



# In The Margins of Modernity: Sindujoyo's *Bale* as Coastal Identity and Cultural Resilience

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**Abstract.** Modernization that led to livelihood shifting persistently affected the northern coastal area of Java. Located in the northern part of Gresik Regency, Sindujoyo became the last surviving fishermen village in the city amongst aggressive industrial expansion. For a coastal community, the fishermen's hut or *bale* serves as an essential facility, functioning as a resting place, communal meetings, and a space to prepare fishing equipment before going to sea. In Sindujoyo, however, the role of the *bale* extends beyond its utilitarian use. It also serves a traditional cultural rite that reflects the area's identity. Despite modernization, the structures persist and play a vital role as urban nodes in maintaining vibrant local traditions. This research employs a qualitative approach to explore the cultural significance of the *bale*. Through spatial analysis, two types of *bales* were identified based on visual characteristics. Despite its differences, both types illustrate the interrelation between Javanese architectural and local folklore, which collectively shape the coastal identity. Moreover, the affordance of the Sindujoyo *bale* is multi-layered, as its perception varies across different community groups. By unveiling the cultural roles embedded in the *bale*'s architecture, the study offers an insight into how traditional practices and spaces can sustain identity and resilience amidst rapid industrialization in coastal areas.

**Keywords:** *Bale*, Coastal Community, Cultural Resilience, Identity, Urban Nodes

## 1 Introduction

Massive industrialization is an unavoidable situation in the north coast of Java. As industrial buildings are built in coastal areas, the negative impact such as ecological damage and livelihood shifts gradually affect the local communities [1]. Gresik, one of the port cities in East Java, is also experiencing rapid industrialization for decades [2]. Gresik's history can be traced back to the Majapahit era, when this area was known as a central port city (*bandar*) [3]. Diverse economic activities in the port area, from trade to fisheries, have led to the emergence of surrounding fishermen's villages.

The structure and dynamics of Gresik's city center began to shift upon the establishment of multinational industries such as PT Semen Gresik in 1953 and PT Petrokimia Gresik in 1972 [4]. The community's social life, which used to be based on maritime

life, began to transform into an industrial society. Through aerial comparison in Fig. 1, morphological shifting between the city center of Gresik before and after industrialization can be seen.



**Fig. 1.** Gresik morphology before industrialization (left, Source: KITLV, 1946); Gresik morphology after industrialization (right, Source: Google Earth, 2025)

In an aerial photo taken in 1946, many boats indicating the existence of fishing villages along the northern coast of Gresik is evident. On the contrary, satellite images taken in 2025 show massive industrial development, including land reclamation in 2009 that finally led to the decline of fishermen villages. Within the city centre, there is only one surviving fishermen area named Sindujoyo which covers both Lumpur and Kroman Village.

Sindujoyo area in the present time has begun to experience shifts in livelihoods and spatial patterns, subsequently after the establishment of the industrial port of Petrokimia Gresik in the northern side. Some fishermen no longer go fishing, instead, they sail to transport logistics or ship's crew heading to larger ships. Fishermen villages are defined as coastal settlements whose communities share the same occupation and cultural traditions [5]. Such conditions shape a homogeneous lifestyle and distinctive settlement characteristics. Morphologically, fishermen villages are equipped with public facilities that support community activities, such as docks, fish auction centres, fishermen's *bale*, and open spaces to dry out nets and fish [6], [7].

Across Sindujoyo, sailing activities are facilitated by fishermen's *bale* scattered throughout the area. *Bale* is defined as semi-outdoor communal spaces that serve as a multipurpose place managed by the fishermen's association. As the main function, the fishermen use *bale* as a work place to assemble a net, gathering area, and resting place. On the other side, the *bales* are also used by the community as a venue for a cultural event (*haul*). Alternating between *bale* for seven days, Haul Sindujoyo is a sacred ritual held to commemorate the death of Mbah Sindujoyo, the founding father of the village

[8]. During the rite, the entire community in Sindujoyo will gather at the *bale* to pray, recite *macapat*, and perform cultural shows (see Fig. 2).



