

TRANSFORMATIVE ELEMENTS OF TANJUNG BUMI BANGKALAN COASTAL AREA ARCHITECTURE

ELEMENTOS TRANSFORMATIVOS DA ARQUITETURA DA ÁREA LITORAL DE TANJUNG BUMI BANGKALAN

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Abstract

Indonesia is an archipelago country that has various traditional architectures. However, its existence is threatened by natural disasters and side effect of globalization. However, resilient and sustainable coastal area reconstruction can protect valuable assets for the development of the affected area, including traditional architecture. One of the principles of sustainable coastal development is maintaining a historical identity. Therefore, the traditional architecture needs to be considered and improved to support local culture's value. Traditional architecture, which is an expression of the traditions and culture of its people, has the potential to be developed into contemporary architecture. The Tanjung Bumi coastal area has an attractive traditional *Tanean Lanjang* architecture. The study related to vernacular architecture aimed to identify transformative elements of *Tanean Lanjang* architecture within the coastal area of Tanjung Bumi to be used as a basis for presenting contemporary architecture and maintaining the continuity of traditional architecture. The study is reported descriptively, with qualitative methods that explore the transformative elements of Tanjung Bumi Bangkalan coastal area architecture. Transformative factors identified included the existence of a multifunctional long yard, a rectangular house, the shape and layout of the Langgar, a porch, and columns.

Keywords: Transformative elements, *Tanean Lanjang*, coastal area architecture.

Resumo

A Indonésia é um país arquipélago rico em arquitetura tradicional. Desastres naturais e o efeito da globalização podem tornar a arquitetura tradicional vulnerável. No entanto, a reconstrução resiliente e sustentável da área costeira pode proteger ativos valiosos para o desenvolvimento da área afetada. Um dos princípios do desenvolvimento costeiro sustentável é manter uma identidade histórica. Portanto, a imagem de uma cidade litorânea precisa considerar e aprimorar sua identidade a partir da cultura local. A arquitetura tradicional, expressão das tradições e da cultura do seu povo, tem potencial para se desenvolver na arquitetura contemporânea. A área costeira de Tanjung Bumi tem uma interessante arquitetura tradicional de *Tanean Lanjang*. Este estudo teve como objetivo identificar os elementos transformadores da arquitetura de *Tanean*

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Lanjang na zona costeira de Tanjung Bumi de forma que possa ser usada como base para apresentar a arquitetura contemporânea e manter a continuidade da arquitetura tradicional. Esta pesquisa é descritiva, com métodos qualitativos que exploram os elementos transformadores da arquitetura da área costeira de Tanjung Bumi Bangkalan. Os elementos transformadores identificados incluem a existência de um longo pátio multifuncional, uma casa retangular, a forma e a disposição do Langgar, um alpendre e colunas.

Palavras-chave: Elementos transformativos, *Tanean Lanjang*, arquitetura da área costeira.

INTRODUCTION

Indonesia is the largest archipelagic country in the world, with considerable potential for its coastal areas. Coastal area sure brings fishery and maritime strengths to Indonesia. However, the consequence is Indonesia is prone to geological disasters such as tsunamis, storm waves, river overflows, tidal floods, coastal erosion, sedimentation, and subsidence (1).

More than 60% of Indonesian populations live on coastal areas. Coastal areas are accessible for incoming people and opens up the opportunities to improve nation's economic, social, and cultural factors. Wide-open cultural access leads Indonesia's coastal areas to have a diversity of traditions, arts and culture, and traditional architecture. However, natural disasters and globalization strongly affected Indonesia and tends to alter the traditional architecture. Traditional architecture is highly dependable to socioeconomic changes and drastic changes in the way of thinking to traditional mindset to modern mindset (2).

Coastal areas provide potential opportunities for socio-economic development at national and international levels. The coastal area is a valuable resource and property that support the daily life, for example: providing drinking water, as a transportation route between regions, as irrigation for agricultural and plantation land, and as places for cultivation, residence, recreation, water sports, and providing water route for a trading purposes.

Indonesia is prone to disaster, especially in the coastal area. Reconstructing a resilient and sustainable coastal area will protect valuable assets for sustainable socio-economic development in the affected areas (3). Technical considerations, systematic planning, and sustainable management are an absolute necessity in developing coastal areas (4). Coastal areas are an integral part of coastal communities' cultural and natural heritage, and one of the principles of sustainable coastal development is to maintain a historical identity. A historical identity gives character and meaning to coastal areas that are being rebuilt (3). The identity of a city reflects its distinctive history and culture (5), and identities formed from local cultures need to be considered and enhanced as distinctive features that contribute to a coastal city's image (6). Indonesia has a large coastal area with traditional architecture that has the potential for development. Traditional architecture is a reflection of the identity of the Indonesian people. Disasters that strike the coastal areas of Indonesia should not lead to the elimination of the architectural culture of the affected community.

