

Sustainability of Betang House's Cultural Wisdom in Central Kalimantan

by Ronald Sitindjak

Submission date: 09-Oct-2019 11:40AM (UTC+0700)

Submission ID: 1189130638

File name: lity_of_Betang_House_s_Cultural_Wisdom_in_Central_Kalimantan.doc (6.2M)

Word count: 4166

Character count: 22069

Sustainability of Betang House's Cultural Wisdom in Central Kalimantan

1st Laksmi K. 14rd ani^{*}
Interior Design Department
Petra Christian University
Surabaya, Indonesia
E-mail: laksmi@petra.ac.id

2nd Ronald H. 15th indjak^{*}
Interior Design Department
Petra Christian University
Surabaya, Indonesia
E-mail: ronald_his@petra.ac.id

11^{3rd} Poppy F. Nilasari
Interior Design Department
Petra Christian University
Surabaya, Indonesia
E-mail: popie@petra.ac.id

Abstract—Traditional Dayak houses in Kalimantan have several types of buildings that were built based on vernacular architectural traditions with certain building styles. The traditional house represents past human life views and ways of building which are full of cultural wisdom and values. Houses and the cultural values contained in these buildings have been inherited, rebuilt, reshaped, and redefined in the succession of sustainability and changing architectural traditions today. This study aims to discover the characteristics of the cultural wisdom in the Betang Dayak Ngaju house in Central Kalimantan, along with the continuity of its application in buildings today. Descriptive analysis was conducted to discover the wisdom of symbolic meanings and the various forms of sustainability in the present. The results showed that the Betang house displays a combination of ancient vernacular traditions and foreign architectural traditions that apply the typical *Batang Garing* metaphor as a core concept that illustrates the structural unity between the house and its environment.

Keywords—Vernacular Architecture, Sustainability, Traditional House's, Dayak Tribe

I. INTRODUCTION

Indonesia is a country rich in traditional architectural heritage. Each traditional architecture has different characteristics in each region in Indonesia. There are some that survived their authenticity through the same typical form, there are also some that have undergone acculturation, appearing syncretic with the new styles, and there are others that were lost in time. This paper aims to describe the characteristics of traditional houses in Central Kalimantan, which are examined for their meaning in the present situation, and are followed by an analysis of the sustainability of their forms in today's new buildings.

Kalimantan is a large archipelago in Indonesia which is inhabited by seven large tribes scatter⁸ both in the inlands and by the rivers, namely the Dayak Ngaju, Dayak Apu Kayan, Dayak Iban, Dayak Klemangan, Dayak Murut, Dayak Punan, dan Dayak¹⁸ Ot Danum. Ngaju Dayak is divided into four tribes namely Dayak Ngaju, Dayak Ma'ayan, Dayak Dusun, Dayak Lawangan

[1],[2]. The word *Ngaju* has the meaning of the mountain people or also known as the headwaters of the river [3], there are also connotations as backwardness and limitations [4]. The development of the Dayak Ngaju culture is inseparable from the influence of Hinduism, Islam, Christianity, Catholicism, and even the influence of China with the discovery of various Chinese glassware from 14th century [5].

The Ngaju Dayak tribe has a cultural heritage in the form of traditional houses that still survive even though Central Kalimantan has been influenced by Hindu, Islamic, Chinese, and colonial Dutch culture. The Betang House is the hallmark of the traditional Ngaju Dayak tribe. This house reflects the values, outlook on life and beliefs of the Ngaju Dayak community. The cultural values inherent in the Betang house building were inherited (the building is still original), rebuilt (a replacement building), re-interpreted (replicated with the *betang* form), and reshaped into a new form in the succession of sustainability and changing architectural traditions in the present. For this reason, the purpose of this research is to discover the wisdom of past cultural values in the Betang Dayak Ngaju house in Central Kalimantan which can be used as a reference for analysis to find its continuity in new buildings.