**Fig. 2.** *Bale* as working station (left, Source: Biennale Jatim XI, 2025) and *haul* venue (right, Source: Panitia Haul Sindujoyo, 2025)

Hence, the overlapping function as fishermen infrastructure and cultural venue transform *bale* into urban nodes. It becomes the strategic point where people gather, engage in activities, and transit point between land and sea [9]. Nodes are crucial for sustaining urban life, yet become vulnerable if they do not adapt to urban dynamics [10]. Within the Sindujoyo context, *bale* establish a vibrant life in the community. It also contributes to the coastal area's identity, as it embodies the distinctive characteristics.

Throughout the massive industrialization, identity in an urban context formed a strong connection between the community and built environment. Identity reflects messages, ideas, and characters rooted in the community's history [11]. According to Mansour [12], urban identity refers to two main components which are material and immaterial dimension. Material dimensions are tangible, derived from nature such as topography and vegetation, or from human creations such as buildings, plazas, and symbols. Through typological studies, material dimensions will be classified and analysed based on its structure or characteristic in order to understand the holistic context. To classify architectural typologies, the building characteristics such as basic form, structure, function, and origin are considered [13]. Meanwhile, the immaterial dimension is intangible and closely related to public perception. This dimension is intertwined with community activities that include socio-cultural, beliefs, meanings, and values. Rapoport [14] defines perception as the multi-sensory information from the built environment received by people. The concept of affordances further emphasizes the interaction between the environment and the ways people perceive its meanings, particularly within the cultural community. According to Lang and Moleski [15], affordances are shaped by individuals' emotional attachments, physical capabilities, motivations, and needs. The concept is reciprocal and sometimes transactional that eventually ties back to the place identity.

Previous studies about urban identity focused on cultural landscape [16], city centre [17], and historical area [18]. Furthermore, a comparison analysis between urban and rural identity has been conducted [19], but has not specified the coastal area. In fact, coastal areas are highly complex and particularly vulnerable to rapid change. It has

become the forefront of ecological and industrialization threats, especially across the Global South [20].

Back in the postcolonial era of Indonesia, the vibrancy of urban landscapes was reflected in the urban nodes which among them was the guardhouse (*gardu*), which functioned as an informal communal space with diverse uses from communal gathering to serving political agendas [21]. Over time, however, these multifunctional roles have gradually narrowed since the emergence of gated communities. It slowly evinces the shrinking function and vitality of urban nodes before completely overlooked in the modern city. Thus, this study explores the Sindujoyo's *bale* as emerging urban nodes that contribute to coastal identity. The research objective is explained qualitatively by identifying the typology of *bale* as coastal infrastructure and examining community perceptions about the *bales'* role in their daily life. Ultimately, reinstating coastal identity is expected to enhance both spatial and cultural resilience.

## 2 Methodology

Adjoining the Petrokimia Port on its northern side, Sindujoyo as the last fishermen village in the center of Gresik old town faces constant ecological threats and industrialization. To examine the architectural context within its original socio-cultural setting, the research employed a descriptive-qualitative approach by analyzing twelve fishermen *bales* dispersed across Sindujoyo Village as a single case study (see Fig. 3) [22]. This approach allowed for an in-depth understanding of the *bale* as both architectural structure and socio-cultural spaces that embody the identity of the coastal area.