Traditional architecture has the potential to be developed into contemporary architecture because it is an expression of the traditions and culture of the people. Social, cultural, and natural conditions are manifested based on people's knowledge of their architecture (7, 8). Not just tangible aspects but also intangible aspects are expressed in traditional architecture (9). There is

no denying the social, cultural, natural, and economic development processes. This advancement undoubtedly had an impact on the evolution of traditional architecture. Contemporary architecture is one type of change in traditional architecture caused by social, cultural, natural, and economic developments. The current representation of conventional architecture is an attempt to evoke identity. Identity comes from localities and traditions (10). Maintaining traditional architecture to make a real contribution to the community must pay attention to the intangible aspects of architecture, such as value and meaning, and not be limited to just the tangible aspects (11). Developing the currently existing traditional architecture make an impact to improve the identity architecture in coastal areas as well. Developing the existing traditional architecture must follow the dynamics that occur socially, culturally, naturally, and economically.

Vital elements of traditional architecture are the basis of transformations into contemporary architecture, including ornaments and distinctive details of architecture. Buildings have three main elements: foot (basis), body, and head (roof). In Javanese traditional architecture, the roof is the most dominant element, support by a stage-like foot (basis). The architectural characteristics are straightforward basic shapes, volumetric bodies and roofs, legs in the form of lines, breathable walls, typical figures, and building orientation that synergizes with natural and environmental axes. These elements are visible and presented in the site plan, floor plan, building figure, and building facade (10). Knowing what elements are there in traditional architecture makes the development process easier.

Tanjung Bumi is one of the sub-districts of Bangkalan Madura Regency and is famous for its batik (traditional hand-painted fabric). The coastal area of Tanjung Bumi has an interesting traditional architecture, known as *Tanean Lanjang*. Social, cultural, and economic developments have impacted the *Tanean Lanjang* architecture, but the changes that have occurred have not eliminated the traditional *Tanean Lanjang* architectural aspect. The elements of traditional architecture are still expressed in the architecture by the community. Much study on traditional Madurese architecture has been conducted, but it is still limited to architectural typology. Wiryoprawiro (12) studied the spatial layout and appearance of Madurese architecture.

In contrast, Asmarini et al. (13) studied each architectural element of Madurese houses influenced by cultural, social, and climatic factors. Tulistyantoro (14) supported the Asmarini finding that the *Tanean Lanjang* is built based on local cultural values, not just for aesthetic and visual purposes. This study aimed to analyze what architectural elements that are being maintained and which have altered. The study related to vernacular architecture aims to identify the transformative elements that exist in the architecture of the Tanjung Bumi coastal area.

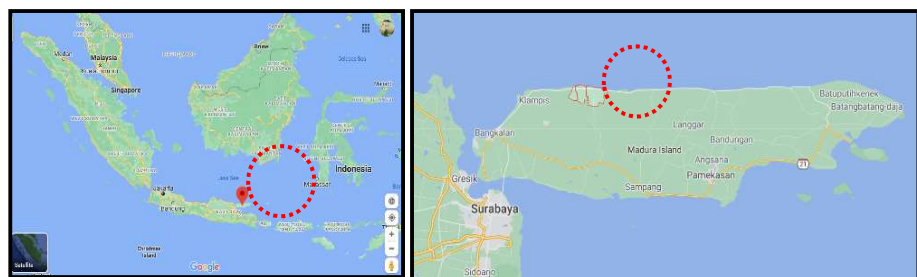
METHODS

This study was a descriptive study that seeks to systematically, factually, and accurately describe and interpret transformative elements in the coastal area architecture of Tanjung Bumi Bangkalan (15). Qualitative methods were used in this study to see the development of the traditional architecture in a focused, complex, and detailed manner as it occurs in the coastal communities of

Tanjung Bumi (16). The qualitative methods used were observation, interviews, and reviews of documents that provided descriptive data (17). Observations of the *Tanean Lanjang* architecture in the coastal area of Tanjung Bumi Bangkalan were carried out by photographing, measuring, and sketching (18). Open interviews with residents were used to obtain a clear picture of the object of study. A study of scientific articles and books was conducted to focus the discussion.