II. RESEARCH METHOD

This research is a qualitative research using a cultural approach, which explains in a description of A certain phenomena more flexibly. The object of the study was determined based on the following criteria: 1) the original building still represents the shape of a *betang* house and a new building with a new function, 2) the physical condition of the building is still good, 3) accessibility factors, and 4) consideration of research time. Noting these considerations, a research sample was established, namely the Betang Tumbang Toyoi house in Malahui Village, Gunung Mas district and the Betang house at the Governor's Office in Central Kalimantan Province Palangkaraya. These two research samples

represent the characteristics of the original building and the new building with new functions. Data was collected through field observations, interviews and literature review. The data findings were then analyzed descriptively to discover the wisdom of the meaning of traditional buildings and the various forms of sustainability or changes in the present.

III. FINDINGS AND DISCUSSION

A. Main Concept of Batang Garing

Traditional houses as a complex structure are closely related to their human inhabitants and their natural environment. There was a typical metaphor used by humans in the past to describe and represent structural unity between humans and their natural environment. The Ngaju Dayak people have faith in a *Ranying Hatall* (a masculine God) and *Jata* (a feminine God). The people believed that in the beginning there was a fight between the male *tingang* bird (or also called the rhino hornbill / *Buceros Rhinoceros*) and the female *tingang*. The two birds were fighting for fruits and leaves from the *Hayat* Tree called *Batang Garing* [Figure1]. The battle was streaked until the first human descended to earth. This myth was connoted in a religious symbol in the form of *Batang Garing*, consisting of a pair of *tingang* birds, a pot, several gongs, and spears.

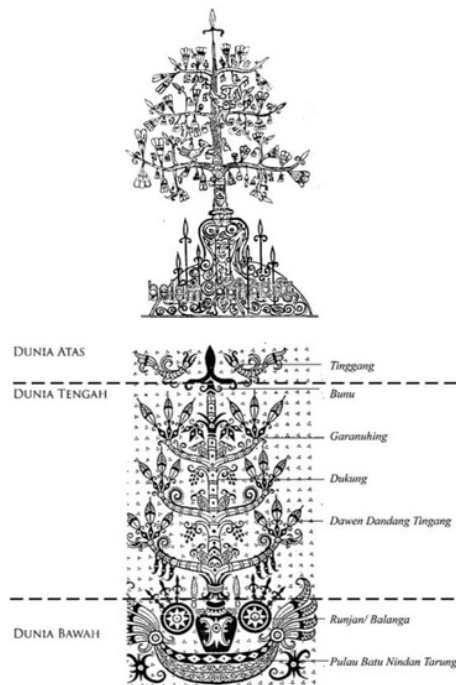


Figure 1. *Batang Garing* symbol in various forms [7], [8]

The *Batang Garing* becomes a religious symbol, referring to human efforts to involve themselves in a transcendent reality and as a way they become close to God, so as to avoid His wrath [6]. *Batang Garing* is also

a tree in the forests of Borneo. This tree is processed by the Dayak people through aesthetic and mythical experiences as a sacred tree in the myth of human creation. Hence, *Batang Garing* is a symbol of the tree of life. *Batang Garing* is also a tree in the forests of Borneo.

The meaning of the *Batang Garing* was told from the speech of the Balian or Pisor, the Hindu Kaharingan spiritual leader who led the ritual. Spear-shaped *Batang Garing* points up with the urn at the bottom. The spear facing up symbolizes *Ranying Pandereh Bunu* pointing to *Ranying Hatalla Langit*, while the urn called *Katalatah* or *Balanga* containing holy water symbolizes *Jata Balawang Bulau* or the underworld. The *Batang Garing* is said to connect the upper and lower worlds. It is also likened to a human body that has a heart, neck, heart, nerves, uterus, and legs (Table 1).

TABLE 1. The meanings represented in a *Batang Garing* [7], [9]

No	Name of Symbol	Meaning of Symbol	Part	Human Symbol
1	<i>Tingang</i>	Burung enggang symbolizes the Ranying Hatalla Heaven, life from above	Upper World	
2	<i>Bunu</i>	The spearhead pointing upwards symbolizes respect for God, living by the rules of God	Middle World	Heart
3	<i>Dukung</i>	Spears connecting the Upper and Lower worlds	Middle World	Neck
4	<i>Garanuhing</i>	Each fruit has 3 pieces facing up and down, meaning that life respects those above and below	Middle World	Nerves
5	<i>Dawen dandang tingang</i>	Leaf-shaped leaves mean that humans must live with patience, self-control and respect for nature	Middle World	Liver
6	<i>Runjan / balanga</i>	Jar filled with holy water, symbolizes wealth and prosperity from God	Under Word	Womb
7	<i>Pulau Batu Nindan Tarung</i>	The place where the <i>batang garing</i> rest, symbolizing that the world is a temporary dwelling place, so don't put too much emphasis on worldly matters	Under Word	Feet

