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Social perception and valuation of living industrial heritage: Casa Hacienda and Cayaltí Industrial Plant Percepción social y valoración del patrimonio industrial vivo: Casa Hacienda y Planta Industrial Cayaltí

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ABSTRACT Agro-industrial heritage is an important component of the cultural landscape and collective memory in Latin America; however, its deterioration, loss of productive functionality and physical abandonment limit its social value. The objective is to analyze, through a representative case study, the social perception and valuation of the industrial heritage formed by the Casa Hacienda and the Cayaltí Industrial Plant in the Zaña Valley, Lambayeque, Peru. A qualitative case study approach was adopted, with semi-structured interviews with local actors, specialists and officials, complemented by direct observation and documentary analysis. The results show that the symbolic value is widely recognized and underpins community identity, while the formal value is supported by technical and institutional consensus; the use value shows heterogeneity and challenges for its functional activation. It is concluded that heritage sustainability depends on articulating social recognition, adaptive reuse and participatory governance.

RESUMEN El patrimonio agroindustrial constituye un componente relevante del paisaje cultural y de la memoria colectiva en Latinoamérica; sin embargo, su deterioro, la pérdida de funcionalidad productiva y el abandono físico limitan su valoración social. El objetivo es analizar, mediante un estudio de caso representativo, la percepción social y la valoración del patrimonio industrial conformado por la Casa Hacienda y la Planta Industrial Cayaltí, en el valle de Zaña, Lambayeque, Perú. Se adoptó un enfoque cualitativo de estudio de caso, con entrevistas semiestructuradas a actores locales, especialistas y funcionarios, complementadas con observación directa y análisis documental. Los resultados muestran que el valor simbólico es ampliamente reconocido y sustenta la identidad comunitaria, mientras que el valor formal presenta consenso técnico e institucional; el valor de uso evidencia heterogeneidad y desafíos para su activación funcional. Se concluye que la sostenibilidad patrimonial depende de articular reconocimiento social, reutilización adaptativa y gobernanza participativa.

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KEYWORDS social perception, heritage valuation, heritage management, adaptive reuse, collective memory

PALABRAS CLAVE percepción social, valoración patrimonial, gestión patrimonial, reutilización adaptativa, memoria colectiva

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1. Introduction

Industrial heritage constitutes an essential component of contemporary cultural heritage, as it reflects the productive, technological, and social processes that shaped territories and collective identities since industrialization (Ballart and i Tresserras, 2001; Smith, 2006). Its value transcends the material dimension of buildings and infrastructure, incorporating symbolic meanings, memories of labor, and forms of social organization that remain relevant in the communities linked to these spaces.

In Latin America, numerous industrial and agro-industrial complexes have fallen into disrepair and abandonment due to economic, technological, and territorial transformations. These dynamics have generated tensions between the loss of the original productive function and the persistence of historical, social, and cultural values, highlighting the need for comprehensive approaches that integrate heritage conservation, social participation, and territorial development (Pardo Abad, 2005; Álvarez-Areces, 2008).

In the Peruvian context, this issue is particularly acute in the former sugar agro-industrial complexes of the northern coast. The crisis of the hacienda model and changes in the international market led to the cessation of activity between 1980 and 1990; since then, their infrastructure has remained in disuse, without systematic plans for conservation or cultural management, despite their recognition in Law 28296 on the Nation's Cultural Heritage (MINCUL, 2020b).

The Cayaltí Hacienda House and Industrial Plant, located in the Zaña Valley (Lambayeque), constitutes a paradigmatic example of these sugar agro-industrial complexes. Founded in the early 20th century, they integrated agricultural production, industrial processing, and residential life into a hierarchically organized territorial unit, reaching their peak during the regional sugar boom (Dargent, 2017). Production ceased definitively in 1986, marking the beginning of the economic collapse of the Zaña Valley and the loss of approximately 1,800 direct jobs. Collective memory still preserves emblematic surnames linked to the estate and the sugar mill as the temporal axis of the agricultural year. At the same time, the complex remains abandoned, lacking strategies for protection or enhancement, which has accelerated its physical deterioration and limited its visibility on the national cultural agenda (Dargent, 2017; Yupanqui, 2018).

Despite the site's abandonment, local oral histories retain strong symbolic significance for sugarcane work, the social organization of the plantations, and the configuration of the agro-industrial landscape. These collective memories serve as a mechanism for cultural continuity and confer social legitimacy on the site as a whole, even in the face of functional obsolescence (Hinojosa, 2019; Villamón, 2017). Previous research warns that excluding the social dimension from valuation processes reduces the sustainability of industrial heritage and weakens its collective appropriation (Ludeña, 2008; Ferrari, 2023).

The research problem centers on the insufficient understanding of how different social actors perceive and value the industrial heritage of Cayaltí and how these perceptions influence the possibilities for the conservation, management, and enhancement of the site. Within this framework, the guiding question of the study is: How are the social perception and heritage valuation of the Cayaltí Hacienda House and Industrial Plant shaped by the meanings and memories constructed by the local community, in a context of the site's physical neglect?

The research is justified on three complementary levels. On the theoretical level, it contributes to the debate on industrial heritage by integrating approaches that recognize the dynamic and socially constructed nature of cultural heritage, highlighting the relevance of symbolic, formal, and functional values. On the practical level, it generates inputs for designing conservation, management, and cultural activation strategies in line with the expectations of the local community and other stakeholders, promoting a more sustainable and inclusive management of agro-industrial heritage within the framework of Law 28296 and Sustainable Development Goals 11 and 12 (UN, 2023). Methodologically, a qualitative case study is employed, enabling an in-depth, contextually grounded analysis of social perceptions—a method widely recognized in contemporary heritage studies and particularly relevant for contexts of abandonment or transformation.