The study objects were chosen by purposive sampling. The criteria were set according to the objectives of the study, which were as follows: the object was *Tanean Lanjang* architecture, located in a coastal area, and the transformations in the object can be observed. From these criteria, 10 *Tanean Lanjang* buildings located in the villages of Paseseh, Telaga Biru, Tanjung Bumi, and Bumi Anyar were selected for the study objects (see Figure 1). The analysis compared the examples of the existing traditional architecture so that the architectural elements that had been altered could be identified. Traditional architecture was referenced by Wiryoprawiro (12) and Asmarini et al. (13).

Figure 1: Location of Tanjung Bumi in Indonesia (left). Location Tanjung Bumi in Madura Island (right) (-6.8986° or 6° 53' 55" south and 113.0744° or 113° 4' 28" east). (12,13)



RESULTS AND DISCUSSION

Like other areas in Madura, the coastal area of Tanjung Bumi Bangkalan has a traditional architecture called *Tanean Lanjang*. *Tanean Lanjang* is a collection of buildings that built surround a rectangular yard. *Tanean* in the Madurese language means “a yard,” whereas *lanjang* means “long.” The yard is oriented in an east–west direction. There is a *Langgar* (Islamic prayer room) at the western end, whereas the houses, kitchens, and animal cages (cattle) commonly face to north and south side. There are various *Tanean Lanjang* architectural types in the different districts of Madura. The different types are based on the layout, appearance, interior space, and decoration.

Tanean Lanjang in Tanjung Bumi is characterized by the house's structure. These houses are constructed in a specific pattern around a rectangular yard. The *Langgar* is built at the very far end of the courtyard face to the west side. The parents' house (main house/*Roma Tonghu*) is next to the *Langgar*. The house of the first married daughter is located to the east of the parents' house. The kitchen is in front (opposite) of the main house, separated by a courtyard. When the second daughter got married, a house was built on the east side of the first daughter's house, and so on (19). A house with two or three rooms and a porch is called *Sedana*. The spatial arrangement of the *Sedana* in Tanjung Bumi is aligned backward, in contrast to the *Sedana* located in Sampang, Pamekasan, and Sumenep. The *Sedana* layout in the traditional Sampang, Pamekasan, and Sumenep architecture has two rooms, two doors, one foyer, and one exit, which are located side by side (14).

The process of transforming traditional architecture in the coastal areas of Indonesia continues to this day. The transformation is influenced by several factors, including limited land, building materials, climate change, and social, cultural, and economic factors (20). Rumah Minang in the coastal area of West Sumatra is one of the traditional architectures that are altered by external factors. Limited land make the *Tanean Lanjang* cannot be built the same way as it's used to be. The arrangement of space is similar to that in the Minangkabau house. The addition of a porch is an adaptation to the coastal climate and open social relations. Roof coverings used today are tin roofs, formerly thatch (20).

The social, cultural, and economic developments in the coastal communities of Tanjung Bumi have brought changes to the architecture. The elements of traditional architecture that are still visible today in the buildings that become the focus of this study is the house yard, the basic shape of the house, the overall shape, the layout of the *Langgar*, the porch, and the supporting columns of the porch. All study objects that have long yards surrounded by buildings are still maintained, but the shape of the central yard has changed a lot. The shape of the central yard has become a short rectangle or an open-sided rectangle. It is because of the construction of new houses that surrounded the entire yard or exceeded the yard limits. A *Tanean* is a unifying building, which also functions as the main access to the surrounding buildings. The *Tanean Lanjang* tended to be shut in, but they were semi-open toward the road in two properties. The buildings surrounding the *Tanean* are on two sides: the west side, where the *Langgar* is located, and either the north or south side where other buildings are located and the other side where the guardrail is located. The function of the long yard, as a place for the whole family's activities is likely to remain. It was a place for children to play, Qur'an recitations, family gatherings, drying washed clothes, and other social activities involving many people. Most of the Tanjung Bumi coastal areas have business activities in producing batik (Indonesian traditional hand-painted fabric). Therefore, *Tanean* also functioned to support *batik* activities, such as *batik* drying, making *batik* patterns, and coloring processes (Figure 2).

Figure 2: The *Tanean* is a unifying building, an entrance, a place for family activities, and a place for drying the batik.