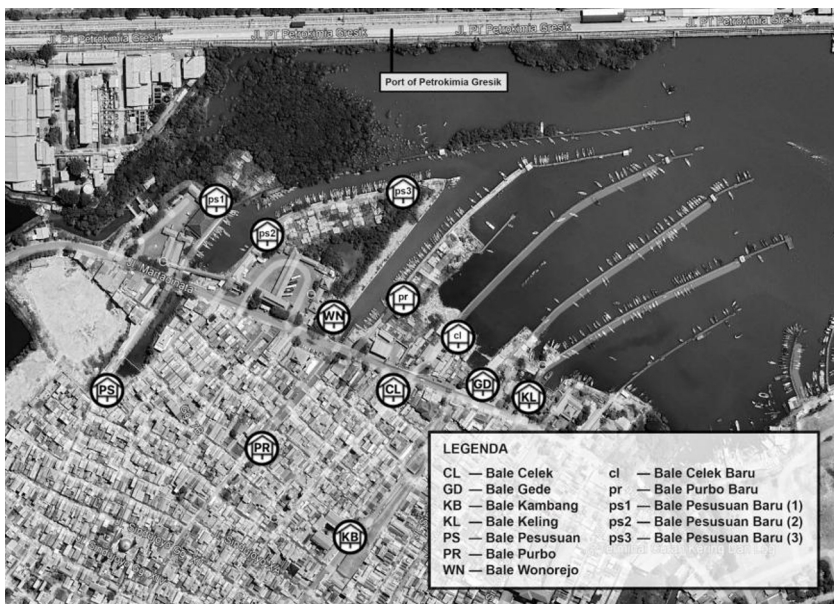


Fig. 3. *Bale* location around Sindujoyo

The data collected through observation and interviews. During field observation, the *bales* were analyzed based on its form, structure, function, and origin. Using visual analysis through the criteria, this phase aims to identify the typology of *bale*. Furthermore, in-depth interviews are conducted with three participants as a representative to explore their perceptions about *bales'* role in daily life. The participants comprised local cultural figures, fishermen, and artists who conducted residencies in Sindujoyo. The data were subsequently analyzed using thematic coding analysis to identify recurrent themes and patterns emerging from the in-depth interviews [23]. To conclude, findings and discussion are presented in a descriptive narrative supported by exemplary visuals.

### 3 Result and Discussions

#### 3.1 Sindujoyo's *Bale* Typology

Despite the livelihoods and spatial patterns shifting, the presence of fishermen's *bale* in Sindujoyo remains vital as it serves as fishermen workstation. There are 12 *bales* obtained through field observation. Based on its visual, all of the *bales* have a similar composition to a *pendopo* or *balai* inside kampung which consist of head (roof); body (middle); and feet (foundation). Nevertheless, there are two different types of *bales* which are divided into old and new *bale* (Fig. 4).

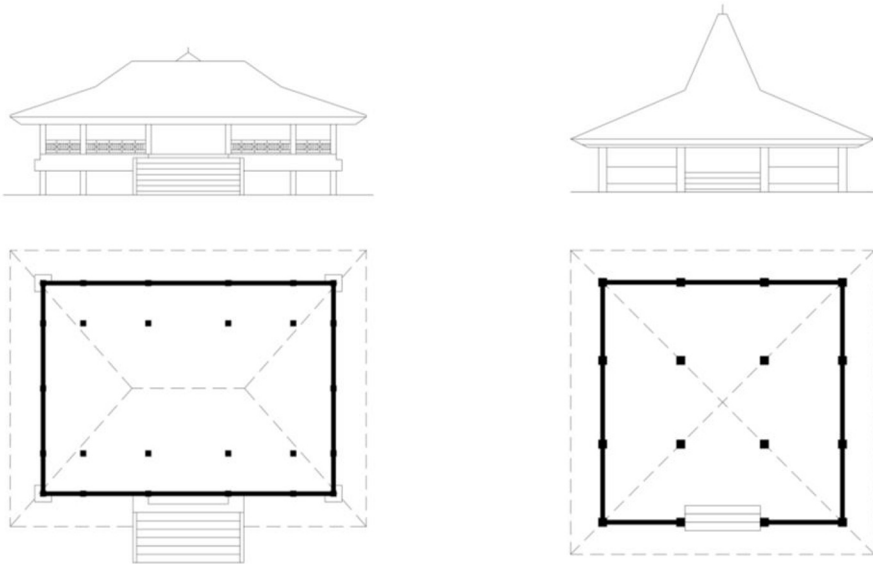


Fig. 4. Typology comparison between Sindujoyo's old (left) and new (right) *bale*

The first typology comprises six old *bales* structures which are Bale Kambang, Bale Celek Lama, Bale Pesuasan Lama, Bale Purbo Lama, Bale Gede, and Bale Keling. The old *bale* on the left side of Fig. 4 represents Bale Kambang, which is regarded by the community as the oldest structure. This type of *bale* is built by the local community

using vernacular materials and ornaments. The roof employs a *limasan lawakan*-shaped which is commonly used in Javanese architecture for residential structures [24]. In the middle part, the old *bale* is shrouded with a 1-meter-high wooden fence and sturdy teak wood as a core column without any solid walls (see Fig. 5). Thus, the flooring material used is wooden planks with bamboo mat that can be opened. The first type of *bale* also features a rectangular floor plan and has lower building height compared to the second type.



