAMI does not merely offer an aesthetic or functional response to the issue of multi-risk but develops an operational model of spatial resilience in which the project becomes an instrument for negotiating environmental, cultural and social demands through an inherently adaptable architectural composition.



In the field of architectural design, the 'Capela do Monte' is a small, non-denominational Christian chapel designed by Álvaro Siza, in 2016, in the Algarve region (fig.2). The intervention is the centrepiece of a wider rehabilitation programme for the abandoned rural village of Monte da Charneca, which focuses on the restoration of existing architectural and agricultural heritage and the promotion of ecologically responsible rural tourism.

Siza's project skilfully deals with the risk of cultural impoverishment posed by the construction of a new building in the Algarve landscape – as well as the potential environmental and human-made risks associated with altering the ecosystem – by opting for a 'pure architectural object', that blends harmoniously into the context and is energy self-sufficient.

The design methodology is based on the direct association among environmental, landscape, and cultural components, and a spatial composition that integrates architecture into the very cycle of nature. This is achieved through a material and functional protrusion of the landscape, an architectural gesture capable of fostering the conditions for a harmonious coexistence between humans and the environment. Siza's intervention is distinguished by its exceptional sensitivity to context: the chapel not only blends quietly into the hilly agricultural landscape but also avoids any significant alteration to the ground or existing vegetation. No trees were felled, and no road was built to reach the building, which is only accessible through a pedestrian path that preserves the aura of isolation and contemplative seclusion. The decision to construct the building at the top of the hill, far from any infrastructure, reflects both an aesthetic intention and an ecological logic: the elevated position allows optimal use of natural ventilation and sunlight, ensuring a pleasant indoor climate without the aid of mechanical systems[6].

Its compact and carefully calibrated structure – measuring only 65 square meters – is built using local and natural materials: ther-

Bordeaux, Nouvelle-Aquitaine, France.
Bastide Niel, MVRDV, 2010. Digital collage
Source: visual elaboration: Marilena Bosone, 2025
Fig. 3

mal perforated bricks, limestone plaster, and a lightweight concrete roof covered with a layer of topsoil. This combination of construction choices guarantees excellent passive thermal performance, keeping the interior cool in summer and mild in winter.

The light colouring of the surfaces, inspired by the earthy tones of the surrounding landscape, further contributes to solar reflectance and heat control, thereby reducing the need for artificial climate regulation. The architectural form of the chapel is expressed by a volumetric purity that evokes the vernacular architecture of the Mediterranean. The simple and abstract façade, with its U-shaped opening to the west, leads into a sober and intimate sacred space in which spirituality arises from a direct dialogue with light, matter and the landscape. Inside, the prayer space is minimal, finished with white tiles, handcrafted oak furniture and a stylised cross, which stands out as a simple T on the back wall.

More than a religious building in the strict sense, the Capela do Monte represents a place of contemplation open to all sensibilities, a spatial device that invites reflection, meditation and connection with nature. This value is reinforced by the presence of a small churchyard that extends towards the landscape acting almost as a continuation of the interior silence toward the horizon. The intervention thus presents itself as a coherent and profound response to the cultural and environmental degradation often associated with the abandonment of rural areas: it not only preserves the memory of the place but also demonstrates how architecture can act with lightness and respect, embracing the principles of resilience and sustainability not as technical add-ons, but as the very foundation of the project.

In their design for the new residential district of Bastide Niel in Bordeaux (fig.3), MVRDV engages with the 'urban landscape scale' as a heterogeneous and complex context marked by the coexistence of multiple risk conditions. The intervention area, located in the Bastide Brazza sector on the left bank (*Rive Gauche*) of the Garonne River, is an alluvial plain subject to frequent flooding events throughout the year. The site's unstable and shifting nature compels the designers to rethink the relationship with the river, establishing a symbiotic and synergistic connection with the natural system. The high hydraulic risk in the form of river and sea flooding is accompanied by a meteorological risk in the form of heat waves, a low seismic risk (Somival, 2013), an environmental risk due to the original industrial use of the site[7] and a man-made risk in the form of potential loss of riverside biodiversity[8].

The unavoidable relationship with the context also outlines a risk of cultural impoverishment, connected to the potential loss of the existing building heritage or the inability to establish a conscious dialogue with the consoli-

dated urban fabric. The area, in fact, faces the historic center of Port de La Lune – a UNESCO World Heritage Site since 2007 – and preserves the traces and infrastructure of the disused railway yard of Bastide Amont, as well as the buildings of the nineteenth-century 'Caserne Niel'. The challenge that the designers are called to face is therefore not only technical but rather concerns the construction of a new equilibrium between artifice and nature while also engaging with the memory of the site and enhancing its historical identity.