The transformation of the house still has the traditional architectural characteristics. The people of Tanjung Bumi retained the traditional rectangular shape of the house. Most of the longitudinal directions in the new house stretch along with the direction of the yard, which was oriented in an east-west direction. The symmetrical layout of the interior was still found in three houses with *Tanean Lanjang* architecture (Figure 3). The terrace, bedroom, and function room are arranged symmetrically in traditional

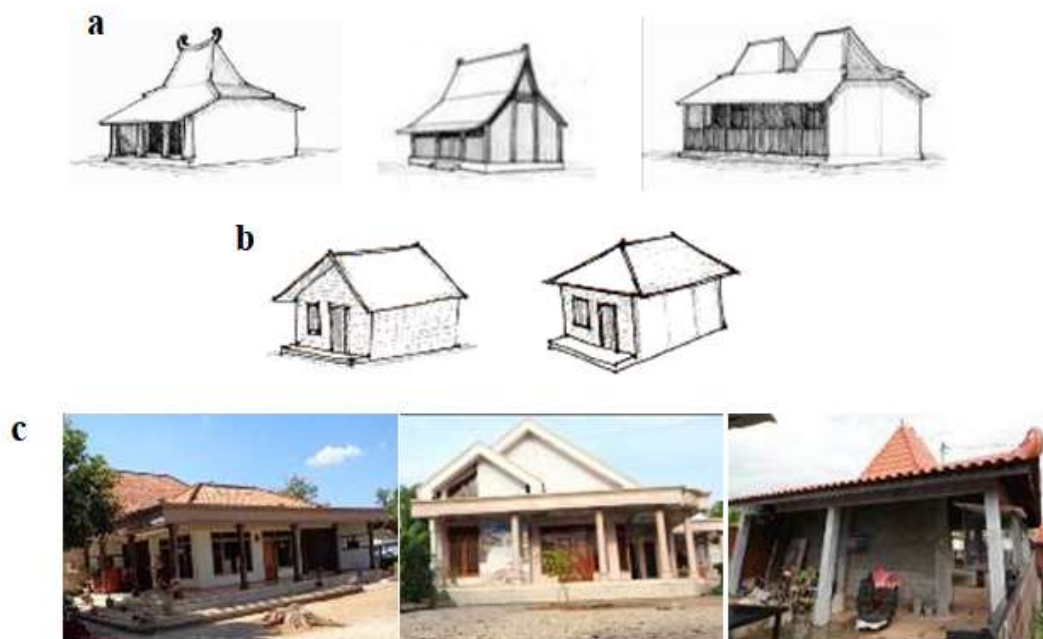
architecture. Today's spaces are more complicated. The modern Tanean Lanjang's architect has a terrace, living room, bedroom, dining room, kitchen, and bathroom. The symmetrical arrangement is still follows the traditional architecture. This symmetrical layout produces a balanced and formal appearance, which is also the reason for maintaining the existing spatial layout.

Figure 3: The interior's appearance (left) and layout (right) are symmetrical.



One of the traditional architectural characteristics is the roof domination. The shapes of the roofs of Madura houses are the variation of the Javanese roof styles: *Bangsals*, *Pegun*, and *Trompesan* styles. The origins of the *Bangsals* roof are the *Joglo* house, and it is truncated on the left and right. A *Pegun* is derived from the shape of the *Limasan* and has an additional roof on the front and back. A *Trompesan* is derived from the *Kampung Srotongan* roof and has eaves on both sides (12, 13, 20) (see Figure 4a). The roofs of new houses were dominated by the *Limasan* and *Pelana* styles, and only a small form of the roof is *Bangsals* shaped (Figures 4b and 4c). The eaves of the new houses were usually framed with concrete *listplanks*.

Figure 4: a) *Bangsals* (left), *Trompesan* (middle), and *Pegun* (right). b) *Pelana* (left) and *Limasan* (right). c) *Limasan* roof (left), *Pelana* (middle), and *Bangsals* (right).



In this study, about 80% of the people of Tanjung Bumi has a *Langgar*. The style of *Langgar's* roof is similar of the roof of the house. If the house had a *Bangsai* roof shape, then the *Langgar* also had a *Bangsai* roof. The *Langgar* was a single building that used a stage structure and did not have a structure with feet. The *Langgar* had a higher floor height than other buildings. The structure of the stage and the original shape of the *Langgar* roof were likely remained from the traditional style. The common changes of the *Langgar* were the renovations. Renovated *Langgars* also indicated an economic improvement of the house owner. Even though the building materials were changed, the traditional style still remained. The height of the *Langgar* was re-built higher than the existing houses (Figure 5).

