The Local Wisdom of the Baduy Traditional House for the Health Conditions of its Residents

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Abstract. The Baduy tribe lives in the Lebak Regency area, Banten Province is famous for the life of the people who still maintain the harmonious customs with the surrounding environment, especially the Inner Baduy tribe. Settlement arrangements, the form of houses and the number of family heads in one group are maintained in customary law which still held firmly. The architecture of traditional houses arranged in such a way, having this kind of local wisdom is interesting to study. Especially when associated with healthy home requirements and their impact on occupant health. The purpose and scope of this research are how the architecture of the Baduy traditional house and the impact of it on the health of its inhabitants. This research method is qualitative with an exploratory design. The findings that the Baduy Traditional House generally follow a certain rule, especially for the Inner Baduy community who still adhere to its custom, where there is local wisdom in it, to remain in harmony and maintain the preservation of the surrounding environment.

Keywords: Baduy Tribe, Traditional House, Banten

1. Introduction

The Baduy are the people who live in the Lebak Regency area, Banten Province is famous for the life of the people who still maintain the customs in harmony with the surrounding environment, especially the Inner Baduy tribe. Even the form of settlements, the form of houses, placement of houses and number of the head of the family in one group are maintained in customary law which is still held firmly. The architecture of traditional houses arranged in such a way to have local wisdom is an interesting subject to study [1] [2].

Houses are part of human life, functioning as shelter, moreover to rest and gather for families. Another part of human life besides working stays inside the house so that the condition of the house can affect the quality of human life, one of them is the health issue. Health is a substantial matter in human life; without good health, it is hard for humans to be productive [3]. The surroundings of the house affected directly the health of its inhabitants mainly from the physical environmental conditions and also affected indirectly from the

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characteristics and ownership of the house. The function of the house as a component of the general welfare, ontological security, social status symbol, a sense of togetherness, and social capital [4]. The common element of healthy housing is humidity control; the construction of clean and smooth surfaces; pest control through an integrated pest control management; ventilation (including fresh local surroundings air supply and local exhaust ventilation for point sources, such as clothes dryers, stoves, and bathrooms); prevention of injury; behavior modification (for example, ETS, the use of "perfume-based" air purifiers, and toxic cleaning agents); the main maintenance principle [5]. The quality of houses is very important for the health and well-being of the residents, mainly because most of the time spent is inside the house, from birth to old age [6].

2. Literature review

Theoretically, healthy residences in the territory of Indonesia are regulated in the Decree of the Minister of Health of the Republic of Indonesia number 829/Menkes/SK/VII/1999, describes the requirements of a healthy residence, namely [7]

2.1 Building Materials

The building materials used are not made of a material that can release hazardous substances to health with the criteria of total dust are not exceeding 150 µgm3, loose asbestos is no more than 0.5 fiber m3/4 hours, and lead is not more than 300 mg/kg. This building material is also cannot be made of materials that can be a reproduction place of pathogenic organisms.

2.2 Components and Room Arrangement

Compulsory home components include flooring that is waterproof, easy to clean, bedroom walls and family rooms are equipped with ventilation holes for smooth air circulation, bathroom walls and washing places must be waterproof and easy to clean, the ceiling is easy to clean and not prone to cause accidents. Houses equipped with bamboo as high as 10 meters must be supported by lightning rods. Every room in the house is arranged according to its function, and the kitchen room should be equipped with smoke disposal facilities.

2.3 Lightings

There are two types of lighting that support the existence of a home, which is: natural lighting from the sun and artificial lighting from the lamps. Both of these types of lightings should be able to illuminate all parts of the room with a minimum of about 60 lux light intensity and not to be dazzling.

2.4 Air Quality

The air quality in a good home includes temperatures between 18-30 degrees Celsius, humidity around 40-70 percent, SO2 gas concentration is less than 0.1 ppm/24 hours, smooth circulation, CO gas concentration is maximal at 100 ppm/8 hours, and the concentration of formaldehyde gas is at most 120 mg/m^3.

2.5 Ventilation

The extensive size of the permanent natural ventilation is at least 10 percent of the total floor area in each room.

2.6 Animal Transmitting Disease

A healthy house is a house that is free from the animals that have the possibility to transmit such diseases that are lodged in it, for example, rodents, cockroaches, flies, centipedes, and others.

2.7 Water

Water supply inside the house must always be available with a minimum capacity of 60 liters/day/person. The quality of the water must meet all the health requirements of clean water and drinking water in accordance with the applicable laws.

2.8 Storage Facilities

Houses have safe, clean and hygienic food storage facilities.

2.9 Waste

Liquid waste emerges from home must be managed properly so as not to pollute the water source, not causing any odor, and not polluting the soil surface. Similarly, the management of solid waste shall be done as well as possible, so it does not cause odor and does not pollute the surrounding environment.