**Fig. 5.** First typology configuration shown at Bale Kambang (left), Bale Pesusuan (middle) and Bale Celek (right)

The second typology includes six new *bales* structures which are Bale Wonorejo, Bale Celek, Bale Purbo Baru, and three Bale Pesusuan Baru that underwent authorities intervention. Built recently around the second half of 2000's by the government, this type of *bale* is constructed using modern materials. Slightly different, the roof adopts a *tajug lawakan*-shaped which is commonly used in Javanese architecture for worship structures [24]. While the walls and columns are already made of brick and concrete, the floor at the lower section is covered by white ceramic tiles with no opening features (see Fig. 6). In the comparison presented in Figure 4, the second type of *bale* is represented by Bale Celek, one of the new *bale* with high activity. The figure indicates that the new semi-modern *bale* features a square floor plan and a greater building height.



**Fig. 6.** Second typology configuration shown at Bale Celek Baru (left), Bale Wonorejo (middle) and Bale Purbo Baru (right)

In its development, the categorization of *bale* typologies is not rigid. Several older, community-driven *bales* have undergone renovation for various reasons, primarily structural safety. These renovation processes have resulted in older *bales*, such as Bale Purbo and Bale Gede, acquiring characteristics that resemble those of the newer *bales*. The most frequently modified elements are wooden floors and columns.

Regardless the differences, both types demonstrate comparable features. It shares a similar façade composition while employing a stilt structure with stair access to ele-

vated heights. The adoption of stilt structures in coastal areas generally reflects the geographical conditions shaped by tidal cycles. Significantly, the stilt structure of the bale in Sindujoyo is also closely intertwined with local folklore. The narrative of Bale Kambang, believed to have once floated on the sea before being brought ashore by the community, highlights a symbolic connection between the architecture and the coastal identity of the bale. Through the folklore, it indicated that the Gresik coast has been transformed by natural accretion and man-made reclamation [25], which have resulted the older bales are no longer located directly at the coast shoreline. Besides, stilt structure also utilized by the fishermen as storage area.

Furthermore, the entrance is deliberately designed at a low height of approximately 1.7 meters, compelling individuals to bow as they pass through. In local beliefs, the low entrance is interpreted as a symbolic gesture of modesty and emulating the ethical principles exemplified by the *wali*. This belief is also reflected in the spatial orientation of all *bales* structures facing south toward the Tomb of Sunan Giri, one of the Wali Songo saints from Gresik. The spatial orientation symbolizes their reverence for Sunan Giri, the grandfather of Sunan Prapen who is also the spiritual teacher of Mbah Sindujoyo.

In terms of ornamental detail, Bale Kambang and Bale Kroman feature sea creature motifs in their decorative repertoire. Ornaments depicting fish and mythological creatures such as sea serpents signify the livelihood of fishermen and convey symbolic meanings of fertility and maritime abundance. Specifically, Bale Kroman features an ornament in the form of a crocodile. Beyond its decorative role, the crocodile reflects local mythology surrounding Mbah Sindujoyo, whose companion was believed to be a crocodile [8]. The presence of this motif thus symbolizes protection, loyalty, and the community's deep ties to their myth-historical heritage.

The complexity shown at the ornamental details reveal the complexity of the public area as physical elements that enhance visual richness [26]. The architectural configuration of the *bale* reflects an adaptation of the coastal Javanese style. It is further enriched by local folklore informed by historical narratives and the veneration of respected figures in the Sindujoyo community. Not only strengthens visual identity, the incorporation of authentic coastal elements also represents an effort to express a distinctive sense of place and belonging [27].

Furthermore, the self-built nature of the structure exemplifies the vernacular spirit that continues to characterize folk architecture in developing countries such as Indonesia [28]. It highlights how community practices contribute to maintaining cultural sustainability while promoting urban resilience. The interplay between myth and architecture suggests that the presence of *bale* across Sindujoyo embodies both pragmatic adaptation to the coastal environment and the preservation of collective cultural memory.

### 3.2 The Role of *Bale* and People Perception

Among the fishermen community in Sindujoyo, the *bale* serves as a significant infrastructure in their daily activities. It functions as an intermediary space between the house and the sea, where fishermen spend time before departing for work and upon returning home. Based on the participants' perceptions, the *bale* embodies multiple roles in their everyday life.

