Omah Cagak Wolu: The Rural Javanese House Architecture In The Cetho Temple Area Of Lawu Mountain, Indonesia

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Abstract. The architecture of Javanese houses in the Cetho Temple area is a variant of Javanese rural house architecture that has its uniqueness. Cetho Temple is one of the relics of Hinduism during the end of the Majapahit Empire. The climatic conditions of Mount Lawu and the spatial interaction with the Cetho Temple complex affect the concept of thinking and building Javanese houses and their settlement. The adaptation and adjustment processes that take place from generation to generation produce a typology of rural Javanese houses with local characteristics. This study aims to provide an understanding of the architectural characteristics of rural Javanese houses with a Hindu Javanese cultural background in the Cetho Temple area. The research location is in Cetho Hamlet, Gumeng Village, Jenawi District, Karanganyar Regency. The method of selecting the Javanese house research sample was carried out purposively by considering the typology and age of the house to represent the original character of the settlement. The results of the study found that the Javanese rural house in Cetho Hamlet has the characteristics of eight saka (poles). The Cetho people call it Omah Cagak Wolu. Omah Cagak Wolu is one of the typology variants of Javanese houses that are known around the slopes of Mount Lawu. Omah Cagak Wolu shows the interwoven space and function of a rural Javanese house in the Cetho Temple area. The typology of the Omah Cagak Wolu is a response to the mindset of rural Javanese people who are Hindu and the natural conditions on the slopes of Mount Lawu.

Keywords : Architecture; Hinduism; House; Javanese; Settlement

1. Introduction
The house is a cultural product. As a cultural product, the house provides an overview of the values and norms that apply to a community[9]. The way humans view their neighborhoods is very much influenced by their cultural background and natural conditions. For traditional communities, this local value system regulates the scope of spatial arrangement, the activity setting system and the characteristics of the buildings in the community [10][12]. Javanese houses have a different shape, size and way of arrangement with other ethnic groups in Indonesia. The natural conditions of Java Island, the philosophy of life, the social system, and the development of mastery of carpentry technology form the specific characteristics of Javanese houses. Priyotomo [7] states that the Javanese terminology associated with Javanese houses is not a geographic location or an administrative area. Java is meant here is the unity of Javanese culture and Javanese ethnicity. With this limitation, the 'Java' region covers part of Central Java (southern part of Central Java province) and part of East Java province (western part of East Java Province).
One source of historical information on the development of Javanese houses can be seen in a Javanese house manuscript in the collection of the Central Museum of the Ministry of Education and Culture No. BG. 60S [4]. The Javanese house is thought to have been originally made of stone. The preparation technique is like the temple stone preparation technique. This is confirmed by the opinion of several experts who state that some forms of temple construction in the 8th century are thought to have imitated house construction at that time. During the reign of Prabu Jayabaya in Mameng, house construction began to shift from stone to wood. This is the fruit of the thought of a Duke named Harya Santang. In 857M or 883 Javanese year, Adipati Harya Santang received an order from the king to think about renewing the concept of home design. Finally, it was proposed that wood material be chosen as a substitute for stone, considering that the material is lighter, easier to work with, easy to find and if it is damaged it is easy to replace. The opinion regarding a change in the structure of the house into a wooden structure is supported by the many findings of house paintings in the reliefs of temples built at that time, including the Borobudur and Prambanan temples. The house paintings on the reliefs of the temples show the forms of houses that are still known today, such as joglo houses, limasan houses and village houses. The whole house appears to use wooden construction.

