Batik productive house in Lasem (Central Java) in the concept of vernacular architectural spatial pattern

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Abstract. One of the functions of a residential house is the place to work or make a living. The house with the condition is known as productive house. Productive houses are widely encountered in various residential environments. One of the concerns is the home of a special productive batik product. Batik products are genuine Indonesian products that have been internationally recognized. Babagan Village in Lasem Sub-district, Central Java, is the production centre of batik fabric, and even officially holds the title as Kampung Batik. The productive houses in Kampung Babagan, Lasem have several models of spatial patterns. Houses in the Central Java region have a spatial pattern with vernacular architecture concept. This research assesses the spatial layout of batik house with vernacular architecture concept. Research using qualitative methods, primary data obtained from the results of field observations and secondary data obtained from the study of the library. The analysis was conducted by comparing the concept of a pattern of vernacular spatial layout to the pattern of spatial batik house. The study found that there are similarities and differences in the spatial observation pattern of the object of the Central Java Vernacular spatial pattern, which is due to variations in economic and social factors.

1. Introduction
The number of labour forces in Indonesia based on data from the Central Bureau of Statistics in 2020 as many as 137 million people. Of these, 44% have jobs in government or private sector, while the remaining 56% work in the informal sector. Working in the informal sector is an option in order to meet the needs for personal life or with family. When working in the informal sector requires a place or workspace. One of the spaces or workplaces that can be used is the residence. A residential house with a dual function (as a place to live and as a place to make a living) is referred to as a productive house [1]. Some productive houses can be grouped into 3 (three) [2] namely: mixed productive houses (where the inhabited and working parts have the same doors so that the inhabited space mixes with the workspace); balanced productive house (where the inhabited and working parts have the same doors so that the inhabited space mixes with the workspace); balanced productive house (where the inhabited and working parts occupy the same land but each has different access); separate productive house (inhabited and working parts occupy different land).

The existence of Lasem Subdistrict in the City of Rembang Regency of Central Java, known for its batik products, especially in Kampung Batik Babagan, is a concern to be observed in the context of vernacular architectural spatial patterns. Vernacular architecture comes from the word vernaculars which has the sense that a form based on local or domestic concepts, native, native [3]. According to Rapoport [3], vernacular building characteristics are: the building is not supported by the correct principles & theories, the building adapts to the environment, the building in accordance with the
social economic conditions of the community as well as known technology, the building reflects the culture of the community especially on symbols or signs, buildings adjust to natural resources. Lasem as an area in Central Java, is an old city and historic city because Lasem was a major port city since the 12th century when the Majapahit kingdom until the 19th century during Dutch colonialism [4]. Such conditions through productive houses in the city of Lasem will be assessed vernacular architecture concept in the context of Central Java.

Productive house types in Lasem are as follows: 1) Type of Residence, in addition to having a function as a residential house, this type is also enabled to trade (batik showroom), for homestays, and for cafés. This type of location is spread evenly in five villages that are in Chinatown areas. The houses are on average only one floor. 2) Shop House Type, Lasem people who live in this type of house are mostly people who have trading activities. Lasem's typical Chinese architecture is a blend of South Chinese architecture (home to most Chinese in Lasem), Javanese (Coastal) architecture, and Dutch Colonial architectural influences, which have been growing over time [4].

Productive house with batik products, become an object of observation because batik products are typical Indonesian products that have been recognized internationally, namely by the Organization of United Nations Educational, Scientific and Cultural Organization (UNESCO) in 2009.

A house, in this case a productive house, consists of the arrangement of spaces with a certain pattern. Spatial patterns show a hierarchy from public zones to private zones, according to the theory of DK Ching in his book 'form, space and order' where the principle of spatial planning needs to pay attention to axis, symmetry, hierarchy, rhythm & repetition, datum and transformation. In the concept of vernacular architecture, especially Central Java, the existing spatial pattern is: the hall at the front, functioned as the receiving room on the outside; next is pringgitan is the transitional space between the outside and the inside; furthermore omah ndalem is the core part of the house which is then followed by a central senthong room, senthong kiwo and senthong tengen; on the left and right sides are referred to as gandhok kiwo and tengen and in the middle of the back is referred to as pawon, gadri, pekiwan or service area (generally consisting of kitchen, dining room and bathroom) (see Figure 1).