Participant 1 is a middle-aged man who often spends time at Bale Celek to rest or socialize with fellow fishermen. For him, the *bale* functions as a multifunctional social

space. Other fishermen use the *bale* to prepare and repair their fishing nets, while others use *bale* as a storage area for fishing equipment. In addition, several *bales* are equipped with electrical outlets, loudspeakers, and flat-screen televisions where fishermen play *dangdut* music or watch football matches at certain times together. The *bale*'s architectural form, with wooden floor and open-air design, provides a comfortable place where fishermen can spend more than five hours a day.

Despite the traditional fishermen such as Participant 1, there are boat owners known as service fishermen who transport industrial crew members between ships and the mainland. They use *bale* as a transactional space to meet their clients. Nonetheless, these two types of fishermen occupy different *bale* locations. Bale Pesuasan and Bale Purbo are commonly used by traditional fishermen who go to sea from dawn until noon. Meanwhile, Bale Celek and Bale Gede, located near the industrial pier, are mainly used by service fishermen who operate throughout the day. Collectively, *bale* can be understood as a pragmatic multifunctional space that supports the working community in their daily livelihoods.

Another perspective was expressed by Participant 2, a cultural figure with profound knowledge of the area's historical background. He argues that beyond its pragmatic function, *bale* also accommodates cultural and religious activities organized by the community. Local groups regularly gather to practice *pencak macan*, a traditional performance art rooted in a manuscript known as Serat Sindujoyo. In religious contexts, the *bale* also serves as a venue for learning traditional songs (*nembang*), commemorating *haul* ceremonies, and conducting prayers. Participant 2 also pointed out a hand carved stone bowl placed at the center of Bale Kambang, which is used for ritual offerings as a prayer for well-being and prosperity.

The most profound event around is the Haul Sindujoyo, an annual commemoration of the death of Mbah Sindujoyo, a historical figure deeply revered by the local community. This tradition encompasses both cultural and spiritual activities, including the recitation of Javanese poetry (*macapatan*) narrating the life story of Mbah Sindujoyo. The celebration represents an important cultural event that blends Hindu and Islamic traditions held across several *bales* within the Sindujoyo area. The largest ceremony takes place at Bale Kambang, where rituals involving hundreds of participants are performed continuously over three days. In such rituals, the *bale* emerges as a central cultural space and a sacred site for the community. Due to the strong influence of Islamic culture in Gresik [29], the cultural function of the *bale* as a venue for religious rites is prominent as it's usually conducted in holy places like mosques or *musala*. The use of *bale* as part of cultural rituals is one form of cultural adaptation [30], where people uphold beliefs and identities that are inseparable from their lives. Despite, the haul of Sindujoyo that took place at various *bales* is attended by Muslim devotees from Gresik and its surrounding. The influx of visitors from outside the local community underscores the significance of the *bale* as urban nodes, functioning as structures that sustain cultural resilience in Gresik.

Participant 3, a female contemporary artist who spent six months conducting residency and initiating art project with the Sindujoyo fishermen, offered another perspective. For her, the *bale* serves as a meeting point and information hub connecting various groups. She described her journey of understanding local culture begun from one *bale* to another. It started with a two-week art workshop centred at Bale Kambang and Bale Celek, followed by several months of collaborative work with the fishermen at Bale

Pesusunan. Collectively, they created an architectural installation made from drifted bamboo poles collected over several weeks. The work was later exhibited at the Biennale Jatim XI, a contemporary art exhibition held in a public space approximately three kilometres from the village.

Several young artists, such as Participant 3, are interested in activating the *bale* as a space for contemporary art. As an outsider, their encounters with the local community were facilitated through the *bale*, which they regard as a potential site for presenting their works in diverse mediums, including performance art, sound art, and installation art (see Fig. 7). They are also interested in organizing workshops for local youth and fishermen communities. Through the art intervention, the *bale* is reinterpreted as an artistic venue that accommodates contemporary practices, particularly those grounded in socially engaged art.