Besides *Batang Garing*, an important symbol in the Dayak Ngaju myth is *Dandang Tingang* (Figure 2). *Dandang* has the meaning of caring, while *Tingang* symbolizes a graceful human being. *Dandang Tingang* means caring for humans or preserving human moral life. *Dandang Tingang* in the form of three-tailed hornbill with feathers that are white at the base, dark black in the middle, and white at the tip, symbolizes birth, worldly life, and the end of life /after life [8].

The relationship between Dayak Ngaju people with land / earth and forest / trees is very strong and is revealed in the Dayak custom system. There is an expression of gratitude to the earth and forests so as not to lose their growth power which results would result in human damage. Forests, the earth, rivers and their entire environment are part of life itself. The supernatural and close relationship between humans and the forest is symbolized by the myths [10], also revealed in the *Batang* house building architecture.

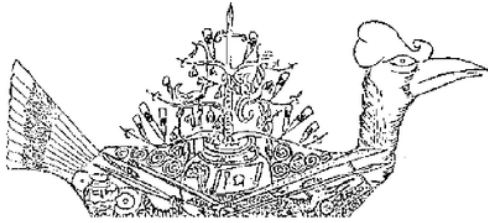


Figure 2. Symbolic Illustration of *Batang Garing* and *Dandang Tingang* [8]

B. Findings of Cultural Heritage Data of *Batang* Houses in Central Kalimantan

Central Kalimantan Province has 14 districts / cities. Each regency / city has a *Batang* house. There are buildings that are still in good condition, others are bad, some have been partially or completely replaced, and there are new buildings that adopt the old form. Some of them that are only in the form of replicas. The data discovered in this research are as follows.

- Original *Batang* houses that are in good physical conditions include *Batang Konut* in Murung Raya, *Batang Ojung Batu* in Lamandau, and *Batang Toyoi Tumbang Malahoi* in Gunung Mas Regency;
- Original houses in poor physical condition include *Batang Tumbang Gagu* in East Kotawaringin, *Batang Tumbang Korik* and *Batang Tumbang Anoi* in Gunung Mas Regency.
- Replacement buildings include *Batang Buntui* on Pisau Island, *Batang Sei Pasah* and *Batang Tumbang Bukoi* in Kapuas, *Batang Nihan* and *Batang Tambau* in North Barito.
- Buildings in the form of *Batang* replicas include *Batang Mandala Wisata* in Palangkaraya City, *Batang Pasir Panjang* in Kotawaringin Barat, *Batang Patendu* in Katingan, and *Batang Lewu Museum* in East Barito.
- New buildings in the form of longhouses include the Governor's office and the National Dayak Customary Council Secretariat [11].

A *Batang* house is a long and wide house that is square in shape. *Huma Hai*, which means a big house, is a term for a longhouse in Ngaju Dayak language. The size of *Batang* varies, depending on the number of household heads who inhabit the house. There are only 10-20 families and some *batang* houses can accommodate more than 100 households. There was

initially only one unit of *batang* in a village that was built as a dwelling for all the residents. However, in its development till the mid-16th century there were villages that had 2-3 small-sized *batang* [12]. The Ngaju Dayak people always built *batang* on the banks of the river. The *batang* can be called a tribal house because it is inhabited by several generations of families led by a tribal chief called *Bakas Lewu*. The characteristics of the *batang* house are: it is inhabited by several families based on "lineage", surrounded by a wall / fence, shaped like a longhouse, faces the river, made of wood and the architecture of the building is influenced by several cultures.