The risk management solutions adopted are declined following this precise intention: the placement of new buildings is determined through an analysis of historical flooding patterns; the buildings themselves are designed to be both earthquake-resistant and flood-resilient (with elevated ground floors and floodable crawl spaces). The relationship with the existing built heritage is reinforced through the preservation of the buildings of the 'Caserne Niel' and the decision to use the layout of the former railway infrastructure as a framework for the configuration of new volumes and open spaces.

The morphology of the nearby historic fabric is recalled by the decision to design the neighbourhood according to the principle of the 'intimate city', with streets between 6 and 10

Cap de Salou, Spain.
Paseo de Platja Llarga, b2b Arquitectos, 2003-2022.
Digital collage
Source: visual elaboration: Marilena Bosone, 2025
Fig. 4

metres wide and a network of easily accessible, widely distributed services. diversification of building forms, which are shaped to optimize natural lighting and ventilation on a case-by-case basis – recalling a process of gradual transformation over time. The entire district is also conceived as a large urban cooling island, designed to address urban microclimate and solar exposure. It aims to reconcile urban densification with residents' well-being through the abundant presence of vegetation, the use of surfaces and finishes with low solar reflectance, and the integration of water features.

The enhancement of memory and place identity, combined with risk mitigation, are themes that also guide the 'low-density landscape' project for the Paseo de Platja Llarga in Salou – a coastal town south of Barcelona and a key tourist destination on the Costa Daurada. The project by B2B Arquitectos (fig.4) works on the redevelopment of the stretch of coast that connects the Port Aventura theme park to the coast and deals with the anthropic, hydrogeological, climatic and cultural impoverishment risks resulting from the progressive destruction of the original dune landscape due to the construction of a campsite (Bellmunt, 2011). The designers' choice is to maintain a balance between transformation and conservation, fully preserving the landscape and morphological characteristics of the area historically considered to be an identity for the city of Salou (Bellmunt J., Andreu X., 2007).

In this perspective, the constituent elements of the landscape – such as the beach, the pine forest, the vegetation of dwarf palms and agave, the dry-stone walls, and the red rocks – as well as perceptual and sensory aspects (such as sea views or the scent of shrubs), are recognized as integral components of the design and considered as pre-existences to be preserved and enhanced.

The dune system's profile is thus restored through the relocation of soil from the shoreline and consolidated by planting native species typical of the Catalan coast – well adapted to sandy, windy terrain and high temperatures (such as *Teucrium*, sea lilies, and *Tamarix*). The original pine forest, compromised by exposure to the saline coastal environment, is regenerated by replacing diseased *Pinus pinea* specimens and introducing new species, such as *Tamarix gallica* and *Acacia dealbata*, capable of protecting the vegetative system from sea breezes. In the *Platja Llarga* project, vegetation (*Lavandula stoechas*, *Rosmarinus officinalis*, *Thymus vulgaris*, and *Agave americana*) assumes a precise compositional role: it is used as a transitional element between the levels, marking or filling the gap created by the sloping paths and thus minimising the impact of human activity (Bellmunt J., Andreu X., 2007).

The connection between the urbanity of Salou and the coastline is emphasised by the presence of a pedestrian walkway atop the sand dunes, which, along its course, offers meeting

spaces and impressive views of the sea, as well as easy access to emergency stations. Along this path, a linear bench made of white precast concrete – an actual landmark of the new landscape – conceals the lighting and water drainage system while bordering a vibrant pavement composed of oxide cement and beaten earth. The alternation of materials and colours helps control solar reflectance, ensuring thermal comfort and mitigating the effects of heatwaves.

In addition to the careful preservation of the area's natural morphology, the use of dry-stone walls made from local stone – used to drain rainwater, contain soil, or ensure user safety – permits the recovery of local building traditions, reinforcing the image of the place and the sense of belonging to the context. The promenade culminates on the eastern end in a small triangular public park designed to provide shade and refreshment for visitors, as well as playgrounds and public rooms – affirming the project's capacity to establish a resilient landscape in harmonious balance with both the urban and natural context of Salou.

These projects test the effectiveness of the proposed method in heterogeneous contexts. WHATAMI experiments with a provisional and playful language, transforming an urban square defined by material uniformity into an archipelago of interactive spaces interspersed with green areas, capable of responding to climatic stresses and restoring social life to a place previously only sporadically used. In contrast, the Capela do Monte asserts a poetics of subtraction, pursuing an almost mimetic integration with the rural landscape and showing how even a targeted intervention can serve to enhance both the ecosystem and local history. Bastide Niel addresses the urban scale in a multi-risk context – hydraulic, seismic, and microclimatic – proposing a densification model capable of combining industrial heritage, biodiversity, and environmental comfort. Finally, the Paseo de Platja Llarga operates within a low-density coastal landscape, where the challenge lies in rebuilding an ecological balance threatened by human-induced erosion, through new forms of connection between nature and settlements, restoring continuity to the dunes and regenerating coastal vegetation.

