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Documentazione, restauro e rigenerazione sostenibile del patrimonio costruito

a cura di
Alessio Cardaci, Francesca Picchio, Antonella Versaci

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STRATEGIE PER LA RIGENERAZIONE E LA RIVITALIZZAZIONE DEGLI AMBITI PORTUALI STORICI: IL CASO DEI "CALISCENDI" DEL PORTO DI GIULIANOVA (TE)

STRATEGIES FOR THE REGENERATION AND REVITALISATION OF HISTORIC PORT AREAS: THE CASE OF THE "CALISCENDI" OF THE PORT OF GIULIANOVA (TE)

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Abstract: The regeneration of valuable coastal urban areas represents a crucial opportunity to preserve the cultural identity of these places while also pursuing objectives related to the green and sustainable management of the built environment, in accordance with the goals of Agenda 2030. An example of this can be seen in the port areas of the Adriatic coast, characterised by rudimentary fishing machines known as "caliscendi", which are a product of the local maritime culture.
This article illustrates an operational methodology aimed not only at the physical restoration of these structures, but also at the regeneration of the entire port area through its social and economic reactivation. It is based on an in-depth knowledge phase; downstream of all the analyses, the meta-design phase leads to the identification of compatible types for restoration. Finally, the design phase identifies the solutions deemed most appropriate, which are then implemented in the subsequent execution phase, with the use of dry techniques and local materials.
The framework is validated through a case study of the south jetty of the port of Giulianova, in the Abruzzo Region, Italy.

Keywords: Historic Port Areas, Built Environment Regeneration, "Caliscendi", Sustainability, Dry Constructive Techniques.

1. Introduction

The transformation of built environment with identity value requires attention to a multitude of factors, adopting an integrated approach between tools and actors that takes into account, in addition to sustainable technologies and operational methods, the active contribution of local communities and the ecological dimension of urban transformations. In fact, the social and environmental sustainability of 'making architecture' cannot be achieved without the active involvement of the inhabitants and full awareness of the environmental repercussions throughout the entire life cycle of the building process [1]. The current climate crisis situation imposes the need to reconcile the objectives of preserving the testimonial value and distinctive characteristics of the built environment with those of environmental protection, economic revival and social rehabilitation. This is also in line with the Agenda 2030 goals, in particular Goal 7 "Clean and Affordable Energy", to ensure access to sustainable, modern and affordable energy for all, and Goal 11 "Sustainable Cities and Communities", which includes among its objectives the realisation of urban transformations that preserve the built and natural heritage and minimise the impact of urban agglomerations on the environment through a participatory approach [2]. However, the dichotomy between conservation and transformation of the valuable built environment requires the search for new balances in the governance of design choices [3]. In the context of urban regeneration,

One of "caliscendi" of the south jetty of Giulianova © C. Marchionni C. (on the left).

it is essential to recognise not only the value of the area's peculiarities, but also intangible factors, such as the dissemination of local knowledge and territorial cohesion. [4] speaks of a "bioregional" scale of intervention, considering it the most suitable for redesigning the relationships between the environment, human settlements and resources to redevelop urban spaces. According to this approach, the minimisation of resources, the promotion of local products and the sustainable development of social and economic systems can be ensured.
In the specific context of historic harbour landscapes, transformations have always been influenced by economic and social dynamics. Various studies analyse these processes in order to consciously elaborate urban regeneration plans and sustainable valorisation strategies [5, 6].
It is on the basis of these considerations that this contribution aims to describe the project experience that, with the strength and passion of all those involved (citizens, technicians and administrators), has led to the urban and social regeneration of one of the most unique areas in the Abruzzo region, the south jetty of the port of Giulianova, in the province of Teramo, characterised by the presence of typical historical fishing structures known as "caliscendi". The contribution in section 2 describes the state of the art of marine architectures of historical and identity value, particularly in the Abruzzo Region. Section 3 illustrates the proposed methodology, which is based on a thorough cognitive phase leading to a census and meta-project phase. Section 4 describes the case study by explaining the implementation of the third phase of the methodology, which is the design phase, with the reconstruction of the first of the "caliscendi" demolished in past years.