The *Batang* house consists of several separate living areas with two types of spatial organizations. The first type is characterised by living spaces arranged in a row extending to the back, while the front is a porch or open veranda directly facing the outside of the building. There is also an alley / hall enclosed by walls extending from one end to another end and is used as a gathering space with the whole family. The second type consisted of living spaces arranged in two parallel rows front and back separated by the alley / hall in the middle, in which the living spaces are situated in parallel extending and facing each other. This wide alley / hall is usually used as a public space like a hall. In this alley, domestic activities are carried out. It functions meeting place for citizens, rituals and ceremonies [13]. The following detailed discussion describes the buildings that are still in very good condition, taking *Toyoi Batang* as the sample to represent this category. It is still actively functioning as a residence for the community in Gunung Mas Regency.

Batang Toyoi Tumbang Malahoi is located in Rungan District, Gunung Mas Regency, Central Kalimantan Province. The *Toyoi Batang* faces the Baringai River, a tributary of the Rungan branch of the Kahayan river. The *Toyoi Batang* house is located in the middle of a *Tumbang Malahoi* village settlement with a land area of 39.04 m and a length of 62.11 m. The *batang* is made of ironwood as the main material and construction because of its high quality. *Batang Toyoi* has a large room measuring 20 meters and a width of 10 meters. There are four rooms each to the left and to the right of the entrance. Formerly, the *Toyoi Batang* was inhabited by several family heads so that if added together there were dozens of people living and doing activities in it. Now there are only ten inhabitants left.

The *Batang Tumbang Toyoi* facade is a stilt house with a gabled roof. *Batang Toyoi* has been renovated by the Central Kalimantan Provincial Government three times, namely in 1990 that included the renovation of the *Batang* floor, then in 1995 and 1997 the renovation was made to add the *Batang* wall with ironwood. The use of pegs on the roof was maintained according to the original. The *Batang* building consists of three parts, namely the roof, body (wall), and underneath. All of them use ironwood as the main material.



Batang Toyoi



Sandung dan Sapundu

Patung Harimau (Haramau)



Figure 3. Building facade shape, front view, and spatial organization of *Batang Toyoi Tumbang Malahoi*. Betang houses apply a typical Batang Garing metaphor, which is vertically divided into three -world structure [9].

The *Batang* building is divided into several rooms with pillars or columns called *jih*. The division of the rooms is carried out by a grid system, according to the position of *jih* poles. Parts of space in the *Batang* house include:

- The *Los / Luhing Adat / Balai Parung* Room, the room that is entered the first time from the main door, located in the middle of the *batang* house. It is the largest room in the *Batang*, among others functions as a multipurpose public space, *batang* that functions as a place to receive guests, a family gathering place, to talk and event for traditional meetings. It is the center or axis of the building because it is where people gather and do various kinds of social and religious activities.
- Bilik/Karung* are sleeping rooms located along the aisles on the left and right of the *Los* room. Activities carried out in the cubicle are associated with resting. Booths are used to store heirlooms. The rooms are arranged in a row along the *Batang* building. The positions of children's and parents' bedrooms were placed with certain rules. Parents' bedrooms should be at the beginning point of the river's flow and the youngest child's bedroom must be at the very end of

the river's flow, so parents and youngest's bedrooms cannot be flanked and if they are violated they will be considered disastrous for the whole house.

- Sami*, a cubicle that functions as a guest room where people need to use to perform their activities
- Lawang Kuwu*, a special room for a beloved girl from an esteemed family who is kept in seclusion until she is married. During the seclusion, the girl was given lessons about personality, ethics, customs, manners, gentleness, and the skills of a princess such as knitting, sewing, and weaving.
- The kitchen is a room located on the left and right ends of the *batang* house, used for cooking, preparing food, and washing.

Batang is a cultural center, a center for ritual, social and personal activities for the Dayak Ngaju people. Sacred ritual ceremonies are held in the courtyard and inside the *Batang* house. Daily activities such as social activities, work, cooking, deliberation (traditional meetings) are also carried out in the house. In this house, the education of the values and philosophy of life is hereditary in lives of the people. All the inhabitants daily mingle and attempt to maintain harmony between themselves, so that the tradition and the spirit of unity in the Dayak community could be preserved.

