Architecture in between: connecting between traditional Acehnese house and the current condition of modern Acehnese community

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Abstract. The formation of traditional architecture cannot be separated from the local wisdom of the community which is very friendly to environment. In this regard, the notion of ‘locality’ (such as local material, technology and culture) and ‘climate’ are used as a guide to the construction of buildings. The traditional Aceh house, the so-called Acehnese house (rumoh Aceh), that referred to as a type of stilted house is earthquake resistant. The house was also designed to anticipate flood and ocean tide and could provide comfort to the dwellers and be friendly to the local environment. The existence of Acehnese houses, however, has been extinguished. Houses owners prefer to demolish or sell the houses and to reconstruct new buildings with different styles. This study, thus, aims to explore the development of traditional architectural concept that suit to present context. It assesses three representative traditional houses found in Lambenot village. In order to accomplish the study, primary data collection was carried out through field observation, documentation and interviews with several informants including house owners. In additions, literature review is needed to support primary data. In doing this study, the paper shows the form of conservation efforts carried out by the Lambenot village community in order to maintain their collective memory of life journey. The benefit of this study is to give alternative toward preservation effort on how Acehnese houses can be used as an adaptive housing model for contemporary needs both architectural and structural aspects.

1. Introduction

Aceh traditional house, the so-called Aceh House (Rumoh Aceh) is an architecture that was built through the local knowledge and has been passed down from generation to generation. The ancestors built their houses based on knowledge and intuition that concern on how the built structure fits with its environment. In additions, the formation of traditional architecture is inseparable from the local wisdom of the community [1]. The involvement of local wisdom in creating traditional architecture, among others, are local material, climate, surrounding environment, site and topography, economic condition, local technology, daily life necessity, symbolism and meaning [2]. Those aspects become a guide to the construction of buildings. Generally, the traditional method of house construction had not been changed radically until the nineteenth century when the Dutch came to Aceh [3]. The stilted construction was designed to protect the dwellers from flood and ocean tide. Moreover, the house construction is earthquake resistant as well as addresses climatic needs.

This study is part of ongoing research on traditional architecture and conservation, exploring the concept of traditional architecture, which the involvement of local knowledge value. It is expected that the research will provide guidelines on how to preserve traditional Acehnese House that suits to the current condition of the local community. The location of this research takes place in Lambenot village,
Aceh Besar. The village is located about 35 km from the capital city of Banda Aceh. During recent years, the existence of traditional houses in the traditional Lambeunot village starts to become extinct. Although the construction of Aceh House, as mentioned above, offers some advantages to the dweller in terms of thermal comfort and natural disasters, a number of house owners have been ruined their traditional houses and reconstruct with modern domestic architecture. This is the main concern of this study. There are two main reasons for such a matter. First is because the owners’ financial conditions that caused them unable to build a new house. Second is because the house owners want to keep the memories passed down from their ancestors. Having identified such problems, the main questions rise; In what extend does most Lambeunot community prefer to build modern brick houses rather than maintain their traditional house? How to maintain the Aceh house so that its function as a living space in the modern period fit with the conditions of the cultural development of the local community? In view of this, the study aims to examine the traditional houses chosen as samples of this study and explore the development of the traditional of Aceh houses concept that suits to present context.

2. Methods
In doing this study, the qualitative descriptive method was carried out as a research approach. This study focuses on three Acehnese houses that considered the oldest houses found in Lambeunot village. In collecting data, primary sources are mostly used. Its data was collected through field observation and documentation to the houses, investigating some changes that occur in rooms function and building materials. In additions, the data collection is carried out through interview with several Lambeunot villagers, especially the house owners. In order to support primary data, A few key sources related to traditional Acehnese architecture are collected and reviewed. Such sources provide detailed and illustrated explanations of the constructions of the Aceh House in relation to its structure, material and function [4,5]. Another source used in this study is Hasan’s writing that searches on rethinking architectural identity in modern life [1]. The paper shows the form of conservation efforts carried out by the Lambenot village community in order to maintain their collective memory of life journey. The benefit of this study is to give alternative toward preservation effort on how the Aceh House can be used as an adaptive housing model for contemporary needs both architectural and structural aspects. It enriches the variation of Acehnese architecture in modern time.