So far, concept of Javanese house design standards have been derived from the Kawruh Kalang and Kawruh Griya texts. According to Prijotomo [7], the Kawruh Griya script group contains design groups related to design guidelines for prospective house owners, while the Kawruh Kalang script group can be said to be a building construction group that contains operational steps for the undhagi / carpenters to measure and give the final appearance of the construction parts of the Javanese house. Prijotomo [7] who conducted research on 15 Javanese manuscripts summarized in Kawruh Griya and Kawruh Kalang said that Javanese griya knowledge (house, building, architecture) leads to two main things, namely: dhapur griya and guna griya. Dhapur (form, figure, form) consists of griya limasan, griya jugloro, griya taju, and griya kampung. Meanwhile, the function of the griya consists of griya wingking, pandhapa, paringgitan, pasanggrahan, gandhok, griya pawon, gedhogan, kandhang rajakaya, regol, pasowanan ward, parimatan goods, granary, mosque. The knowledge of Javanese architecture is then complemented by petangan (guidelines for determining the size of Javanese buildings) and angsar (characteristics of teak wood). Thus a Javanese house can be understood as a building that has a dhapur griya and guna griya and is assembled based on the petangan and angsar. In the book series Traditional Buildings in Indonesia, the version of the Ministry of National Education, Hamzuri [4] and Dakung [2] explain that Javanese houses There are many forms, namely: Joglo, Limasan, Kampung, Tajug and Panggang-pe houses. The mention of this variant refers to the various forms of the roof.

Research on rural Javanese houses in Cetho Hamlet is an effort to reveal the values of local wisdom in the tradition of living in Cetho Hamlet which is built in a Javanese Hindu cultural environment. The research results are expected to contribute to the knowledge of Javanese houses in particular and residential architecture in general.

2. Methods
This research uses a qualitative approach with descriptive methods. The grand tour was conducted in the research area to see the potential of Javanese houses which would be used as analysis units. The research area is in the area of Cetho Temple, Gumeng Village, Kec. Jenawi, Karanganyar. The basis for selecting a Javanese house is carried out by considering the authenticity of the typology of Javanese houses and the relatively old age of the house. At the mini tour stage, several of the houses in the RT03 area was determined. This house represents the omah cagak wolu typology which is the uniqueness of the Javanese house in the Cetho temple area. Physical data extraction and activity settings were carried out by interview and direct observation. Data recording is done through a camera and audio recorder. The analysis was carried out by comparing field conditions with secondary data.
3. Discussion

3.1. History of Javanese Houses in the Cetho Temple Area

No written record has yet been found that can pinpoint the beginning of the development process of Javanese Hindu settlements in the Cetho Temple area[see figure 1]. Based on research conducted by Purnomo [8], Hindu Javanese settlements in Cetho began to appear since 1885 which was initiated by the arrival of four Hindu families from Tawangmangu Village. Tawangmangu Village is a village located on the southeast slope of Mount Lawu. The altitude is lower than the slope of the settlement at Cetho Temple, which is about 900 m above sea level. It is said that the move of the four families was motivated by the desire to get closer to Cetho Temple which is seen as a holy place where their ancestors resided and can provide protection and inner peace. They have the belief that they are still descendants of Eyang Trinciing Wesi, one of the former servants of the Majapahit king who co-founded Cetho Temple at the end of the 15th century. They then began to clear forests and make sangan (yard and moor areas). These four families can be said to be the origin of the settlements around the Cetho Temple area. In 1912, the population increased and a hamlet structure began to form. The hamlet which eventually became known as Cetho Hamlet, because of its location adjacent to the Cetho Temple site. This phenomenon of settlement area development is in line with the opinion of Kartohadikoesoemo [6]. There are three reasons that encourage humans to form a community in a place. First, motivation to live, namely looking for food, clothing and housing; Second, the motivation to defend his life against external threats; Third, motivation to seek improvements to better living conditions. Based on Kartohadikoesoemo's opinion, the characteristics of settlement development in the Cetho Temple area are encouraged by the sacred site of the Cetho Temple. One of the prominent characteristics of places that are considered sacred, such as temples, glorified tombs, is that they attract people to visit for pilgrimages. The existence of this activity attracts people to settle around the sacred area and begin to grow a community which eventually forms a settlement.

3.2. Landscape Condition of Javanese Houses in the Cetho Temple Area

The Javanese Hindu community settlement in the Cetho Temple area is on the west side of the slopes of Mount Lawu. This settlement is adjacent to the Cetho Temple site (see figure 1).