C. Continuity of Batang Houses in Public Building Workspaces

The *Batang* house in the physical sense, is the environment that most determines the life of the Ngaju Dayak community. *Batang* house will always be tied to the natural environment and culture of the people. The symbolic content of the cultural environment is assimilated to the needs of the Ngaju Dayak community today. A shift in values ensues, but is more rational while maintaining traditional cultural heritage. The *Batang house* contains high spiritual value in its form structure, its presence is in harmony with the demands and needs of modern society today. It is a cultural center, a center for ritual, social and personal activities for the Dayak Ngaju people. Sacred ritual ceremonies were held in the yard and inside the *Batang* house. Daily activities such as socializing, working, cooking, deliberating (traditional meetings) are also carried out in the house. In the *Batang* house, there is an education of values and philosophies of the people's lives for generations. All the inhabitants of life mingle and try to maintain harmony between them, so that the tradition and the spirit of unity of the Dayak community does not fade easily.

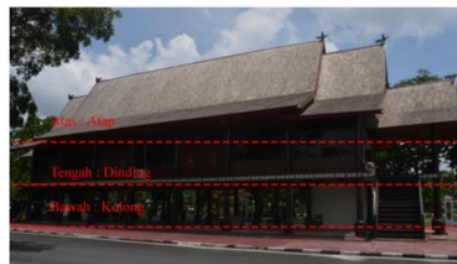




Figure 4. *Batang* House in the Palangkaraya Governor's Office [11]

The *betang* house in the Palangkaraya Governor's Office environment is one of the new buildings that implements traditional building forms with new functions. This new building functioned in 2015 as a temporary office. The building is in the form of a long house using new materials, in contrast to the *Batang Toyoi* that was made of ironwood. *Jihi* poles have been replaced by concrete columns. The walls are made of brick walls finished with paint, having ironwood material only on body parts of the walls. Likewise, the floor also uses ironwood that is younger than the ironwood in *Batang Toyoi*. The roof is of shingle form. The spaces in this *betang* house consist of large public work spaces such as the *Los / Parung* hall and small private work spaces. A large workspace is located in the middle. To the left and right corners there are four smaller workspaces that resemble the *bilik – bilik / karung*. There are two main entrances, namely on the left and right. There is no entrance in the middle like the in the *Batang Toyoi*. More private and smaller office spaces are used by division leaders for work activities and small meetings. As for the large room, it is used by the staff for work activities and overall meetings. Analysis of the continuity of the *betang house* in the Palangkaraya Governor's office are as follows (Table 2).

D. CONCLUSION

The form and structure of the traditional *Batang* house conveys the thoughts of the Dayak Ngaju people about the macrocosm and microcosm, where the universe is divided into three parts, namely the Upper World where *Ranying Mahatara Langit* lives, the Middle World where humans stand and undergo their activities, and the Lower World which is believed to be the residence of *Bawin Jata Balawang Bulau*. The house is a symbol of the wider world that is outside. The Upper World is sacred, heavenly, symbolizing the divinity of God who created the universe and provided protection. The Middle World is a place where humans interact with family, fellow tribes, or migrants (foreigners). It also symbolizes people's hard work and productivity to meet their daily needs. The Lower World symbolizes worldly mortality, warfare, and even death. The Middle World is the connector of the two paradoxical or opposing realms, a

meeting point between the two opposing elements so as to create a balance. These findings indicate that the *Batang* house displays a combination of ancient vernacular traditions and foreign architectural traditions that apply the typical *Batang Garing* metaphor as a core concept that illustrates the structural unity between the house and its environment.

The continuity occurring in new buildings (re-formed into new forms) contains new meanings according to the function of the building with the activities of people working in them. New interpretations were produced in accordance with current contextual thinking (redefined according to the era). In the context of sustainability, there is a tug of war on the reform of cultural norms. On one hand the people do not want to let go of past cultures, on the other hand they must adapt to current needs. Buildings for working activities differs from buildings for domestic ritual activities. Although the facade maintains the form of a long house, the meaning can undergo changes. Interpretation of meaning will always adjust to human activities which will always change with each period of time. Meaning arises due to consideration towards increasingly complex human activities. For this reason, the preservation of cultural heritage for future generations is needed: 1) The discovery and deep understanding of the wisdom behind the symbolic meaning of the building; 2) Maintenance for the continuity of existing traditional houses; 3) The institutional role of the house in social life, both as the building owner and the relevant governmental institutions involved in maintaining cultural heritage; and 4) Effective communication for cultural interests and understanding of symbolic meaning to the wider community that is useful for creating new forms of development.