2. State-of-the-art

In 1978, Josef Konvitz introduced the term "urban maritime culture" stating that the conformation and identity of coastal human settlements were the result of a dense synthesis of urban and maritime culture [7]. [8] study how the communities that inhabit coastal cities have a specific identity that inextricably links them to the sea and maritime traditions, and they identify maritime urban identity as an original perspective for an in-depth understanding of these cities, where urban spaces and functions can take on new values.
An example of this is the historical and cultural heritage of the Abruzzo coastline: it has completely unique and peculiar characteristics, the result of a maritime culture that has been handed down for centuries by the knowledge of fishermen and local inhabitants. In particular, some port sections are still characterised by unique fishing architecture, placed between land and sea with a particular play of balance, representing a useful reference of sustainable architecture for construction on the sea [9]. For instance, the coastline in the province of Chieti is characterised by the presence of "trabocchi", which are pile-dwelling structures, mainly made of wood, consisting of foundations formed by piles driven into the ground on which platforms are erected. They can be of two basic types: rocky, if they are characterised by the presence of the functional link between the land and the platform on the sea, and pier (or port), if they do not have walkways as they are located near the seabed of considerable depth [10].
Walking along the south quay of the port of Giulianova, a town of twenty thousand inhabitants in the province of Teramo, it is possible to discover the presence of the so-called "bilancini" or, as the locals call them, "caliscendi". These structures, which unexpectedly accompany the walk to the lighthouse at the far end of the pier, are anchored to the rocks and feature a fishing scale (fig. 1). There is a lack of precise historical information about their construction, but it is possible to say that the "caliscendi" have been an integral part of the landscape of the coastline of Giulianova for more than a century. Places for fishing linked to the principles of self-building, they were once a source of livelihood for entire families. In fact, during the winter period, they represented the alternative way of fishing to boat fishing, whose catch was consumed on their own or sold on the spot. Today, the "caliscendi" have lost this economic function, increasingly acquiring a social and aggregative one: in fact, the current owners are all amateur fishermen, who come to their facilities to have moments of serenity or to meet friends and acquaintances. "As a monument to free association, the symbolic charge of these objects is very strong" [11]. These historic buildings, expression of an "architecture without architects" [12], are characterised by poor technology and represent a skilful example of ingenuity and environmental sustainability. In fact, the apparently simple construction choices were linked to multiple factors: the availability of local resources, the optimisation of structures and the use of materials, the wise organisation of construction and maintenance processes. They are an interesting manifestation of *genius loci* [13] that took advantage of local material resources and the transfer of construction technologies in an appropriate manner. Like the trabocchi, the "caliscendi" have become a territorial icon. They express cultural and social values, where practical ingenuity, driven by the need for work and self-sufficiency, led to unique construction knowledge. This knowledge includes technical spontaneity and the recycling of materials, with reuse never left to chance [10]. Although today deprived of their original function, these structures characterise and enrich the landscape, "combining ecological awareness with the propensity to defend the identities and memory reflected in them" [14].

2.1 Regulatory actions for historic port areas

In 2008 the Council of Europe recognised the fundamental role of ports for the economic and social development, competitiveness and prosperity of coastal regions, noting that the European port landscape is marked by great diversity [15]. To promote the sustainable regeneration of these urban areas often degraded, as characteristic as they are strategic for seaside towns, the essential political and administrative issue is to construct boundary conditions, both regulatory and procedural, that develop the convenience, also economic, of redevelopment actions. To achieve this objective, the analysis of exploitable territorial capitals is of fundamental importance: it is a matter of recognising both the tangible factors, linked to historical architecture and its values, and the intangible ones, such as local identity and spiritual values, up to the resources that can be used in economic processes [16].
In Italy, an important regulatory reference on port matters is Law no. 84 of 1994 [17], and subsequent amendments, which regulates port organisation and activities, distinguishing ports by category (military defence, international, national and regional economic importance) and functions (commercial, industrial, passenger service, fishing, tourism and recreational). Although it does not deal with aspects related to redevelopment, it does introduce the concept of energy and environmental sustainability, focusing on targets to reduce CO2 emissions and on the need to define strategic guidelines to increase energy efficiency.
Even the Ministry of Infrastructure and Transport, originally with Law No. 44/1991, devotes attention to maritime space through the State Property Information System (SID) with a special section "SID the Portal of the Sea", in support of the desire to manage maritime property assets with a shared national tool,