3. Results and discussion

Baduy Traditional Houses generally follow a certain rule, especially for the Inner Baduy communities who still adhere to its custom, where there is local wisdom in it to stay in harmony and preserve the surrounding environment. Baduy house's architecture is made in such a way with material that comes from nature and adapted to the customs they firmly hold.

The Baduy ethnic group is divided into two, which are the Inner Baduy and the Outer Baduy. The Inner Baduy people strongly adhere to their traditions and reject all types of culture brought from outside their area. The Inner Baduy people is the core of the entire Baduy ethnic group. They live in the Kanekes region, Cibeo, Cikeusik and Cikertawarna villages. They wear white or black clothing and white headbands.as their traditional signature garments. Meanwhile, the Outer Baduy people have already followed the cultural developments brought by outside cultures and lived in the surrounding villages. The settlement's location of the Inner Baduy people is generally remote and difficult to access because they refuse to build road access to residential locations to avoid any influence from outside settlements and their customs [1], [2], [8].

Settlements of the Inner Baduy people are in the form of clusters with the house orientation facing north-south facing each other with neighbors and quite tightly spaced. These settlements are located at a sloping transition near to the river to facilitate surface water flow during the rain to minimize the possibility of puddles. The Baduy traditional house as a whole is made from natural materials such as bamboo as the main ingredient and some other materials, such as stone, wood and palm fiber (figure 1). In parts of the land that are sloping and uneven, the building will be propped up using a stone pile that functions as a buffer, preventing house poles from decaying and preventing soil from landslides. The stone that is used as the foundation material is flat and the size is large (figure 2). Baduy traditional house pillars come from large and strong wooden blocks. The type of wood that is used must be sturdy and durable, such as teak, mahogany, acacia or ironwood [1], [2], [8], [9]. The walls of the Baduy traditional house using cubicles come from wicker. The use of cubicles as walls provides cool temperatures for residents of the house because the air circulation can go in and

out through the gap of the plaits. The air circulation is smooth enough to pass through the gap of the wall from the chamber, so some of the traditional Baduy houses have no windows, while for parts of the Baduy traditional house floor made of wood or bamboo planks that have been made flat or *palupuh.*

Figure 1. Baduy Traditional Houses [2]

Figure 2. Stone used as the foundation [9]

The room at the traditional Baduy house is divided into three rooms, namely Sosoro, Tepas, and Imah. Sosoro is a room located at the front of the house, which serves to receive guests, a place to relax and women's activities such as weaving. This room is functioned just the same as the terrace. The second room is called Tepas usually in the middle of the house serves as a place for family gatherings, relax and sleep. The last room in the back room or the Imah room. This room has a function to store food supplies and serves as a kitchen. In addition to functioning as the kitchen, Imah is also used for the bedroom of the head of the family and his wife. To make the fireplace as a cooking stove, usually, the kitchen floor is buried in the ground. This method is useful so that the fire does not propagate to the wooden or bamboo floors and each room partition is parted to the chamber. In front of the house is the terrace where to put kele (drinking water reservoir from bamboo) called papangge. The stair called

taraje. The furnace who had function as cooking stove and fireplace called parako (figure 3) [1] [2] [8].

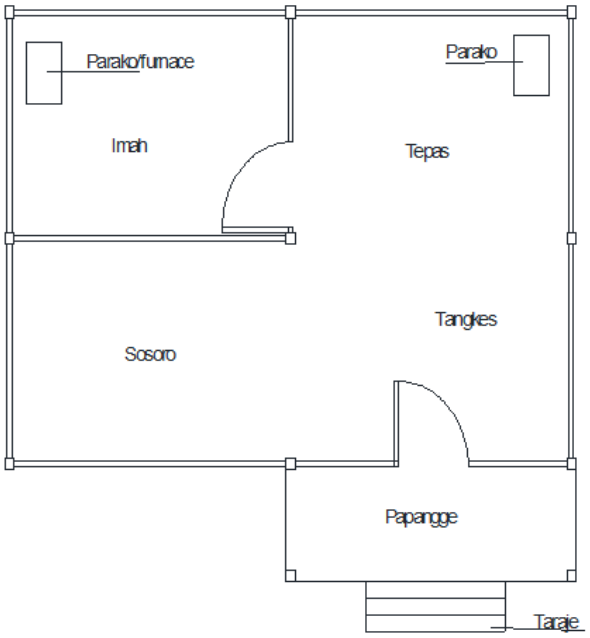

Figure 3. Floor Plan ofBaduy Traditional Houses [8]

Based on the characteristics of a healthy house above and the architecture of the Baduy traditional house generally can be seen as follows:

- The Baduy traditional houses generally do not have windows, but the material of the house walls is made of chambers which are generally not tight and allow a good distribution of air flow, so the exchange from the inside and outside of the house is good. The use of materials originating from nature can also avoid occupational poisoning due to the use of materials contaminated with hazardous materials.
- The head of the family bedroom is in the same room as the cooking stove. This illumination at night remains lit with a small fire to give a sense of warmth and lighting. Because generally in Baduy traditional houses at night it does not use any lighting unless needed for certain activities [1]. The placement of stoves in the same room with the bedroom is a problem especially due to the smoke from the fireplace. If the ventilation is not good enough, the smoke from the fireplace will settle indoors and disrupt breathing.
- Baduy people are still using the water from the river to bath, doing their laundry and for drinking and cooking too. However, the use of this river is regulated by dividing the river into several parts, namely the upstream part for bathing, the middle part for washing/laundry, and the downstream part for urinating. While drinking water is taken from the springs. Defecation in the river is carried out with very limited space. So that the water is not contaminated when washing, brushing, bathing and other cleaning activities are not allowed to use any kind of soap or toothpaste but is replaced by using honje plants (etlingera elatior) which does not pollute water [2], [8]. With this kind of arrangement, the

community drinking water is kept clean from the contamination of wastewater from human waste includes the residual of the bath and washing. Water for cleaning the body, washing, and others are also not mutually mixed and maintained from cross contamination so that it can directly maintain the health of the Baduy community.

- Drainage systems in Baduy settlements do not use water drainage, but rainwater flowing from the roof that is attempted to be absorbed by the soil and not disposed of outside the site. The drainage system in the Baduy settlement is used by arranging the river stones around the house to avoid scouring the ground under the building due to the flow of rainwater from the roof [2]. The rest of the water will flow because the settlements are generally located on sloping land surfaces so the rainwater flows immediately and there's no flooded area.
- For garbage disposal, the Baduy people have already separated organic waste and inorganic waste, where organic waste is placed in the Golodogand will be disposed of at the final disposal site. Inorganic waste is burned in Parakoor around the house [2]. This shows that the Baduy people have enough understanding of the importance of the separation of organic and inorganic waste that can affect nature in the long run. They have understood to maintain the cleanliness of their settlements so that residents' health is protected from diseases caused by contamination from garbage.
- Pusat Humaniora, Kebijakan Kesehatan Dan Pemberdayaan Masyarakat Badan Penelitan dan Pengembangan Kesehatan Kementerian Kesehatan Republik Indonesia

References

[1] A. B. Sardjono and S. Nugroho, "Menengok Arsitektur Permukiman Masyarakat Badui, Arsitektur Berkelanjutan Dari Halaman Sendiri," *J. Tek. Sipil Perenc.*, vol. 19, no. 1, pp. 57–64, 2017.

[2] M. Widyarti, B. I. Setiawan, H. S. Arifin, and A. S. Yuwono, "Konsep Ecohouse pada Rumah Baduy Dalam," *J. Keteknikan Pertan.*, vol. 25, no. 2, pp. 119–126, 2011.

[3] N. N. Kang, J. T. Kim, and T. K. Lee, "A Study on the Healthy Housing Quality of Multi-family Attached House According to Dwelling Unit Age," *Energy Procedia*, vol. 62, pp. 595–602, 2014.

[4] Y. Kambaru Windi and A. Whittaker, "Indigenous round houses versus 'healthy houses': Health, place and identity among the Dawan of West Timor, Indonesia.," *Health Place*, vol. 18, no. 5, pp. 1153–1161, Sep. 2012.

[5] D. E. Jacobs, "Housing-Related Health Hazards: Assessment and Remediation," in *Reference Module in Earth Systems and Environmental Sciences*, 2nd ed., no. September, Elsevier, 2018, pp. 1–19.

[6] P. Howden-Chapman, J. Crane, M. Baker, H. Viggers, R. Chapman, and C. Cunningham, "Health, Well-Being and Housing," in *International Encyclopedia of Housing and Home*, vol. 2, Elsevier, 2012, pp. 344–354.

[7] "Keputusan Menteri Republik Indonesia nomor 829/MENKES/SK/VII/1999 Tanggal 20 Juli 1999." Departemen Kesehatan RI, 1999.

[8] M. Ipa, D. A. Prasetyo, J. Arifin, and Kasnodihardjo, *Balutan Pikukuh Persalinan Baduy; Riset Ethnografi Kesehatan 2014 Lebak*, 1st ed. Surabaya: • Pusat Humaniora, Kebijakan Kesehatan Dan Pemberdayaan Masyarakat Badan Penelitan dan Pengembangan Kesehatan Kementerian Kesehatan Republik Indonesia, 2014.

[9] Jamaludin, M. G. I. Permadi, and M. C. Kharisma, "Tinjauan ArsitekturInterior

Tradisional Desa Kanekes," *J. Rekajiva*, vol. 1, no. 2, 2013.