Consistent with the above, the general objective of the research is to analyze, through a representative case study, the social perception and heritage valuation of the industrial heritage comprising the Hacienda House and the Cayaltí Industrial Plant, based on the meanings and memories constructed by the local community, considering its symbolic, formal, and functional dimensions, to provide criteria for its sustainable management and enhancement.

2. Theoretical framework and state of the art

The study of industrial heritage has undergone a conceptual evolution in recent decades, shifting from approaches focused on the physical conservation of objects and buildings toward comprehensive perspectives that recognize its social, symbolic, and territorial nature. Within this framework, industrial heritage is understood not only as a physical vestige of past productive processes but also as a complex system where material and immaterial

values, collective memories, social practices, and contemporary dynamics of use and management interact. This chapter presents the main theoretical approaches and the international and Latin American state of the art underpinning the research, to contextualize the case of the Casa Hacienda and the Cayaltí Industrial Plant and provide a foundation for the analysis of social perception as the core of heritage valuation.

2.1. Industrial heritage and the social construction of value

The notion of industrial heritage arises from the need to recognize, document, and preserve the material evidence of industrialization, particularly that associated with production, labor, and technology. However, various authors point out that heritage value is not inherent to the assets themselves, but is socially constructed through processes of recognition, signification, and cultural appropriation (Ballart et al., 1996; Muñoz, 2010).

From this perspective, industrial heritage is conceived as a dynamic category whose values evolve across historical, social, and territorial contexts. Ballart and I Tresserras (2001) argue that heritage valuation is a relational process involving multiple actors and scales, and that it cannot be reduced to exclusively technical or aesthetic criteria; in industrial heritage, this condition is particularly relevant due to its close connection to memories of labor, local identities, and productive processes that have shaped the territory. Smith (2006) reinforces this view by arguing that heritage should be analyzed as a social practice rather than as a collection of objects, emphasizing the role of discourses, experiences, and contemporary uses in defining its meaning. Consequently, the conservation of industrial heritage cannot be limited to the physical preservation of buildings; it must also consider the symbolic and social values that give it meaning in the present.

2.2. Heritage dimensions: symbolic, formal, and use value

The specialized literature agrees that industrial heritage is shaped by multiple dimensions of value, among which symbolic, formal, and use values stand out; these interact and overlap, shaping strategies for conservation, management, and enhancement. Symbolic value is linked to the collective meanings associated with the heritage asset—historical memory, territorial identity, and shared social experiences—and, in industrial contexts, is often closely related to the memory of labor and the social processes that shaped the territory, becoming a key element for community roots (Villamón, 2017; Hinojosa, 2019).

Formal value refers to the material, architectural, typological, and technological qualities of the asset; in industrial heritage, this value gains significance as a testament to construction systems, technical solutions, and production models characteristic of specific historical periods (Lorca, 2017; Álvarez-Areces, 2008), although its recognition is often mediated by expert perspectives, which can create gaps with the perceptions of the local community.

Finally, the use value is associated with the heritage's capacity to integrate into contemporary dynamics through processes of reuse, social activation, and sustainable management. Pardo Abad (2005) and Gilabert (2017) emphasize that the long-term viability of industrial heritage depends largely on its incorporation into socially legitimate uses capable of articulating conservation, local development, and community participation; in this study, these three dimensions of value—symbolic, formal, and use—are employed as analytical frameworks to organize the fieldwork and the analysis of stakeholders perceptions of Cayaltí.

2.3. Social perception and industrial heritage

Social perception is a central component of heritage valuation processes, especially in industrial heritage, where the meanings attributed by the community directly influence recognition, appropriation and sustainability. From qualitative perspectives, it is understood as the set of representations, valuations, and narratives that different stakeholders construct in relation to a heritage asset. Creswell and Poth (2018) and Silverman (2020) note that the analysis of social perception allows for the capture of subjective and intersubjective dimensions that are often left out of traditional normative approaches, making it possible to identify convergences and tensions among stakeholders and to understand the factors that favor or limit the social appropriation of heritage assets.

In Latin America, various studies show that failing to integrate social perceptions into heritage management processes contributes to neglect and a disconnect between technical conservation and social uses (Ludeña, 2008; Ferrari, 2023). In this sense, social perception is not only an indicator of heritage value and a strategic input for the design of public policies and participatory management models, but also the axis that, in this case study, articulates the link between the theoretical framework and the empirical analysis of the Casa Hacienda and the Cayaltí Industrial Plant.

2.4. Active management, reuse, and governance of industrial heritage

The management of industrial heritage has evolved toward approaches that prioritize functional revitalization, community participation, and collaborative governance. International experiences, such as those in the Ruhr region (Germany), show that the sustainability of industrial heritage depends

on integrating conservation, spatial planning, and adaptive reuse strategies (Bogumil and Heinze, 2019; Bräuninger et al., 2022; Wuppertal Institute, 2023). These models emphasize the need for flexible regulatory frameworks, long-term planning, and cooperation among public, private, and community actors; Kretzinger and Steffes (2023) highlight the sustainable reuse of industrial land, the circular economy, and social innovation as key elements in territorial transformation processes associated with industrial heritage.