![Figure 1. Location of Cetho Hamlet at Lawu Mountain, Karanganyar Distric, Central Java, Indonesia [1]](image-url)

The Javanese settlement in the Cetho temple area is at an altitude of approximately 1413 m above sea level, at coordinates 7° 35'43" LS and 111°9'21" East Longitude. The climatic characteristics are
generally similar to the character of the humid tropical climate of mountainous areas in Indonesia. The air temperature is relatively cool, the average temperature at night ranges from 24-29°C and 29-34°C during the day [3]. The topographical conditions of the settlements have varied contours, with the character of the slope of the land around 10-35 degrees.(see figure 2). The land in this area is relatively fertile, with pine and cypress trees dominating the vegetation in the forest area of Mount Lawu. The agricultural land around residential areas is cultivated for horticultural crops such as carrots, cabbages, shallots, mustard greens and cloves. The residential area of the Cetho temple is administratively located in the administrative area of Gumeng Village, Jenawi District, Karanganyar Regency, Central Java. The location is about 35 km from the town of Karanganyar. The area is approximately 70Ha. Cetho Hamlet is relatively isolated when compared to other hamlets in Gumeng Village. The area of Cetho Hamlet is bordered by Perhutani Forest and the peak of Mount Lawu on the east and north, moor / agricultural land on the south and west sides.

3.3. Housing Orientation in the Cetho Temple Area
The majority of Javanese houses in Cetho Hamlet face north and south. If forced because of access, the house will be faced to the west, but in some cases the house will still be tried to face north / south even though the access to the house is from the west (see figure 3). This phenomenon is caused because there is a customary belief to abstain from facing the east. The house facing east is believed to not bring happiness and prosperity to its residents. This belief is passed down from the ancestral generation to the current generation[5].
3.4. Room Configuration of Javanese Houses in the Cetho Temple Area

From some samples of houses that were examined, rural Javanese houses in the cetho temple area on average have 2 groups of houses (building mass). The first is the griya wingking with a dhapur (roof frame) limasan sinom and the second is the griya gandhok with a dhapur (roof frame) limasan. The griya wingking for the people of Dusun Cetho consists of ndopo and senthong functions (left, middle, right). While gandhok serves as a kitchen (see figure 4). Other supporting facilities such as barns are in the backyard. Bathrooms are generally placed on the left and back of the kitchen. For the Cetho people the bathroom is often referred to as Pakiwan / kulah [5].

Even though it is located on a roomy site, most Javanese houses in the Cetho temple area only feature two griya(building) groups, namely griya wingking and gandhok / pawon. Referring to the guidelines for griya wingking in the Griya Titika Wisma manuscript [7], the Javanese house in Cetho Hamlet has different conditions. If the griya wingking in Naskan Kawruh Griya requires a high level of privacy, then this condition is different from the griya wingking in Cetho Hamlet. In the spacious room in front of Senthong (Cetho residents often call it Ndopo) the owner uses it for various activities such as entertaining guests, this room also often has sleeping halls. Room fixtures and room
furnishings indicate that this room is a family residence with all the activities that exist. This is one of the characteristics of the Javanese house in the village of Cetho Hamlet, where a cluster of griya is accommodated by various house uses.

![Image of Javanese House Pawon at Cetho Temple Area]