Fig. 1 - Some of "caliscendi" of the south jetty of Giulianova in 2013 (Marchionni C. 2013).

creating a common space for the interchange, integration and reuse of data relating to this heritage [18].
In the specific case of historical port areas, in recent years the importance of this heritage has been widely recognised by local authorities: the Abruzzo Region, for example, with Law no. 38 of 10/08/2010 [19] resolved to pursue a punctual protection of the historical and cultural heritage of the Abruzzo coast, through the "Recovery, preservation and valorisation of the pier's trabocchi, also known as "caliscendi" or "bilancini" of the Abruzzo coast".

3. A methodology for the regeneration of port areas of historical and cultural value

In valuable contexts, it is necessary that any regeneration action is based on respect and integration with the built environment, with a methodological approach that must be based first on an accurate investigation of the existing and its peculiarities [20], and that respect for landscape values is combined with the current 2030 Agenda objectives [21]. In addition, the involvement of local human capital in decision-making processes must take place in every phase of the urban regeneration process: both in the analytical phase, by channelling data from the direct and daily experience of those who work in the area, and in the planning phase, to share the choices with the actual users and prospect their transformation potential [22]. With these assumptions and in the context of the recognition of the importance of reconnecting the valuable port heritage with the rest of the city, the present operational methodology is inserted, which aims to support the governmental initiatives. The proposed methodological approach is based on an in-depth knowledge phase: in the specific case of the recovery of the historical structures that characterise the port areas, in fact, in-depth in situ surveys, flanked by archive research and on-site interviews, are essential. They lead to the preparation of a proper census in which all the elements of historical and constructive value surveyed, the recurring technologies and materials, the state of conservation of the existing structures and the possible presence of the remains of demolished structures are classified with special graphics. The drawing up of a census leads to the subsequent meta-planning phase, in which the construction, dimensional and material characteristics of the existing buildings are put into a system, identifying average values and recurring elements, in order to identify the types permissible for maintenance and possible restoration work. In this phase it is also necessary to identify the compatible functions of the structures in order to revitalise the places, through a participatory process that involves the authorities in charge, local administrators and the habitual users of the places. Finally, the design phase takes shape in the intervention phase, which is based on respect for the identity features of the places and the introduction of compatible and sustainable building systems. In particular, these are identified in dry technologies, with a reversible character, in the use of local building techniques, in the choice of sustainable materials, with a preference for wood and the reuse of waste materials. The methodology briefly presented has been tested on a real case study, the south jetty of Giulianova, whose regeneration experience is described in section 4.

4. The case study: the regeneration of the south jetty of the port of Giulianova and its "caliscendi"

Following the approval of Regional Law no. 38/2010, as required by art. 3 to municipalities whose historical port constructions are not identified in their town planning instruments, the municipality of Giulianova launched a census of the structures existing before 1988, to take advantage of the law to revitalise and return one of its most characteristic places to the community. The south jetty of Giulianova, also known as the old port, represents the last part of the promenade that leads from the old town centre, located in the upper part, to the waterfront, and in the first decade of the 2000s it appeared severely degraded in its infrastructural elements and in its historical structures, the caliscendi, which had lost their function linked to fishing over the years. Hence the importance of its regeneration.
Through the cognitive phase it was possible to identify the existing structures and the remains of those that had been demolished, classifying the dimensional characteristics, materials, construction characteristics, technological elements and state of conservation of each one. The surveys carried out revealed the presence of nine "caliscendi", with a regular state concession, all characterised by the presence of a fixed scale used for fishing. This element consists of a vertical pole, usually made of fir or chestnut wood, anchored to the boulders with an intricate system of cables, contrasted by another inclined and rotating pole jutting out towards the sea with a fishing net at the end supported by a quadrangular steel

frame, usually no longer than six metres per side. These nets, by means of manual controls called winches, are immersed (or lowered) and then raised into the water: hence the nature of the name of these structures. The nine scales surveyed are all flanked by so-called shacks, precarious structures characterised by salvaged materials, built over the years by fishermen to protect themselves and their equipment while fishing. They are anchored to the boulders by means of a concrete platform and are periodically subjected to minor maintenance to ensure their survival.
The surrounding space is usually delimited by a wooden fence and pier, intended both for catch collection and as a meeting place (fig. 2). In addition to the existing "caliscendi", it was possible to identify the remains of twelve previously demolished structures, consisting essentially of the fishing scales pole (fig. 3). The *in situ* survey campaign was accompanied by archival and testimonial research, through

Fig. 2 - The "caliscendi" n.1 with the fishing scales, shack, canopy and pier (Marchionni C. 2013).