However, in the Latin American context, the application of these approaches faces institutional, regulatory, and economic constraints; consequently, various studies underscore the importance of adapting international models to local realities, incorporating the memory of the place, community capacities, and specific socioeconomic conditions (Fernández-Morales and Muñoz-Laso, 2023; Silveti Ortega, 2023).

2.5. Contributions and gaps in the state of the art

The review of the state of the art highlights advances in conceptualizing industrial heritage as a complex system and in recognizing social perception as a key dimension of heritage value. Despite this, significant gaps persist in Latin American contexts, where empirical studies on social perception, participatory management, and the functional revitalization of industrial heritage remain limited (Fernández-Morales and Muñoz-Laso, 2023; Silveti Ortega, 2023; Ferrari, 2023). These qualitative studies agree that functional activation is sustainable only when social recognition (symbolic value ≥ 80%), physical viability (deterioration index ≤ 45%), and tripartite governance (community–academia–state) are aligned. In Peru, experiences of agro-industrial heritage have been scarcely documented from a qualitative perspective (Ludeña, 2008; Perleche, 2017), leaving an empirical gap on the northern coast that justifies this case study.

The available literature has focused primarily on descriptive and normative approaches, with little incorporation of qualitative methodologies aimed at understanding the perceptions and narratives of local actors; this gap is particularly acute in abandoned rural agro-industrial complexes, where research linking social perception, proposals for reuse, and participatory governance is scarce (Ferrari, 2023). Hence, the relevance of this study lies in providing empirical evidence from a poorly documented context and contributing to strengthening the academic debate on industrial heritage, social perception, and sustainable territorial development.

Figure 1: Aerial photograph of the Zaña Valley and location of the Cayaltí Estate. Authors (2024), based on aerial photography records from DIVRA – National Aerial Photography Service, FAP (1943)

3. Case study: Cayaltí hacienda and industrial plant

3.1. Territorial, historical, and socioeconomic context

The Cayaltí Estate House and Industrial Plant are located in the Zaña Valley, Lambayeque region, a territory historically shaped by the sugar agro-industrial sector (Ludeña, 2008; Perleche, 2017) (Figure 1). The complex's territorial layout highlights its structuring role in the regional productive landscape, integrating agricultural, industrial, and residential infrastructure into a functional and symbolic unit that defines the valley's spatial and socioeconomic organization.

During its heyday, Cayaltí integrated sugarcane agricultural production, its industrial processing, the associated technical infrastructure, and a hierarchically organized residential nucleus, forming a cohesive territorial system. Industrial activity ceased in 1986, precipitating local socioeconomic decline and the progressive loss of productive functions (Dargent, 2017). This process has left a landscape of industrial ruins that, paradoxically, retains high historical legibility and strong symbolic significance for the population, which still remembers the sugar boom as a defining moment of its regional identity.

3.2. The Cayaltí hacienda house: architectural configuration and historical value

The Hacienda House corresponds to a stately residential typology associated with the sugar agro-industrial system, conceived as a space for administration, control, and the representation of economic power (Dargent, 2017; Ludeña, 2008). It is a rectangular building (14.7 × 32.4 m) with two stories, a gabled roof covered with clay tiles, and a structure made of carob wood and original corrugated iron. Although 70% of the woodwork has been lost, 100% of the 70-cm-thick adobe walls and 85% of the 2.5-meter-wide porticoed gallery remain intact. Its state of preservation, classified as "moderate deterioration" (MINCUL, 2020a), allows for the recognition of its architectural value and its potential for restoration and adaptive reuse without loss of formal values (Perleche, 2017) (Figure 2).

From a heritage perspective, the Hacienda House embodies formal and symbolic values associated with the memory of the hacienda system, social relations of production, and the historical configuration of the territory, transcending its current physical condition and remaining active in the local imagination.

3.3. The Cayaltí industrial plant: remains, technology, and productive landscape

The Industrial Plant constitutes the technical-productive core of the former agro-industrial complex. Its remains consist of early 20th-century industrial buildings featuring metal structures, modular bay repetition, corrugated roofs, a cylindrical chimney, and large open spaces for sugarcane processing. From a heritage perspective, these remains possess high technological and educational value, as they allow for the identification of stages in the production process, the functional logic of the complex, and its integration into the valley's sugar-producing cultural landscape (Ludeña, 2008; Perleche, 2017) (Figure 3).

Prolonged neglect has led to the loss of equipment and the deterioration of structures, compromising their integrity; however, the community continues to recognize these remnants as symbols of the industrial past and collective labor, reinforcing their status as industrial heritage with active social value.

3.4. Cayaltí as a complex heritage system

The Hacienda House and the Industrial Plant should be understood as a complex heritage system that integrates productive, residential, landscape, and symbolic dimensions (Ballart and i Tresserras, 2001). This system integrates agricultural and industrial infrastructure, administrative and residential spaces, the cultural landscape