3. Result and discussion
3.1 Local wisdom and traditional architecture
In the beginning of the formation of Lambeunot village, the village dwellers were comprised of one generation. Parents build houses for married daughters around their land. Then, the married daughters with the husband provided houses for their married daughter. In other words, the women who own houses are descendants of the same female progenitor. It is therefore, in Aceh, a house belong to women. During these days, a group of houses found in one plot of land are dwelled by several family members of three to four generations. The settlement pattern of the Lambeunot village at this time still follows the traditional village pattern. As shown in Figure 1 those houses are set in groups along the village road. Several houses occupy a large plot of land. Dwellings in Lambeunot village are situated in a fenced courtyard that, planted with variety of plants. The dwellers share to use the open space found between houses in one plot of land.

Orientation of house becomes an important aspect of design in Traditional life of Acehnese. Like in other village settlement in Aceh, dwellings found in Lambeunot village are set in an east – west orientation especially those houses located along the village streets. According to local belief, this orientation had a ritual function, within which this has been passed from generation to generation [5]. In his writing on “The Traditional Acehnese House” Dall claims that such an orientation is applied to all dwellings in the village streets throughout Aceh region [5]. Moreover, Dall adds that before Islam came to Aceh, the east – west orientation of the Aceh house roof derived from Hindu’s belief. In the Hindu’s tradition, this orientation was used in order to avoid the house entrance facing the sunset. They believe that west or sunset symbolizes death, while east or sunrise signifies life. When Islam came to
Aceh, the east–west orientation continued to be used by Muslims for religious reasons. This orientation identifies the ritual direction for daily prayers for Muslims. It is therefore now days people claims that the Acehnese house reflects Islamic values through the roof on an east-west axis as Figure 2 portrays.

![Figure 1. Map of Lambeunot village.](image1)

**Figure 1.** Map of Lambeunot village.

![Figure 2. Houses that are set in east – west orientation and situated in fenced courtyard.](image2)

**Figure 2.** Houses that are set in east – west orientation and situated in fenced courtyard.

In connection with local geographical conditions, an east–west orientation was also necessary to prevent house damage – especially the roof – by the strong force of what the local people called as *angina barat* (west wind) and now days known as the northern and eastern winds. There are two gables (*tulak angen*) are placed right under the roof on east and west sides of the house with the gable screens sloping outward. The reason for such installment is to prevent damage by heavy winds. Besides, the gable screens that are perforated are constructed under the roof to allow the wind from outside of the house to pass through the gable screen on the roof part so that the wind cools of the rooms inside.

Rumoh Aceh itself is a stilted house type with its floor is elevated 2 – 2.5 meters from the ground. The house floors are made of timber slats are arranged at certain intervals. The stilted construction aimed to protect the residents from wild animals. Moreover, in terms of climate, such a house construction addresses climatic needs. Elevating the house floor up to 2.5 m allows the cool moist air from the space underneath the house to be drawn up to the rooms inside the house through the timber floor arranged with certain intervals. This local wisdom on how to deal with climate has been approved by previous study conducted by Sari at all [6]. The study found that inside air temperature of the traditional house is closer to the comfort air temperature, ranging from 26.6 to 29.7°C.
The construction method of Acehnese house uses the knock down construction system. Thus, all joints that are found in the construction of traditional Acehnese house do not use nails. This can be seen in Figure 3 that shows that the joints between posts and beams are supported by wooden pegs and wedges and the wood joins on the roof construction are held together and lashed with ijuk (palm fibre) twine. As a result, such a flexible system shows that structural elements are able to safe themselves from earthquake shakes [7].

Figure 3. Houses that are set in east – west orientation and situated in fenced courtyard.

In terms of space zoning, Acehnese house is divided into three zones. They are male zone/verandah (seramoe agam) located at the front of the house and used as public space and praying room; bedrooms zone (dalam) at the middle, and female zone/verandah (seuramo inong) at the back of the house that is used for house hold activities. Since the space inside Acehne house is used to perform daily prayer, the Acehnese considered the interior of Acehne house as a clean space. It is therefore water vessel was provided near the base of the stair so that people had to clean their feet before entering the house.

3.2 Traditional architecture and the current local conditions
Most Acehnese houses found in Lambeunot village are around 135-150 years old. The three houses taken as samples in this study belonged to Mrs. Wahyuni, Mrs. Nursiah and Mrs. Putri. To some extent, there are some traditional aspects in the design of Acehese house that are still both appropriate and not appropriate to be adapted in the current condition. This circumstance is consistent with the writings of Hasan [1] which referred to an architectural theorist, Curtis [8] a well-known western architectural theorist who emphasized the concept of architectural regionalism. In referring to Curtis’s writing, Hasan [1] emphasizes that some of local traditions are still fit to be adapted in the era of globalization and this should reflect to architectural works where the local inhabitants who are the user of its architecture are able to feel at home in their own environment.