**Fig. 7.** Visitors interact with the art installation created by Gardika Gigih in Bale Kambang (left) and AODH Collective in Bale Purbo (right) (Source: Biennale Jatim XI, 2025)

During the residency, Participant 3 observed that traditional values shape the *bale* as a male-dominated space. The presence of women is limited to cultural events such as *haul*, *bandungan*, or other special occasions. The disposition is closely linked to the strong Islamic culture of the Gresik coastal community, which confines women's social spaces primarily to the domestic sphere. Meanwhile, children freely play in the *bale*, especially in the afternoons. Consequently, residents collectively rebuild or renovate the *bale* using local craftsmanship, reflecting shared responsibility for its upkeep. This collaborative practice highlights the *bale*'s essential role in strengthening social in Sindujoyo. The community's self-building capability can lead to the realization of a human-centred design approach [31].

Founded upon the exploration of participant perception, it inferred that the people of Sindujoyo regard the *bale* as a multifunctional structure that remains accessible to all members of the community. It serves as a spatial entity that accommodates a wide range of possible actions and reflects multilayered affordances shaped by social and cultural contexts. Reinforcing Rapoport concept [14], the affordances of the *bale* are shaped by activities and behavioural patterns that have been developed through long-established sociocultural practices. The various activities held in the *bale* bring a vibrant and liveable atmosphere experienced by all parties. The reciprocal relationship of affordances remains dynamic, as it is continuously shaped and mediated through the transformation of environmental aspects and human capabilities [32].

As a comparative post-colonial case, the study about *gardu* role conducted by [21] highlights how the structure experiences shifting dynamics due to social context. Dating back to the colonial era until prior to the new order regime, *gardu* served as a multipurpose space where communities asserted identity and sustained grassroots practices of everyday gathering, self-protection, and local tradition, even while remaining tied to roles of surveillance and community oversight. Yet while *gardu* have become increasingly formalized through gated communities, *bale* structures in the present context remain flexible, continuing to operate as informal settings for social interaction and community activities.

Likewise, twelve *bales* in Sindujoyo transform into an urban node that connects various social groups and remains vibrant through its continuous and diverse everyday use. It became a transitional point between land and sea, serving both spatial and functional connectivity. This overlap role illustrates the adaptive capacity where the *bale* embodies identity resilience by sustaining cultural continuity and liveable atmosphere amid industrialization. Thus, the community's attachment to the *bale* fostering cultural resilience that might supports the long-term sustainability of the fishermen village from the continuous shift under the massive industrialization over the city.

## 4 Conclusion

Industrial modernization has reconfigured the northern coastal zone of Java into an economic production arena. Becoming the last fishermen village in Gresik city center, Sindujoyo's local communities attempt to sustain their livelihoods and cultural identity. The presence of twelve *bales* in Sindujoyo held cultural significance; despite preserving its vernacular architecture, it is also turned into urban nodes that accommodate both work and cultural needs to the community. Based on its architectural configuration, the typology of the *bale* consists of the old and the new *bale*, each possessing distinct characteristics. The primary differences can be observed in the roof form, floor plan, and materials employed. Beyond its typology, the *bale* embodies the essence of traditional Javanese architecture interwoven with local symbolism rooted in the folklore of Sindujoyo. This intertwined serves as a material dimension that shapes the tangible identity of Gresik's coastal area.

To conclude, the *bale* plays a vital role in the community's daily life. Beyond its utilitarian role as fishermen infrastructure, the *bale* also functions as a cultural centre that accommodates artistic, religious, and social activities. As an urban node, *bale* turns into alternate space with multi-layered affordances. The community's perception of the *bale* as an immaterial dimension of identity formation reveals a causal relationship between culture and architectural structure; when the coastal tradition diminishes, the physical existence of the *bale* likewise declines, and vice versa. The layered functions of the *bale* strengthen the cultural existence of the community and further reinforces this resilience by anchoring everyday practices both in long-standing local traditions and contemporary dynamics brought by the younger generation.

The insight generated from this study highlight the value of incorporating community voices in understanding the changing dynamics of coastal community resilience despite the small number of participants. Building on these findings, future work may adopt quantitative or mix-method approaches to explore the analysis. Similar inquiries

in other northern coastal regions of Java, where fishing communities are experiencing comparable pressures, would also enrich comparative understanding and support more comprehensive policy responses.

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