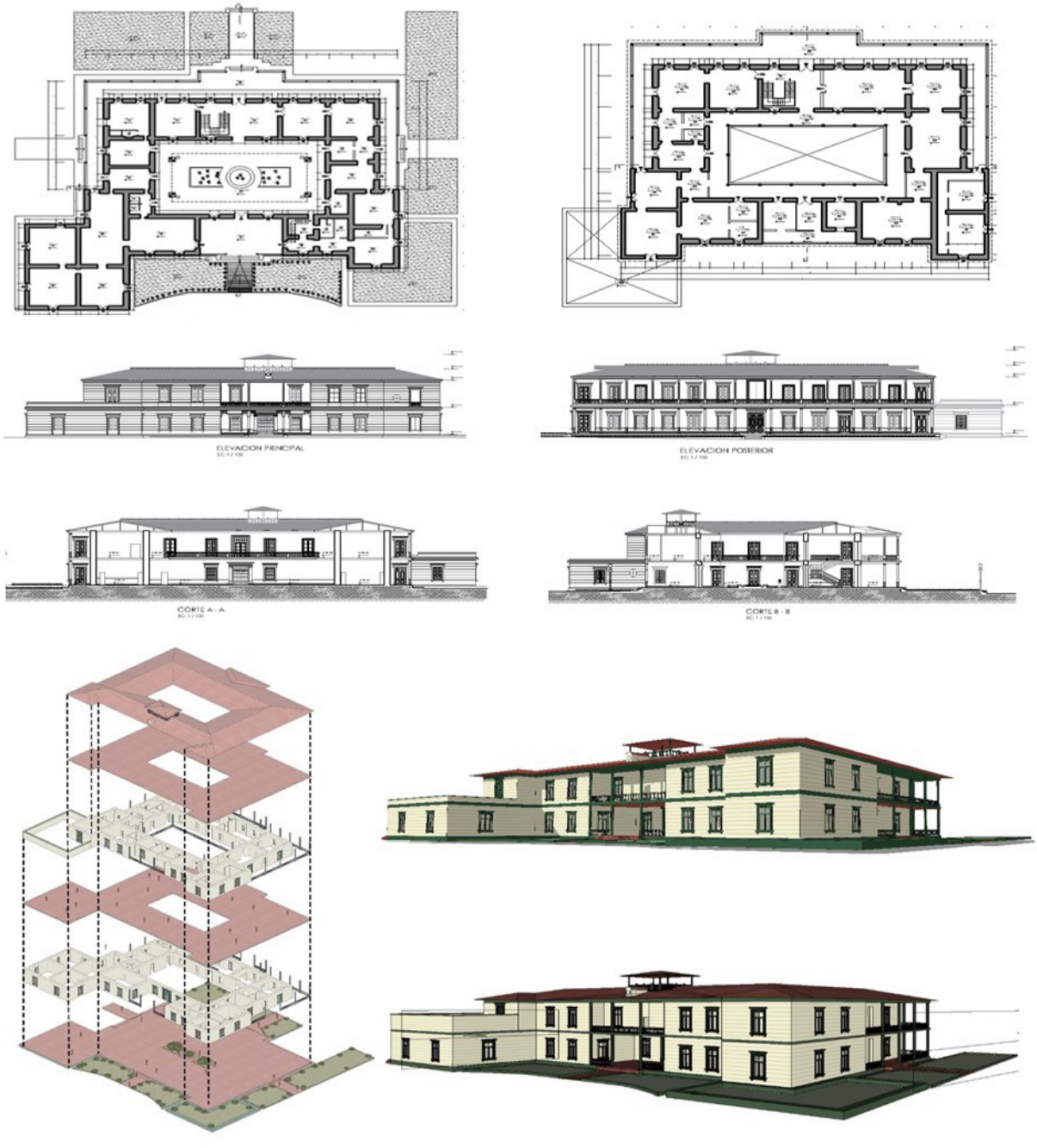

Figure 2: Current condition of the Casa Hacienda Cayaltí. (2024)

of the Zaña Valley, and social practices linked to agro-industrial work, forming a territorial and functional unit that historically structured the economic and social life of the surrounding area.

The current fragmentation—a result of abandonment, the loss of productive functions, and the absence of comprehensive heritage management—has weakened this systemic interpretation, reducing the heritage to isolated material elements. However, the narratives and perceptions of the local population show that collective memory continues to function as an active link between past and present, giving meaning to the heritage beyond its physical state and reinforcing its role as a marker of identity and as a paradigmatic example of the sugar agro-industrial landscapes of the northern Peruvian coast, where deterioration coexists with a strong symbolic vitality (Hinojosa, 2019; Villamón, 2017).

3.5. Potential for active management and adaptive reuse

This case allows us to identify various potentials for the active management of Cayaltí's industrial heritage, grounded in its strong symbolic significance associated with the memory of labor, its architectural and technological legibility, and its integration into a cultural landscape of high historical value (Álvarez-Areces, 2008; Gilabert, 2017). These conditions indicate that the enhancement of the complex should not be limited to physical conservation but should be oriented toward strategies of adaptive reuse, heritage education, and cultural activation consistent with social expectations and the capacities of the local context (Pardo Abad, 2005; Somoza-Medina and Monteserín-Abella, 2021) (Figure 4).