In line with that, this study observes the existence of the three houses and found that the appearance of houses exterior, in general, has not extremely changed. However, there are some changes in the use of space as well as building materials. The space underneath the house is no longer used as a place to keep pets, instead, the dwellers change its function and used it for various activities. Couples rooms that are highly used every day such as bedrooms, kitchens and living room are moved down to the ground by adding new structure in it. Meanwhile, spaces that are not always used, such as guest rooms, storage, and children's bedrooms are remained in the Acehnese house. The occurrence of the changes mentioned above is due to economic and practical reasons. The additional structures are built on the ground either
attached to or side by side with Acehnese house itself. This new structure is known as rumoh yub (the additional structure(s) built on the ground). For the owner of the houses, removing those rooms is for practical reason. The dwellers do not have to climb up and down to travel between rooms within the house. Concerning this, Households more often do activities in the new structure under the house.

The open space underneath the house, thus, seems to be the most desirable space. It becomes the main occupied space during the day, especially for women’s activities such as feeding their children, lullabying the baby, making handy crafts and even having relaxed with family members and friends as shown in Figure 4. In certain times, this space is also used as communal kitchen where the women in this village work hand in hand to prepare food for celebrations such as weddings, commemorating the Prophet's birthday, and other celebrations. In view of this, rumoh yup is more widely used nowadays than the Acehnese house itself. As result, the use of Rumoh Aceh becoming less and less.

![Figure 4. The multi-function space underneath the Aceh house.](image)

Thus, there are very few rooms up stair in the Aceh House needed in order to accommodate dwellers’ activities. Concerning this, the interior space has been rearranged by the house owners. The space mostly used as a storage room. Besides that, there are a public space (seramoe agam) that can be used as a sitting or praying area as well as reading quran and a children’s bedroom. The dwellers create a bigger space for seramo agam by taking the bedroom into part of seramo agam. In view of this, the wall that separated between these two rooms is taken off. The reason for combining these two spaces is to create a brighter and wider space, as Figure 5 illustrates. In additions, the fresh air and wind can pass to the room through windows freely without being blocked by insulating walls. Now days the dwellers prefer to have a room that has sufficient light and fresh air. The children bedroom available in each three existing Acehnese house is often left empty since the room owner often uses seramo agam as a space to do his or her activities, especially studying, and sleeping. Instead, the bedroom tends to become a private storage.

Concerning new material used in Rumoh Aceh, the house owners used variety of woods in order to replace rotten or damaged wood material. The damage materials mostly found in houses stairs, floor, and walls. Concerning the new structure built underneath the Acehnese house, the owner used brick as the main building material, glass for windows and timber for window frames and doors. Difficulties in obtaining wood material due to its quality as well as its price has resulted the house owners to obtain alternative material for their houses. The striking sight of the new house material can be seen from the use of zinc material for the roof covering and the use of glass material for the windows. The dwellers have been replacing the roof material from thatch to zinc as this material has been easily obtained in the building material stores nearby and with affordable price. Meanwhile, to have thatch leaf material, one needs to order it and wait for 3 to 4 months. Moreover, its price is much higher than the price of zinc. The characteristics zinc, however, is a very good material type of heat conductor. As a result, the zinc creates the extreme heat to the space under the zinc roof. To avoid being in such a high temperature room, the house holders prefer to be in the open space or in additional rooms underneath the house in order to carry out daily household activities.
Figure 5. The open space in the interior, function as a public space

4. Conclusion
The local wisdom is a form of local people’s expression in carrying out their activities based on their cultural tradition and knowledge. Directly or indirectly, culture influences the formation of local wisdom. It is therefore, the formation of traditional architecture is inseparable from the local wisdom of the community. The ancestors built their houses based on knowledge and intuition that concern on how the built structure fits with its environment. They have paid great attention to geographical condition of the region, emphasizing ‘locality’ and ‘climate’ as a guide to the construction of traditional Acehnese House.

This study has observed how the dwellers in Lambunot village treat their Aceh House to become sustainable house based on their knowledge. This study shows that traditional architecture that has local wisdom values can still be maintained by considering the cultural development of today’s society. Moreover, the dwellers have been carried out some efforts of traditional building preservation. Due to practical and economic reasons, the house owners change the function of few existing rooms and the use of building materials. In view of this, the dwellers have been creating architecture as a living space that is able to make its dwellers feel at home in their environment. Thus, the Acehnese house can be used as an adaptive housing model for contemporary needs both architectural and structural aspects.

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