![Figure 1. Central Java vernacular house layout pattern [5].](image)

Central Java vernacular house layout pattern in the concept of spatial planning principles apply elements axis, symmetry, hierarchy, rhythm & repetition, datum & transformation. The balance of the pattern of vernacular house layout of Central Java reflects a balanced lifestyle between the world and the Creator according to Javanese philosophy. Javanese culture not only displays aesthetic values, but this culture promotes the values of tolerance, harmony, harmony and balance in everyday life, not only that Javanese culture elevates the high value of simplicity and decency [6].
This study aims to get an idea of how productive house layout patterns in Lasem, especially batik products, after obtained spatial patterns, will then be read the implied meaning of existing spatial patterns. The results obtained will be a reference for those who want to know the pattern of batik productive house layout in Lasem.

2. Methodology
This research uses qualitative method, with descriptive approach. Primary data is obtained by field observation to obtain visual recordings. Visual recording in the form of sketches of batik productive house spatial patterns located in Babagan Village. Secondary data obtained from literature and journals in the form of the theory of spatial patterns and the meaning of spatial patterns, especially in the vernacular house of Central Java. Furthermore, an assessment of the pattern of batik productive house layout in Lasem with the concept of central Java vernacular architecture with reading tools of spatial planning principles. Next describes the conclusion as the final stage of research.

3. Results and discussion
Lasem subdistrict, located in Rembang Regency, which is at the eastern end of Central Java, which is directly adjacent to East Java. Geographically, the location of Rembang Regency on the north coast of central Java at the coordinate line 111 degrees - 111 degrees 30 ' longitude timud and 6 degrees 30 ' - 7 degrees 6 ' South Latitude (Figure 2).

![Lasem Subdistrict in Blora Regency](image)

**Figure 2.** Lasem Subdistrict in Blora Regency [7].
Batik productive house in Lasem, one of which has the following spatial patterns:

![Spatial pattern of batik productive house in Lasem](image)

**Figure 3.** Spatial pattern of batik productive house in Lasem.

In Figure 3, shows one of the batik productive houses in Lasem. Prolific homeowners are of ethnic Chinese descent. People of Chinese descent have a philosophy of balance described in yin and yang terms. Therefore, the pattern of residential layout that serves as a productive batik house in Lasem still applies the concept of spatial planning with balance without any changes. Residential zones and work zones there are joined, and some are separate, but in one-yard houses with the same access. Productive house models like this are referred to as mixed productive houses.

Concept of productive house layout pattern in Lasem, when assessed in aesthetic concept in axis, symmetry, hierarchy, rhythm & repetition, datum & transformation; axis and symmetry elements are fulfilled by division of left and right zones; hierarchy elements are fulfilled in the residential part there is an outside space (terrace) and the inside (bedroom) that is separated from the work area, where the work area is at the back. The part that is used together for habitable and working activities is the terrace of the house which is located at the back of the house. Rhythm & repetition can be seen from the existing symmetry pattern; while the datum and transformation have not been reflected in the pattern of productive houses in Lasem. Understanding the vernacular concept of productive houses in Lasem, can be seen in Table 1.

| Spatial pattern principles | Vernacular concept of Javanese house layout pattern | Productive house layout patterns in Lasem | Description |
|---------------------------|---------------------------------------------------|------------------------------------------|-------------|
| - Axis                    | - Apply axes                                      | - Apply axes                             | Based on the principle of spatial planning pattern in vernacular architecture, batik productive house in Lasem fulfils the concept of central Java vernacular architecture |
| - Symmetry                | - Symmetry pattern                               | - Symmetry pattern                       |             |
| - Hierarchy               | - Apply hierarchy to spatial patterns             | - Apply hierarchy to spatial patterns     |             |
| - Rhythm & repetition     | - Apply rhythm and reps, visible with existing axes | - Apply rhythm and reps, visible with existing axes |             |
| - Datum & transformation  | - No basic shape transformation                   | - No basic shape transformation           |             |
4. Conclusion
Batik productive house in Lasem for the observed case is a mixed productive house where access to inhabited and working has equal access. The concept of central Java vernacular architecture that became the basis for assessing the productive house of batik in Lasem, its application in accordance with the principle of spatial pattern arrangement consisting of 5 (five) elements where the five elements meet the pattern of batik productive house layout. Axis principles, symmetry and hierarchy reflect the strength of balance in the lives embraced by Chinese people and Javanese people, namely not only displaying aesthetic values, but this culture promotes the values of tolerance, harmony, harmony and balance in everyday life, not only that Javanese culture elevates the high value of simplicity and decency.

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