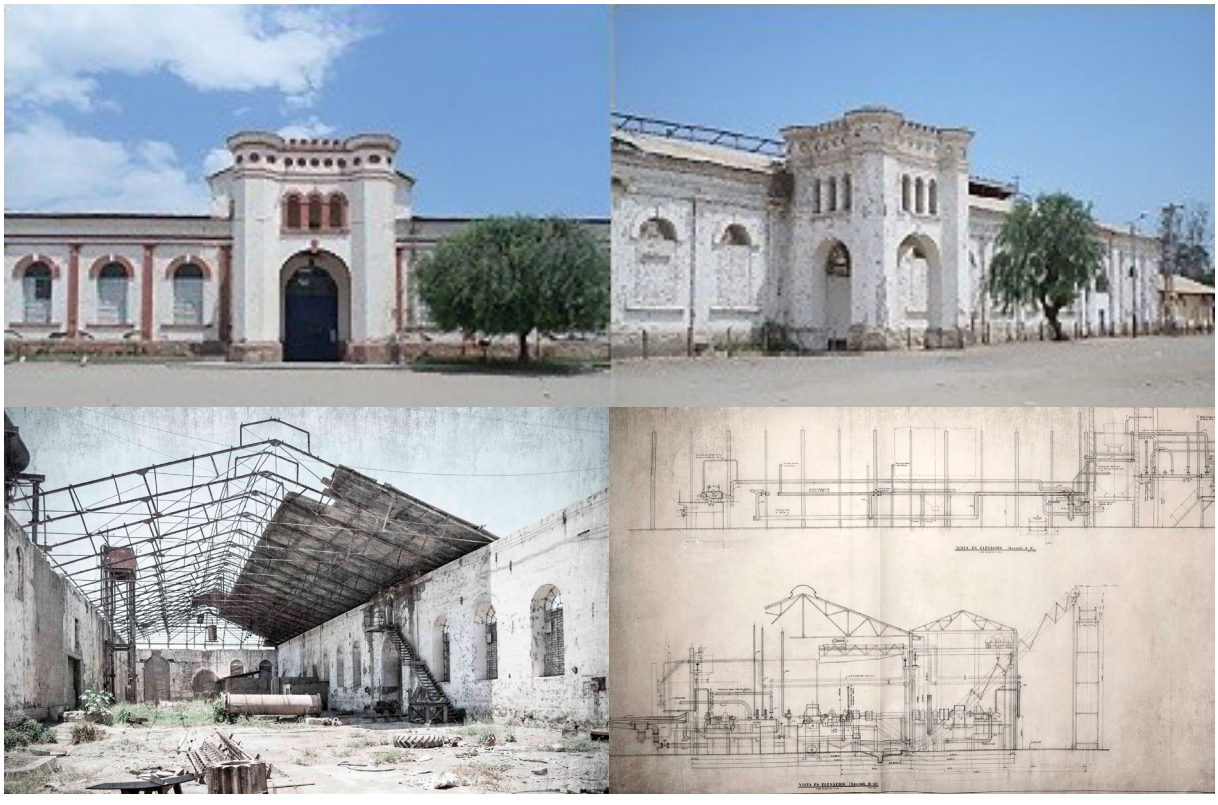

Figure 3: Remains of the Cayaltí Industrial Plant. Authors (2024), based on photographic record by Perleche (2017)

Figure 4: Case study of adaptive reuse of industrial heritage in Europe. Authors (2024), *"Adaptive reuse as the Hydraulic Museum of the Segura River Mills, Murcia (Spain), architect Juan Navarro Baldeweg, 1985,"* based on photographic record by Gilabert (2017).

Group of actors	Participant profile	Number of interviewees	Selection criteria
Organized population	Residents of the Cayaltí district and former workers or family members linked to the agro-industrial sector	5	Historical and social ties to the Hacienda House and the Industrial Plant; direct knowledge of the heritage complex
Academia	Specialists in cultural heritage, architecture, and territorial studies	3	Academic and research experience in cultural and industrial heritage
Public administration	Officials from public agencies involved in culture, land-use planning, and local government	4	Institutional role in heritage management, protection, or planning
Total	—	**12**	Theoretical saturation and diversity of perspectives

Table 1: Characterization of the heritage subjects interviewed. (2024)

4. Methodology

4.1. Methodological approach and research design

The research adopts a qualitative, descriptive, and interpretive approach aimed at understanding the perceptions, meanings, and valuations that different social actors attribute to the industrial heritage of the Casa Hacienda and the Cayaltí Industrial Plant. This approach is relevant because the study does not seek to measure quantifiable variables but rather to interpret social processes, collective memories, and symbolic constructions associated with cultural heritage—dimensions that require comprehensive, contextual approaches (Creswell and Poth, 2018; Silverman, 2020). The case study is employed as a methodological strategy, enabling an in-depth, situated analysis of a specific heritage phenomenon within its historical, social, and territorial context (Yin, 2018). Within this framework, Cayaltí is conceived as a complex heritage system, comprising material, immaterial, productive, landscape, and social dimensions. The decision not to incorporate mixed methods stems from the need to capture the symbolic complexity of social valuations, given that qualitative approaches reveal cultural meanings that quantitative methods struggle to capture (Smith, 2006; Harrison, 2013).

4.2. Unit of analysis and scope of the study

The unit of analysis consists of the heritage system formed by the Hacienda House and the Cayaltí Industrial Plant, understood as a historical-productive complex embedded in a specific territory and within a community that preserves memories linked to agro-industrial activity. The spatial scope encompasses the Hacienda House, the Industrial Plant, and their immediate surroundings associated with the former productive system of the Zaña Valley. In contrast, the temporal scope covers both the period of industrial boom—between the late 19th and early 20th centuries—and its current state of abandonment, symbolic reinterpretation, and potential heritage enhancement (Dargent, 2017; Ludeña, 2008).

Range of % agreement	Level of recognition / perception	Description
0–20%	1	None
20–40%	2	Low
40–60%	3	Medium
60–80%	4	High
80–100%	5	Significant

Table 2: Heritage Recognition Rating Scale.
Authors (2024), based on methodological literature (American Psychological Association, 2020; Creswell and Creswell, 2018; Gastel and Day, 2016).