All the interventions adopt resilience as a guiding principle: temporariness, flexibility, the use of local or recyclable materials, and attention to the life cycle of natural elements become tools to address the multidimensional risks of their respective contexts. The design strategies do not merely mitigate risks from a technical perspective but foster an active relationship with the place, recognising historical memory and cultural identity as fundamental components of sustainability.

Alongside these positive results, certain challenges emerge, reinforcing the experimental nature and validity of the method. WHATAMI,

due to its temporary nature, risks exhausting its transformative capacity if not accompanied by structural urban policies. Capela do Monte, while exemplary for its delicacy and self-sufficiency, raises questions about the replicability of the model in less protected contexts or those lacking a strong landscape identity. Bastide Niel, despite offering innovative hydraulic and microclimatic management solutions, requires constant monitoring of the relationship between building density and environmental quality, particularly in anticipation of extreme climate events. The Paseo de Platja Llarga highlights the difficulty of maintaining the fragile balance between tourist use and ecological conservation over time, demanding continuous management efforts and coherent maintenance policies.

Overall, the investigated interscalar method, deeply rooted in context and its adaptive capacity, proves to be an effective operational tool for addressing the complexity of contemporary design in landscapes at risk, provided that the concept of resilience is interpreted as an open-ended process, capable of integrating technical responses with environmental, social, and cultural dimensions.

Conclusions

Addressing the problems posed by climate change, its current consequences and those that will intensify in the near future – in other words, the associated risks – is undoubtedly one of the greatest challenges of our time. In line with the characteristics of the age in which we live in, it is, in many ways, a global challenge. It affects us all, albeit in different ways and with different possibilities for action: as inhabitants of the planet, as citizens of different – geographically, economically and socially – parts of the world, as scholars and technicians working specifically in the areas in which they have to imagine the possible changes.

It is also a global challenge because climate change affects many different scales: the architecture of the city – in its already interscalar connotations – but also the 'planetary' scale. The two scales, moreover, are both relevant because they deal with the ethical dimension of our collective living of the Earth, if it is true that

> grammar tells us that the Latin *habitare* is a frequentative (or intensive) verb of *habere* (to have). It means, first of all, to have continuously or repeatedly. 'To inhabit' therefore refers to having with continuity. The inhabitant, then, 'has' the place where he lives. Not in the sense of 'possession' or 'property ownership', but through access, familiarity, and lived experience. The inhabitant 'owns' the home he resides in; the citizen 'has' the city they inhabit. Every inhabitant of our planet [...] 'owns' the world (Ghisu, 2005)

and everyone has the responsibility to pass it on to future in a condition no worse than that in which it was received. For several decades now, the *observation* of our Planet from Space has represented one of the most significant fields of research within astronomy. It is interesting to notice that the etymology of the

verb *osservare* (to observe) – derived from the Latin *servare*, meaning 'to take care' or 'to preserve' – suggests a form of looking grounded in *care*: astronauts look at the Earth's surface and record its transformations on a large scale, both in terms of anthropic traces – such as the widespread urbanisation that not only consumes land but also 'conquers' the sea, as seen, for example, in the major eastern megacities – and in terms of the natural elements. Many of the phenomena associated with the latter – oceans, rivers, lakes, mountains, glaciers – are directly connected to climate change, and in many cases are its very manifestations. Conversely, when we return to the 'human scale' and observe our territories, cities, and landscapes from the ground level, we can even more clearly perceive how climate change is impacting both the overall well-being and quality of life in our environments. On the one hand, it affects the liveability of places; on the other, it contributes to the increasing frequency and intensity of so-called 'exceptional' – and catastrophic – events, which cause real destructions.

Astronauts help us to understand; it is our responsibility to work toward enhancing resilience – understood in a humanistic sense, as defined in the introduction – to create cities, territories, landscapes, buildings, and places in which we can live better.

Starting from this general framework, participation in the activities of the extended partnership PE3-Return (*multi-Risk sciEnce for resilienT commUnities undeR a changiNg climate*) has represented not only a valuable opportunity to produce significant research outcomes – aligned with the specific objectives embedded in its title – but also, from the perspective of the present author, an important disciplinary field of experimentation within architectural and urban design.