Figure 5: The Langgar is higher than the other buildings.



Figure 6: A Langgar enclosed by walls and glass doors.



The *Langgar* has large porch and the interior. However, the large porch and interior border is not clear, even today. The *Langgars* were originally open at the front but are now closed. It makes it easier to keep the *Langgar* clean from the dust brought by wind, heat, rain, and mosquitoes (Figure 6). The *Langgar* system was still intact, located on the west side.

The Muslims should face the west side while praying, to be exact, to the Qibla direction that located in Mecca, Saudi Arabia. In this case, Mecca located far west away from Indonesia. That's why the *Langgar* must be built in the most West area.

In this study, all nine houses still have a wide porch. The porch served as a place for receiving female guests in the past. As a result of the socio-cultural development of the community of Tanjung Bumi, the porch now serves as an area for receiving both female and male guests and the place for *tahlil* (praising God in Islam that performed by many people), Quran recitations, family gathering, and other events. The original semi-open porch was now more open. The porch was originally covered by a full wall on its left and right sides, but now it was not fully covered (Figure 7).

Figure 7: A full wall (left) and a half wall on the side of the porch (right).



There has been a change in the orientation of homes, toward the *Tanean*. Homes were originally only oriented to the yard, (to the north or the south), but currently, many houses (60%) are oriented toward two different directions, the *Tanean* and the road. The use of columns as roof supports for the porch, which was a characteristic of *Tanean Lanjang* architecture, had been transformed into the present-day house by the people of Tanjung Bumi batik village. The shape of the columns had been adjusted according to the owner and the current architectural style. The use of columns showed an attachment to traditional architecture (Figure 8). The ornaments, which were transformed into the inside of the current house, is visible in the end of columns at the top and bottom (Figure 9). However, the transformation of the ornaments above the window and the door was not found.

The impact of globalization on the coastal communities of Tanjung Bumi has affected the facilities and layout of the traditional architecture. In the traditional house, the houses only provided space for sleeping and a multipurpose room (a wardrobe, a furniture cupboard, or a place to eat). But, in the current there is a living room, kitchen, and bathroom. The kitchen and bathroom were originally separate from the house but are now located inside each house. All new houses in *Tanean Lanjang* were equipped with kitchens inside the house. There were three kitchens in a non-functioning house. The room was narrow,

and the desire for togetherness when doing cooking activities meant that the kitchen was not used.

Figure 8: Columns used in traditional (left) and present-day architecture (right).



Figure 9: Top, column details on traditional (top left) and present-day architecture (top right). Bottom, column details traditional (bottom left) and present-day architecture (bottom right).



Contemporary architecture is a form of transformation from a homogeneous cultural situation into a more heterogeneous situation, trying to present the image and characteristics of traditional architecture and to have technical, social, and cultural sensitivity (21). Likewise, the Tanjung Bumi coastal community strives to represent traditional architecture by transforming its elements. Changes in society, culture, economy and others are trying to be treated carefully to present the image and characteristics of its traditional architecture.

Contemporary architecture is part of sustainable development, which takes into account social, cultural, and environmental aspects. Some things that must be considered in the process of transforming traditional architecture into new concepts come from the existence of coastal building characteristics, location characteristics, and the potential of modern materials (20). The transformative elements identified on the coast of Tanjung Bumi are the

embryo for future architectural development. The development of traditional architecture with a new concept has the potential to build architectural identity in Indonesia, especially in Tanjung Bumi.

CONCLUSIONS

The existence of a long yard in the middle surrounded by buildings, a rectangular house, and the shape of the Langgar that had been preserved in its original form was discovered to be transformative elements carried out by the people of the Tanjung Bumi coastal area in this study. Despite the use of new materials in its construction, the layout of the Langgar has remained unchanged due to its sacred nature and relationship with God. The Serambi was still a place for socializing, and the columns supporting the porch exhibited Tanean Lanjang architectural characteristics.

Society transforms architecture by adapting the traditional forms to the current conditions. The elements of traditional *Tanean Lanjang* architecture have been used by the people of the coastal area of Tanjung Bumi as the basis for creating new buildings. The elements of traditional architecture have been transformed into new buildings that meet the social, cultural, and economic needs of the community. Present-day architectural designs can be developed by identifying the transformative elements that have been carried out by the community. In this way, the continuity of traditional *Tanean Lanjang* architecture can be maintained through these transformative elements.

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