4.3. Selection and description of the subjects of study

The sample was formed through purposive and theoretical sampling, aimed at capturing a diversity of perspectives and achieving theoretical saturation (Creswell and Poth, 2018; Martínez-Salgado, 2012). The following inclusion criteria were established: a) direct or indirect connection to the Hacienda House and the Industrial Plant (work experience, residence, or institutional relationship ≥ 10 years); b) specialized knowledge in cultural heritage, urban planning, or territorial development with expertise in the area; and c) participation in public or social management spaces linked to the local or regional sphere (agreement to be recorded and remain anonymous). Individuals under 18 years of age and active private-sector employees without written authorization were excluded.

Four profiles of heritage stakeholders were defined: organized communities, former workers or family members linked to the sugar industry, cultural heritage specialists, and public officials. Twelve participants were interviewed, selected based on theoretical saturation as discursive patterns regarding symbolic, formal, and use values recurred (Table 1). Access was achieved through institutional contacts, referrals from local organizations, and the snowball sampling strategy, which allowed for the inclusion of actors with diverse backgrounds (Flick, 2018). One limitation was the exclusion of internal actors from the industrial complex, which prevented the comparison of the private property perspective, without affecting the interpretive validity of the study (King and Rico, 2024).

4.4. Data collection techniques and instruments

The primary technique was the semi-structured interview, selected for its flexibility and ability to obtain in-depth information and reconstruct memories and social meanings (Gill et al., 2008; Creswell and Poth, 2018). The instrument was structured around the dimensions of heritage value—symbolic, formal, and use-based—in accordance with the approaches proposed by Ballart et al. (1996) and Novacovsky and Paris (2006), and included open-ended questions validated by cultural heritage experts, so that the conceptual categories of the theoretical framework could be translated into operational dimensions of the empirical analysis. Complementarily, the following were employed: direct observation of the physical condition and use of the complex; morphological and architectural analysis of the built system; and documentary analysis of historical sources, regulations, and graphic records; the triangulation of these techniques strengthened the consistency and depth of the analysis (Yin, 2018).

4.5. Data collection procedure

The data collection process unfolded in several stages. First, informed consent was obtained, guaranteeing confidentiality, anonymity, and the academic use of the information, in accordance with the ethical guidelines of the APA (2020) and Noreña et al. (2012). The interviews were conducted virtually via Zoom or Teams due to the participants' geographic dispersion across Cayaltí, Chiclayo, Lima, and Potenza (Italy). Although this method limits the observation of certain nonverbal aspects, it facilitated participation and the development of in-depth reflective narratives (Flick, 2018). All interviews were recorded and transcribed in full and supplemented with documentary triangulation from regulatory archives, contributions from specialists, and historical and recent photographic records.

4.6. Analysis strategies and validity criteria

The information was analyzed using thematic analysis, articulating deductive and emergent categories (Creswell and Poth, 2018; Silverman, 2020). The analysis began with an initial matrix based on the three dimensions of heritage value developed in the theoretical framework (symbolic, formal, and use value), from which units of meaning were identified regarding collective memory, territorial identity, state of conservation, potential for reuse, and future expectations, organized into categories and subcategories comparable across groups of stakeholders (Tables 2, 3, 4, 5 and 6).

The validity and reliability of the study were reinforced through triangulation of sources and methods, peer validation, partial review of transcripts by some participants, and comparison with regulatory documents and previous studies (Yin, 2018; MINCUL, 2020a, 2020b; Noreña et al., 2012). Additionally, the research team compiled reflective logs to identify and control for potential interpretive biases, following recommendations for qualitative studies in cultural heritage (Creswell and Poth, 2018; King and Rico, 2024).

4.7. Ethical considerations and study limitations

The research was conducted in accordance with the principles of the Declaration of Helsinki and the APA Code of Ethics, ensuring informed consent, confidentiality, data anonymization, and respect for community narratives (APA, 2020; Noreña et al., 2012). Special care was taken to avoid revictimizing participants linked to labor conflicts or dispossession processes associated with Cayaltí's agroindustrial history.

Among the main limitations are the subjectivity inherent in qualitative narratives and restrictions on access to certain key actors, such as representatives of the industrial complex's internal administration. These limitations were mitigated through methodological triangulation, cross-checking with documentary sources, and a deliberate broadening of the diversity of profiles interviewed, thereby strengthening the robustness of the analysis (Creswell and Poth, 2018; Yin, 2018)

4.8. Methodological framework

The methodological flow of the study was structured as follows:

Problem formulation → Selection of heritage subjects → Conducting interviews → Transcription and coding → Triangulation of sources → Interpretation and conclusions

This framework is inspired by international guidelines for qualitative studies in cultural heritage and by recommendations for writing scientific reports in the IMRyD format (Creswell and Poth, 2018; King and Rico, 2024).