With the shared and unavoidable 'holistic' goal of identifying strategies for the mitigation and the adaptation to contemporary risks – particularly those related to *climate change* – the disciplinary contribution has enabled a broadening of perspective. This has made it possible to expand, within evaluative processes applied analytically to realized interventions (case studies) and to future design proposals (guidelines), the set of *risk indicators* and *design actions*, integrating both materials, formal, immaterial, meaning-related values of architectural, urban, territorial, and landscape structures. These values, in any case, should be understood as a form of heritage capable of influencing human well-being and therefore worthy of protection.

The three pillars of the New European Bauhaus – *sustainability, inclusion*, and *aesthetics* – remain essential to construct places that are not only safe, but also beautiful to inhabit.

Challenges related to the multi-risk conditions of the contexts we inhabit require not only analytical tools but also design approaches ca-

pable of generating integrated, multi-level responses. The experience of the selected case studies – WHATAMI, Capela do Monte, Bastide Niel, and Paseo de Platja Llarga – highlights the added value of interventions that go beyond solutions drawn from traditional technical repertoires. These projects, in fact, do not merely replicate pre-existing alternatives but critically reinterpret the environmental, cultural, and social context, developing systemic responses that combine risk prevention, adaptation, and mitigation with the improvement of the built environment and natural heritage.

The main operational outcomes of this advanced research emerge from the ability to integrate different design scales, simultaneously considering temporal and spatial dimensions, natural and cultural risks, the reversibility and transformability of interventions, and the relationship between design actions and context. The experimentation with a complex matrix demonstrates that design culture enables the creation of resilient solutions that not only address risks but also generate added value for communities and landscapes, producing adaptable and long-lasting spaces. Specifically, the inter-scalar approach fosters a systemic vision in which each design action is part of a larger process, with cumulative and synergistic effects, and allows the combination of scientific analysis and creative intuition to develop contextual and innovative strategies.

In summary, participation in the activities of the PE3-Return partnership confirms that resilience can become an operational tool in architectural and urban design: no longer an abstract concept, but a concrete criterion for implementing interventions that harmonize sustainability, safety, aesthetic quality, and the cultural significance of places.

Attributions

The article is the result of a joint research work carried out by the five authors. However, the *Introduction* paragraph is to be attributed to Bruna Di Palma; *Architectural and Urban Planning towards New Forms of Balance* to Paola Galante; *Exploring Resilience in Architecture, Urban and Landscape Design: Four Case Studies* to Marilena Bosone who described the examples of WHATAMI and Capela do Monte, and to Francesca Talevi, who focused on the design interventions of Bastide Niel and Paseo de Platja Llarga in Salou. The *Conclusions* were written by Federica Visconti.

Notes

[1] For a more detailed discussion see Miano P., Di Palma B. 2024 (eds. by), Paesaggi a rischio. Fragilità vulnerabilità e progetto, LetteraVentidue, Siracusa.

[2] Extended Partnership PE3, RETURN Project "multi-Risk sciEnce for resilienT commUnities undeR a changiNg climate" (MUR Project Code: PE00000005), Spoke TS1 - Urban and metropolitan settlements activities) – Principal Investigators Mario Losasso, Andrea Prota.

[3] Within the WP4's work on Urban systemic transformation including multi-side risk mitigation and adaptation measures, task 5.4.2 the group has worked on the designing of measures and solutions to increase the resilience of building systems (both existing and new) towards intensive and extensive risks, and to reduce the impact of building risk on the urban environment.

[4] CLARITY "Integrated Climate Adaptation Service Tools for Improving Resilience Measure Efficiency"; Rif. 730355 – PI Denis Havlik, Austrian Institute of Technology. WP2 - Science Support, Task 3.4 Adaptation Strategies and Decision Support: Climate adaptation measures as tools of architectural and urban design in the context of fragile landscapes. Selection, analysis, and cataloguing of international projects to be integrated into the platform. CLARITY-CSIS (L. Pagano, P. Galante, M.L. Di Costanzo per Unità di ricerca Centro Studi LUPT-PLINIVS (Coord. G. Zuccaro).

[5] Proff. D. Francese (Coord.), B. Di Palma, P. Galante, M. Stanganelli, F. Visconti, M. Bosone, A. Picariello, E.M. Oliva, F. Talevi.

[6] As the chapel is completely self-sufficient in terms of energy, it has no electricity, heating or running water.

[7] The site formerly hosted a factory for the production of copper-based compounds; an environmental audit conducted in 1992 revealed leaks that had infiltrated the upper layers of the soil of the area. (Cfr. Somival, 2013, p. 150).

[8] The banks of the Garonne River are designated as a Site of Community Importance (SCI) and are in the Natura 2000 network (FR7200700-La Garonne en Nouvelle-Aquitaine).

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