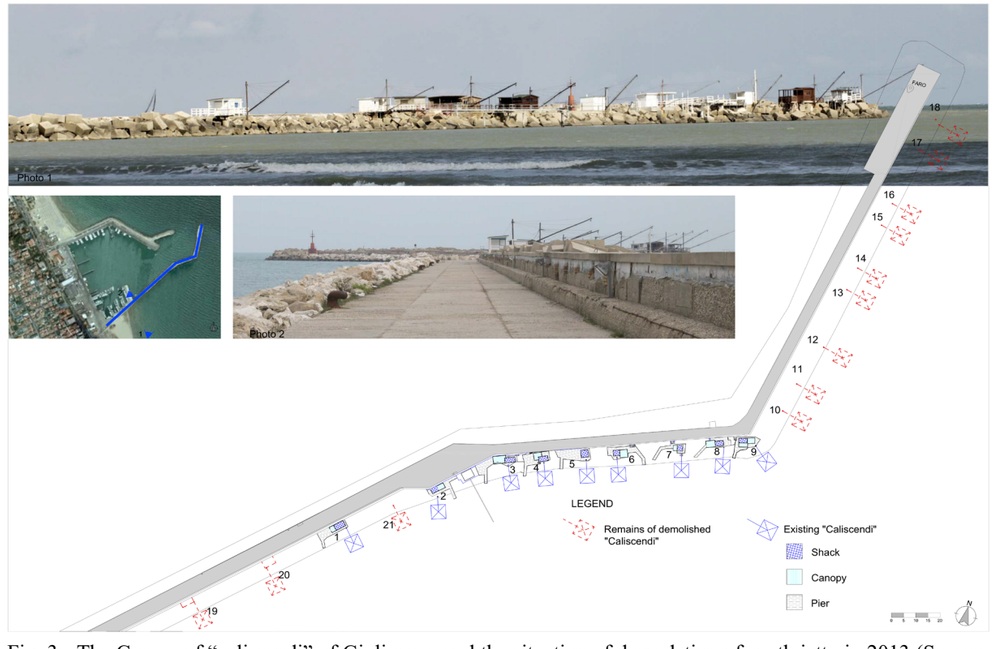

Fig. 3 - The Census of "caliscendi" of Giulianova and the situation of degradation of south jetty in 2013 (Source: Census 2013 graphics).

interviews with the habitual users of the port area and the compilation of special information sheets. The cognitive phase, systematised in the census, led to the meta-design phase, with the elaboration of a summary of the maximum and minimum dimensional values of each individual element identified (fishing scale, shack, canopy and pier), and the classification of construction and material characteristics, to identify the types allowed for restoration. Specifically, the 2013 census shows how eight "caliscendi" are characterised by a shack with a canopy in addition to the scale, while only one is characterised only by the shack. All the shacks and canopies were built of wood, except one canopy that was abnormally characterised by salvaged metal elements. The following data emerged from the average values obtained from the census:

- *Basement*: the long side shall be oriented towards the sea and shall not exceed 12.00 metres, while the maximum width shall be 6.00 metres;
- *Shack*: the gross floor area may not exceed 9.40 square metres;
- *Canopy*: the surface area may not exceed 10.30 square metres;
- *Pier*: the uncovered area may not exceed 43.30 square metres.

Subsequently, three possible types of restoration were identified: the first consist of the construction only of the fishing scale; the second concerns the construction of a shack to accompany the scale; the third involved the construction of a canopy alongside the shack (fig. 4). The restoration of the new structures was then allowed by the authorities in charge if carried out on the track of the demolished ones, according to the location established in the census and, in accordance with the regional law, with the uses permitted by it. In particular, the reconstruction of demolished "caliscendi" and the adaptation of existing ones must be aimed at preserving the activity of fishing as a leisure and meeting place, ensuring the use of natural materials, such as solid wood, suitably painted in typical pastel colours, and excluding the use of laminated wood, plastic and metal materials. In addition, while respecting the landscape of the site, a prerequisite for restoration is that the new structures are not fixed, but necessarily removable, easily dismantled and reversible.