Heritage Dimension	% Agreement	Level Scale
Formal value	73.3	4
Symbolic value	93.3	5
Use value	73.3	4

Table 3: Asset valuation of the organized population. (2024)

Heritage Dimension	% Match	Level Scale
Formal value	100	5
Symbolic value	88	3
Use value	80	3

Table 4: Asset valuation by academic experts. (2024)

Heritage Dimension	% Agreement	Level Scale
Formal Value	90	5
Symbolic value	100	5
Use value	60	3

Table 5: Asset valuation of public officials. (2024)

Heritage dimension	Organized population	Academia	Public administration	General interpretation
Formal value	73.3 (4)	100 (5)	90 (5)	Relevant architecture
Symbolic value	93.3 (5)	88 (3)	100 (5)	Key identity value
Utility value	73.3 (4)	80 (3)	60 (3)	Current and potential use

Table 6: Comparative summary of asset valuation by stakeholder groups. (2024)

5. Results

This section systematically presents the findings obtained from the analysis of interviews conducted with the twelve heritage subjects associated with the Casa Hacienda and the Cayaltí Industrial Plant. The results are organized by the three dimensions of heritage value—symbolic, formal, and use—and by the stakeholder groups in the sample: organized community, academia, and public administration. The presentation is limited to the description of empirical data, without incorporating interpretations or theoretical contrasts, which are developed in the Discussion chapter (APA, 2020; Creswell and Creswell, 2018).

5.1. Heritage assessment scale

To classify the level of recognition for each heritage dimension, a five-point scale was used, based on the percentage of agreement among interviewees' perceptions (Table 2). This scale allowed for the systematization of results and facilitated comparison among the different stakeholder groups, maintaining consistency with the study's qualitative approach.

5.2. Results by stakeholder group and heritage dimensions

5.2.1. Organized population (Residents and neighbors / Indirect stakeholders)

In the organized population group, the symbolic value of the heritage complex reaches 93.3% agreement, indicating a transcendent level of valuation (Table 3). Both formal value and use value register 73.3%, placing them at a high level, which demonstrates a strong symbolic identification of the community with the Cayaltí Hacienda House and Industrial Plant and a significant recognition of their architectural qualities and potential uses, even though these uses are not yet fully developed.

5.2.2. Academia (Heritage specialists / Specialist stakeholders)

Among actors with an academic or heritage specialization, formal value reaches 100% agreement, the highest level of valuation (Table 4). Symbolic value and use value show match rates of 88% and 80%, respectively, both at high levels, reflecting a high technical and conceptual valuation of the complex, with an emphasis on its architectural and historical qualities and its status as a significant testament to the industrial sugar-agricultural heritage of the Zaña Valley.

5.2.3. Public administration (Civil servants in the culture sector or local government / Civil servant as an actor)

In the public administration group, symbolic value shows 100% agreement, and formal value shows 90% agreement, both corresponding to high levels of valuation (Table 5). In contrast, the use value reaches 60%, placing it at a medium level on the scale, indicating clear institutional recognition of the complex's historical and architectural significance but a more moderate assessment of its current use potential and the conditions necessary for its functional activation.

5.3. Comparative summary of results

The comparison between stakeholder groups reveals high levels of agreement in assessing the symbolic and formal components of Cayaltí's industrial heritage, which are mostly rated at high or significant levels on the scale (Table 6). In contrast, the use-value dimension shows greater differences among the groups, reflecting diverse perceptions regarding the possibilities for reuse and revitalization of the complex and confirming that use constitutes the most complex aspect of the heritage enhancement process.

5.4. Descriptive summary of the results

Overall, the results show that the Hacienda House and the Cayaltí Industrial Plant enjoy solid heritage recognition in their symbolic and formal dimensions among the various stakeholders interviewed. The use-value dimension, while present, shows lower agreement and greater differences among groups, highlighting divergent perceptions of its functional activation.

6. Discussion

The analysis of the social perception of the heritage value of the Cayaltí Hacienda House and Industrial Plant confirms the complex and multidimensional nature of industrial heritage. It reinforces Cayaltí's status as a representative case study of former sugar agro-industrial complexes in the process of

abandonment. The results show that its recognition is primarily articulated around the symbolic and formal dimensions, while functional activation remains the main challenge for its long-term sustainability.

The predominant valuation of the symbolic component by organized civil society, academia, and public administration reinforces its role as a unifying axis of local identity. This finding is consistent with the idea that heritage value is not inherent to the object but is socially attributed through processes of collective signification, historical memory, and shared social practices (Ballart et al., 1996; Ballart and i Tresserras, 2001; Smith, 2006; Muñoz, 2010; Villamón, 2017). In Cayaltí, the persistence of narratives linked to agro-industrial work demonstrates that collective memory operates as a mechanism of cultural continuity, even in the face of physical abandonment, granting the site social legitimacy and providing a favorable basis for recovery and adaptive reuse (Hinojosa, 2019; Lorca, 2017). The notion of living industrial heritage takes on special relevance by demonstrating that social meanings remain active and forward-looking, linking the productive past with potential cultural, educational, and tourism uses even when the original industrial function has ceased (Álvarez-Areces, 2008; Gilabert, 2017).

Regarding formal value, there is a broad technical and institutional consensus regarding the architectural, typological, and historical uniqueness of the complex. However, this recognition does not translate into sustained conservation efforts or comprehensive management projects, highlighting a structural gap between expert assessment and the capacity to implement public policies in peripheral agro-industrial contexts (Ballart and i Tresserras, 2001; Lorca, 2017). This reinforces the need for processes of mediation, communication, and heritage education that bring formal values closer to the local community and coordinate resources and agendas across different levels of government.