Figure 5. Javanese House Pawon at Cetho Temple Area

Javanese houses in Cetho Hamlet generally have one gandhok which is located to the left of the griya wingking. Cetho residents often refer to it as Pawon, because it functions as a place for cooking activities. There is usually an abregan room near the pawon, whose main function is as a warehouse. Cetho residents, who generally work as farmers, often store their crops and agricultural tools in this space. Pawon for the Cetho people has an important meaning. Pawon function is very flexible. Pawon is a place for cooking, a place for family dining, a gathering place, sleeping and at the same time functions as a place to receive guests. The characteristics of the activity setting in Pawon reflect the open, friendly and simple culture of the Cetho people. The Pawon room design for cetho people generally has a stove (Pawonan /pagenen) in the middle of the room. According to the belief of the Cetho people, the position of the stove should not be in line with the kitchen door. Above the stove there is a wooden shelf for placing food ingredients and cooking utensils. Cetho people call it pogo. Pogo also functions to dry crops such as corn and onions. The pogo size varies depending on the dimensions of the pawon space. Generally, the roof frame above the stove is ventilated, so that the smoke that comes out during the cooking process can immediately disappear. Some of the equipment that must be in the pawon is a jambangan. The jambangan is a water reservoir for cooking. In the past, jambangan were made of earthenware, now they are turned into plastic. Then there is a long bench to mix food while cooking. This board bench is called lincak. Around the stove there is a small wooden chair called a dingklik. Dingklik serves as a seat when making a stove fire and waits for the cooking process (see figure 5). There is one tradition of the Cetho community that is still running regarding the setting of activities in Pawon, namely the Api-api activity. These fire activities are in the form of activities to warm the body by burning wood in the stove. Often this activity is carried out with family members and even guests who come at night.

3.5. Structure and detailing of Javanese Houses in the Cetho Temple Area

The roof frame structure of rural Javanese houses in the Cetho temple area uses the limasan roof truss model for ndalem buildings and pawon buildings. Some houses use the village roof truss model for pawon buildings. Most of the roof covering materials use zinc. Based on the story of the elders, the roofs of houses in Cetho hamlet used to be reeds. After the clay tile material was burnt, residents switched to tile. The use of tile material did not last long, considering the climatic conditions of the Cetho hamlet which were always wet, causing the tiles to always get wet, which in turn damaged the wooden battens of the house roofs. Since it was known as zinc material, the residents then gradually replaced the roofing material with zinc. According to residents, zinc material is more waterproof and
able to block rainwater, especially when there is rain accompanied by strong winds. According to residents, zinc material also makes the house feel warmer, and is able to ward off the cold mountain air.

![Figure 6. Roof structure of Javanese House at Cetho Temple Area](image)

Javanese houses in the Cetho temple area generally have 8 columns as the main structure forming the griya wingking building[11]. This is the origin of the term Omah Cagak Wolu. Cagak has the equivalent meaning of the column.(see figure 7). Wolu means eight. So Omah Cagak Wolu is a house term with eight columns. The Omah cagak wolu in Cetho Hamlet has eight pillars that support the towers. Below the beam is a bow to stabilize the structure. Molo beam is supported by two ander. The structure of the Javanese house in Cetho, there is no gonja supporting ander, as is known in the Kawruh Kalang script. Ander position rests on the longitudinal center beam which is installed parallel to the beam (see figure 6).

![Figure 7 Javanese House Columns formation at Cetho Temple Area](image)

### 4. Conclusion
A rural Javanese house in the Cetho temple area known as Omah Cagak Wolu. This house is one of the variants of Javanese houses that are known in the areas of Central Java and Yogyakarta. The Omah Cagak Wolu building reflects the local wisdom values of the community around the Cetho temple. The
design of the *omah cagak wolu* community around the Cetho temple generally consists of two *griya* clusters, namely griya wingking and griya gandhok (*pawon*). Both use the form of a *limasan* roof. One *Griya Wingking* cluster has various functions. *Griya Wingking* Javanese house in the Cetho temple flock is used to receive guests, rest and sometimes as a bed. The Javanese house in Cetho has the principle of the direction towards eastern never-ending, in general the houses face north and south. *Griya Pawon* in Cetho is always to the left of the *Griya Wingking*, even though the houses have different directions. The construction of *cagak/soko guru* (column) assembly generally has eight poles. In roof construction, *Molo* always relies on two *ander*. *Ander* at the Javanese house in Cetho does not rely on the *gonja*, but on a cross beam parallel to the extending beam. The shape of a rural Javanese house in the Cetho temple area is a reflection of local values that still survive in the Javanese Hindu community on the slopes of Mount Lawu, Karanganyar, Indonesia.

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