4.1 The reconstruction of one of "caliscendi"

The executive phase of the proposed methodology consisted in the reconstruction, in line with the prescriptions of the regional law and the protection bodies, of one of the demolished caliscendi. In fact, downstream from the census, approved by municipal resolution in 2014, followed the authorisation requests to the relevant bodies (Maritime Property, Superintendency of Architectural and Environmental Heritage, municipal technical office) of the legitimate dealers of the demolished structures. The complex bureaucratic process led in 2022 to the reconstruction with sustainable criteria of the first of the nine caliscendi demolished in the 1990s, caliscendi no. 21, the remains of which were found on the initial part of the south pier arm (fig. 5).

The project was based on compliance with the prescriptions identified in the census and provided for the dry construction of a removable structure consisting of a steel fishing scales, a base that acts as a wharf, a shack for sheltering tools and a canopy to protect the meeting place. All the elements were made of white wood. The shack, rectangular in shape, was oriented for the greatest width towards the sea, with the canopy slightly inclined to allow for the proper flow of rainwater. The foundation structure was built on the existing boulders: to ensure its reversibility, concrete micro-plinths were built where a steel element was placed vertically inside to act as a pillar, each of a different height. This made it possible to deal with the different geometry and location of the existing rocks and to create a planar substructure on which the walking surface was subsequently placed.

The load-bearing beams were placed above the pillars, on which the secondary frames were placed, all made of solid wood and fixed together with steel brackets and angles (fig. 6). The entire walking surface, including the pier, was created after the installation of a fir planking, anchored to the secondary frames with steel screws. Solid wood pillars were then hooked onto this floor to support the hut and its canopy, connected by beams, also made of solid wood (fig. 7). The perimeter walls and the roof were covered with wooden shingles, fixed to the supporting structure with appropriate screws. The access door to the hut was made of wood and the small windows of aluminium and glass (fig. 8). A simple wooden fence surrounded the entire walking surface. This was in keeping with the colour scheme previously identified in the census, with the dominant colour white being used for the pier and canopy (fig. 9).

The "caliscendi" no.21, realised in accordance with the dealer's requirements, was equipped with a small corner for washing and cooking food, and currently has a private recreational function. However, it is occasionally put at the service of the public initiatives that are taking place on the entire harbour arm and which have led to its general revitalisation.