The use-value dimension emerges as the most problematic and strategic area. While the local population expresses clear expectations regarding cultural, recreational, and tourism uses, academia and the administration adopt more cautious stances, highlighting regulatory, budgetary, and management constraints. This tension aligns with the literature indicating that adaptive reuse requires complex processes of planning, investment, and inter-institutional coordination (Álvarez-Areces, 2008; Gilabert, 2017; Fernández-Morales and Muñoz-Laso, 2023) and demonstrates that use value is a key concept for understanding the complexity of heritage recovery and the enhancement of living industrial heritage. In Latin American contexts, the adaptation of European models requires consideration of regulatory frameworks, local capacities, and local memories, as well as the specificities of railway and industrial heritage documented in recent studies (Silveti Ortega, 2023; Ferrari, 2023).

From this perspective, use should not be viewed merely as a deficiency, but as a strategic area for intervention: heritage sustainability depends on integrating these assets into contemporary social dynamics through socially legitimized uses (Smith, 2006; Villamón, 2017). International experiences in industrial tourism and the conversion of productive landscapes confirm that functional activation can simultaneously strengthen physical conservation, social appropriation, and territorial development, provided it is based on models of collaborative governance and effective community participation (Álvarez-Areces, 2008; Gilabert, 2017; Filian et al., 2018; Márquez Martínez, 2005; Somoza-Medina and Monteserín-Abella, 2021).

Based on these findings, three strategic lines of action applicable to Cayaltí are identified: the creation of a tripartite management committee (community–academia–administration) to coordinate funding, knowledge, and political will; the design of a public use plan that combines an interpretation center, workshop classrooms, and a small range of services, compatible with the existing structure and local human resources; and a school and community heritage education program that strengthens the memory of the place and builds a future audience. These lines of action do not require large initial investments. Still, they do require clear governance agreements, flexible regulatory frameworks (adaptation of uses without loss of value), and a diversified flow of resources (municipality, ministries, international cooperation, and self-generated revenue).

Methodologically, the qualitative approach employed—based on semi-structured interviews, thematic coding, and triangulation of sources—allowed for an integrated understanding of the symbolic, formal, and functional dimensions of industrial heritage, as well as differences in perception among stakeholder groups (Creswell and Poth, 2018; Silverman, 2020). This approach is particularly relevant for analyzing the social construction of heritage value and provides original empirical evidence on a sugar-agricultural industrial landscape that has been scarcely documented in the Peruvian context (Ludeña, 2008; Perleche, 2017). The concept of living industrial heritage takes on its full meaning here: although the original productive function has disappeared, the social meanings remain active and forward-looking, linking past and present and legitimizing adaptive reuse interventions that integrate conservation, local development, and community participation, provided they are based on models of collaborative governance and socially accepted uses. The study acknowledges two main limitations: restricted access to internal stakeholders within the industrial complex, which prevents comparison with the private property perspective, and the territorially focused nature of the case, which limits the generalizability of the findings to other sugar mills on the northern coast of Peru.

Future research could expand the sample to other abandoned sugar complexes (Pomalca, Tumán, Casa Grande) to validate regional patterns, incorporate mixed methodologies (survey + interview) that allow for quantifying social perception without losing qualitative depth, and analyze the economic viability of the proposed uses through market studies and social business models. The findings align with Álvarez-Areces's (2008) "living industrial heritage" model in three respects: high symbolic value serves as social capital; architectural legibility enables reuse without invasive interventions; and tripartite governance is a necessary condition for sustainability. Applying this to the Peruvian context requires adapting cultural heritage regulations (Law 28296) to permit cultural uses without a change of ownership, a mechanism already validated in cases such as the Murcia Hydraulic Museum (Figure 4).

6. Conclusions

The research confirms that the Hacienda House and the Cayaltí Industrial Plant constitute a complex heritage system whose value transcends the material dimension and is grounded in an active social construction linked to memories of labor, local identities, and collective meanings tied to the agro-industrial past of the Zaña Valley. This systemic nature shows that both components must be understood and managed as interdependent parts of the same cultural landscape and as potentially living industrial heritage, insofar as they retain capacities for reinterpretation and functional activation.

Symbolic value is the heritage dimension most firmly recognized by all stakeholder groups. Its persistence, even in contexts of physical deterioration and functional abandonment, confirms that collective memory acts as a mechanism for cultural continuity and constitutes fundamental social capital for any strategy to restore and enhance the site's value.

Regarding formal value, there is broad technical and institutional consensus regarding the complex's architectural, typological, and historical uniqueness; however, this recognition does not translate into sustained conservation actions or comprehensive management projects, revealing a structural gap between expert assessment and the capacity to implement public policies in peripheral agro-industrial contexts.

Use value will only achieve sustainability if at least three actions are implemented: a tripartite management committee (community–academia–municipality) with a shared management agreement; a public use plan combining an interpretation center, classroom-workshop, and short tourist circuit; and an annual school and community heritage education program. These initiatives do not require large-scale investments and can be sustained through mixed public–private financing schemes.

From a methodological perspective, the qualitative approach adopted enabled an integrated understanding of the symbolic, formal, and use-related dimensions of industrial heritage, as well as the convergences and divergences among stakeholder groups. The triangulation of interviews, documentary analysis, and direct observation provided a deep understanding of the case and relevant empirical evidence regarding an industrial landscape that is poorly documented in the Peruvian context.

Overall, the study concludes that the sustainability of Cayaltí's industrial heritage depends on the articulation between social recognition, active management, and collaborative governance. Enhancing the value of the site requires moving beyond approaches focused exclusively on physical conservation and advancing toward comprehensive strategies for adaptive reuse, heritage education, and community participation—strategies that can link industrial heritage to sustainable territorial development processes and incorporate these assets into national and regional heritage agendas.

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