ACKNOWLEDGEMENTS

This article is the result of research conducted in 2019 and funded by the Ministry of Research, Technology and Higher Education, Republic of Indonesia.

REFERENSI

- [1] Riwut, Tjilik. 2003. *Maneser Panatau Tatu Hiang Menyelami Kekayaan Leluhur*. Palangkaraya: Pusaka Lima.
- [2] Iban, Olav. 2014. *Batang Garing: Realitas Transenden, Estetika Ragam Hias, dan Simbol Identitas Dayak Ngaju*. Yogyakarta: Sekolah Pascasarjana Universitas Gadjah Mada.
- [3] Scharer, Hans. 1963. *Ngaju Religion The Coception of God Among A South Borneo People*. The Hague: Koninklijk Instituut voor Taal, Land-en Volkenkun, Translation series 6.
- [4] Chamt-Loir, Henry dan Reid, Anthony (eds.). 2002. *Kuasa leluhur: Nenek Moyang, Orang Suci dan Pahlawan di Indonesia Kontemporer*. Medan: Bina Media Perintis.

- [5] Rusan, Ahim S., et al. 2006. *Sejarah Kalimantan Tengah*. Palangka Raya: Kerjasama Lembaga Penelitian Universitas Palangka Raya dan Pemerintah Provinsi Kalimantan Tengah.
- [6] Eliade, Mircea. 2005. *The Myth of the Eternal Return: Cosmos and History*. Princeton: Princeton University Press.
- [7] Sangalang, Indrabakti, Endang Titi Sunarti Darjosanjoto and Muhammad Faqih. (tanpa tahun) *Understanding Space Based On The Symbol Of Batang Garing On Dayak Ngaju House*. Surabaya: Institut Teknologi Sepuluh November, n.d
- [8] Ilon, Y. Nathan. 1987. *Ilustrasi dan Perwujudan Lambang Batang Garing dan Dandang Tingang*. Palangkaraya.
- [9] Widjaja, Marselina Utami dan Laksmi K. Wardani. 2016. Makna Simbolik pada Rumah Betang Toyoi Suku Dayak Ngaju Kalimantan Tengah, dalam *Dimensi Interior*, vol.14, No.2, 90-99. Surabaya: LPPM Universitas Kristen Petra.
- [10] Ukur, Fridolin. 1994. *Kebudayaan Dayak Aktualisasi dan Transformasi : Makna Religi dari Alam Sekitar dalam Kebudayaan Dayak*. Jakarta: PT. Gramedia Widiasarana Indonesia.
- [11] Widjaja, Marselina Utami. 2016. Makna Simbolik Pada Interioe Rumah Betang Suku Dayak Ngaju di Kalimantan Tengah. Surabaya: UK Petra.
- [12] LSM PBBKT. 2003. *Adat Istiadat Dayak Ngaju*. Palangkaraya: LSM PBBKT.
- [13] Wuisman, Jan JJ. M. Masadalam Peter J.M. Nas and Martien de Vletter. 2002. *Masa Lalu dalam Masa Kini: Arsitektur di Indonesia*. Jakarta: PT Gramedia Pustaka Utama.

TABLE 2. Analysis of *Batang* House Continuity in the Palangkaraya Governor's Office [1, 8, 11]