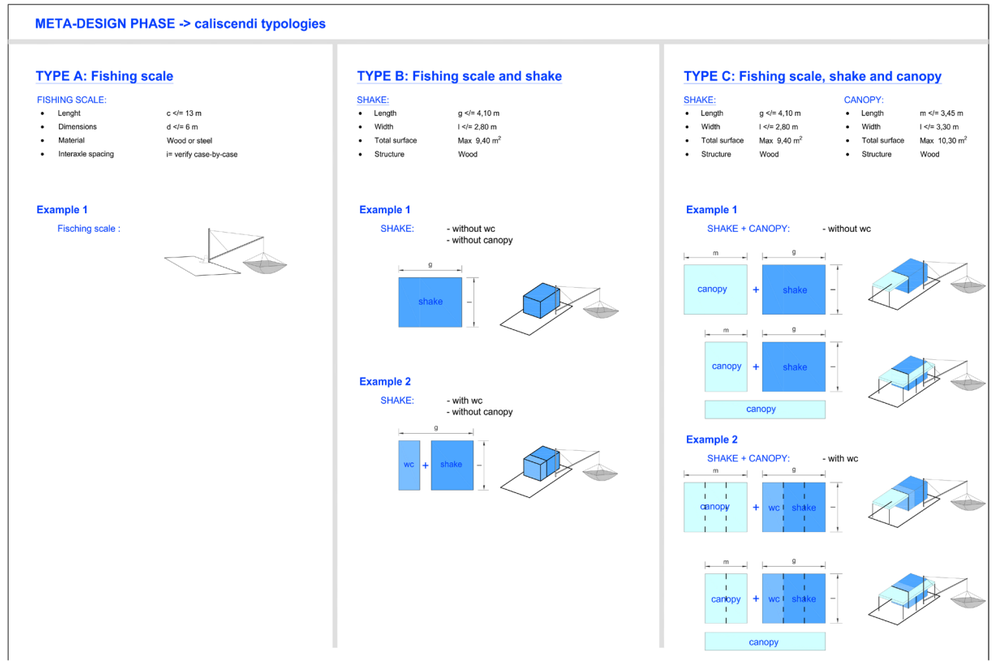

Fig. 4 - The meta-design phase and the individuation of typologies for restoration (Source: Census 2013 graphics).

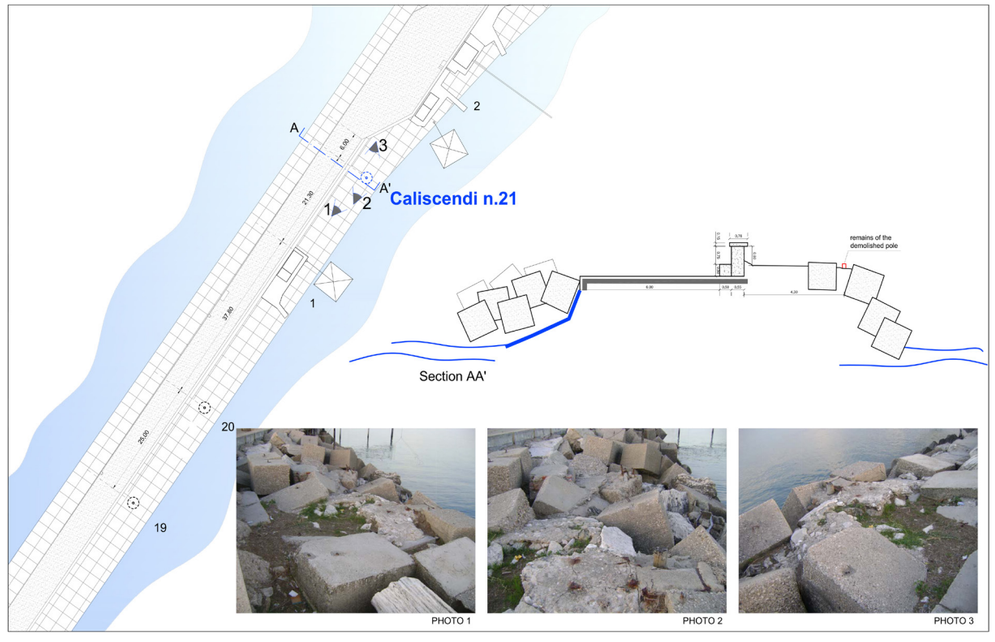

Fig. 5 - Survey of caliscendi no. 21 (Source: Census 2013 graphics).


Fig. 6 - Reconstruction of caliscendi no.21: construction of the foundation and support structure for the pier (Marchionni C. 2022).


Fig. 7 - Construction of the shake and canopy structure, after laying the pier (Marchionni C. 2022).


Fig. 8 - Construction of perimeter walls and finishing elements (Marchionni C. 2022).


Fig. 9 - Completion of the caliscendi with the pier and access ladder (Marchionni C. 2022).

5. Conclusions

This paper recounts the experience of urban regeneration of an identity area such as the south jetty of the port of Giulianova, through a participatory design process between administrators, owners and technicians.

The methodology proposed for the census and the identification of typologies for restoration represent an easy planning tool, which in a conscious and replicable way, can facilitate the work of the administrations and technicians involved in the restoration of other demolished structures or in the maintenance of existing ones, in line with existing regulatory references.

With the aim of revitalising and giving back to the community one of its most characteristic meeting and aggregation places, the redevelopment of the port area in its physical structures is being flanked by public (Municipality and Port Authority) and private initiatives, which are contributing year after year to the rebirth of one of the city's most attractive areas.

The operational approach described can be implemented in the subsequent phase of management, including digital management, of the existing historical port heritage, sees in the application of the principles of resource saving and circular economy the winning strategy for the pursuit of the 2030 Agenda objectives and environmental, economic and social sustainability.

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