ASPECT			Betang Toyoi in Malahoi Village		Betang in Governor's Office Complex	
			SYMBOL		COLOUR	
Building Orientation & Direction	Orientation		River, Mountain	Access, transportation & communication, Sacred, God's authority The spirit of hard work, In harmony with around	Road	Access & transportationOtorit as Pemerintah Land efficiency In harmony with the environment
	Direction		East		West	
	Location		Extends upstream and downstream		Lengthwise in the direction of the road	
	Neighborhood / complex		Linear		Cluster	
Building Form & Structure	Form		Stage, long	Harmony with others, mutual cooperation, tolerance	Stage, long	Harmony with others, mutual cooperation, tolerance
	Structure	Up	Single & angled gable roof	Human relations with Ranying Hatalla. Protection	Gable compound (multilevel)	Protection
		Middle	Wall boards, bark and rattan	Human relations with others	Brick walls covered with wooden boards	Human relations with others are productive
		Down	Underneath the floor, consitign of foundations, jihi poles & ironwood basins	17 relationship between human and nature (earth)	Undemeath in the form of concrete foundations & pillars resembling ironwood	Waiting Area
Organization & Circulation	Layout	Form	Symmetrical rectangle The central room as the center	Balance Harmony Sacred-profane	Symmetrical rectangle The central room as the center	Balance Harmony Tolerance Discussion
		Public Space	Balai parung, karayan (eka kuman),		Large work space	
	Private Space	Bilik (eka batiroh)	Small work space			
	Transitional Space	Henderasi	Teracce			
	Sacred Space	Balai parung, bilik	Leader's Office			
	Profane Space	Karayan, henderasi	Public Spaces			
	Spatial Enclosures	Down	Floor		Ironwood board, vertical floor pattern arrangement	
Middle		Wall	Ironwood board, bark, rattan. Horizontal and vertical wall patterns	Milestone Connector Responsible	Painted wooden boards. Vertical wall pattern	Protection Productivity
Above		Ceiling	Exposed, visible structure	Sacred Deity Strong ties	Covered ceiling. Shield-shaped ceiling	Security

Sustainability of Betang House's Cultural Wisdom in Central Kalimantan

ORIGINALITY REPORT

6%

SIMILARITY INDEX

5%

INTERNET SOURCES

4%

PUBLICATIONS

4%

STUDENT PAPERS

PRIMARY SOURCES

1

dimensiinterior.petra.ac.id

Internet Source

1%

2

P. Esterik. "Commentary", *Bijdragen tot de taal-, land- en volkenkunde / Journal of the Humanities and Social Sciences of Southeast Asia*, 1985

Publication

1%

3

Sunarningsih Sunarningsih. "DINAMIKA SANDUNG DI HULU SUNGAI KAHAYAN", *Naditira Widya*, 2016

Publication

<1%

4

sangkhakala.kemdikbud.go.id

Internet Source

<1%

5

jurnaltoddoppuli.wordpress.com

Internet Source

<1%

6

Submitted to Florida International University

Student Paper

<1%

7

digilib.unimed.ac.id

Internet Source

<1 %

8

docplayer.net

Internet Source

<1 %

9

www.repository.ugm.ac.id

Internet Source

<1 %

10

Nugroho Nur Susanto. "PENGARUH ISLAM TERHADAP IDENTITAS TIDUNG MENURUT BUKTI ARKEOLOGI", Naditira Widya, 2016

Publication

<1 %

11

Diana Thamrin, Grace Mulyono. "Participatory Design of Portable and Adaptable Furniture Product for Village Traditional Pastry Vendors in Surabaya", IOP Conference Series: Materials Science and Engineering, 2018

Publication

<1 %

12

yendrarusan.blogspot.com

Internet Source

<1 %

13

www.tandfonline.com

Internet Source

<1 %

14

Felix Pasila. "Long-term forecasting in financial stock market using accelerated LMA on neuro-fuzzy structure and additional fuzzy C-Means clustering for optimizing the GMFs.", 2008 IEEE International Joint Conference on Neural

<1 %

Networks (IEEE World Congress on Computational Intelligence), 06/2008

Publication

15

puslit.petra.ac.id

Internet Source

<1 %

16

pt.scribd.com

Internet Source

<1 %

17

Rekson Solo Limba, Asrun Lio, Yasir Syam Husain. "Shifting Cultivation System of Indigenous Moronene as Forest Conservation on Local Wisdom Principles in Indonesia", Journal of Sustainable Development, 2017

Publication

<1 %

18

Submitted to University of Santo Tomas

Student Paper

<1 %

Exclude quotes On

Exclude matches

< 5 words

Exclude bibliography On