

Dual Faces Architecture of Nias

**Meridiani Trianandari Winanto, Afina Rahmani,
Dadi Satria Ginandjar, Angga Kusumah Sukarya, Shirley Wahadamaputera**
Institut Teknologi Nasional
meridianitwap@gmail.com

ABSTRACT

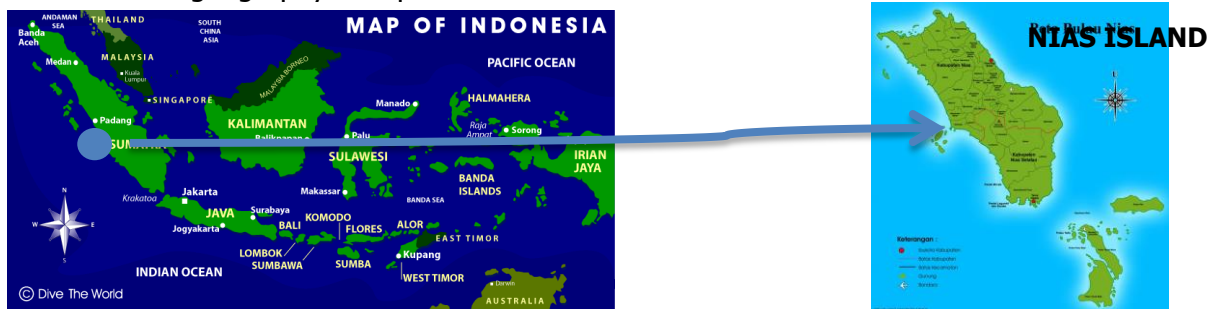
Many Indonesian people built a traditional house based on beliefs of their ancestors for generations, without knowing the scientific reason. Meanwhile, indirectly, ancestors already thinking about housing that adapts the environmental conditions such as in Nias Island. Nias is an island that has two different forms of traditional houses which are affected by the differences geographic, highland and lowland. Geographic factors and beliefs not only affect the shape of the house but also the structure of the house. Located on the earthquake fault lines, Nias traditional houses was designed to withstand earthquakes that often befall. A study using description and analysis methods about design and structure which used in traditional houses in Nias Island, would develop a good sense of the idea to apply these materials on modern building to preserve the culture of Indonesia.

Key Words: Nias Island, Nias Traditional House, Earthquake, Building Material

1. INTRODUCTION

Indonesia is a diverse country consisting of an island of diverse tribes and cultures. Each tribes have different cultures that influenced by the geographic location of each region (picture 1). The difference location also create a different beliefs that affects to some aspect of life, for example is the impact on their homes.

Many Indonesian people built their traditional house based on their ancestor's belief from generation to generation without knowing the scientific reason. In fact the ancestors, indirectly have thought of housing that adapts to the environmental condition. The form of houses that located in the plateau would be different from the form of a house located in the lowlands because the landscape must be different, for example is in the Nias island. Nias Island is an island that has two different forms of traditional houses that are affected by differences in geography that plateau and low areas.



Picture 1. Location of Nias Island

Geographic and beliefs not only affect the houses form but also the structure of the house. Nias island is located on the earthquake fault, the houses in this island is intentionally designed to resist the earthquake.

Looking from the unique architecture of Nias, these matters raises as study to further deepen the knowledge of the architecture on the Nias island. This study could give a good sense about material application on modern building to preserve Indonesian culture.

2. METHODOLOGY

Research methods used in this study is a descriptive analysis method. Descriptive analysis method performed by a data collection, data processing, analysis, literature studies, comparisons, and conclusions. Related theories will be compared to data's which obtained from previous observation. Research procedures performed in this study includes the preparation, introduction, data collection, data processing, analysis containing outlines activities and analyze the influence of the principles and theories of proportion to the physical aspects of the space inside the building, through the means of comparing the survey results with the theory of proportions and concepts of the architect as a designer to obtain a conclusion about the relationship of the application of theoretical principles to the design of the architecture, as well as the stage of making inferences.

3. RESEARCH AND RESULT

Based on *Encyclopedia of Vernacular Architecture of the World* page 11, vernacular architecture is a category of architecture based on localized needs and construction materials, and reflecting local traditions. Vernacular architecture tends to evolve over time to reflect the environmental, cultural, technological, and historical context in roomates it exists. Often it has been dismissed as crude and unrefined, but also has proponents who highlight its importance in current design.

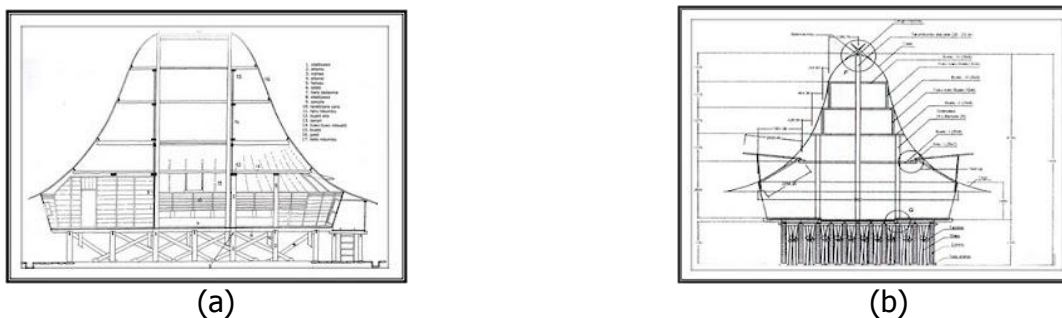
It can be contrasted against polite architecture roomates is characterized by stylistic elements of design intentionally incorporated for aesthetic purposes roomates go beyond a building's functional requirements. For the similarities to "traditional architecture" see below.

3.1 Vernacular as a Structure

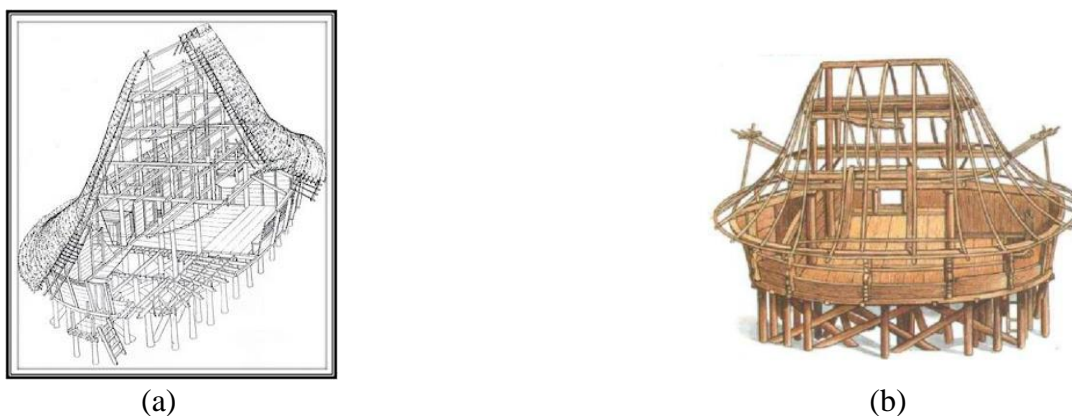
Nias island that located ini the earthquake fault that causing this area frequently hit by earthquakes, therefore the ancestors of the Nias people have initiated a traditional earthquake resistant houses. The house is formed by the main structure that form a cross on the pillars supporting the house with the intention of making the house remain flexible, so there will be no failure in the structure of the house when the house is rocking by the earthquake (picture 2,3,4).



Picture 2. (a) Front side of Nias traditional houses, (b) Right side of Nias traditional houses



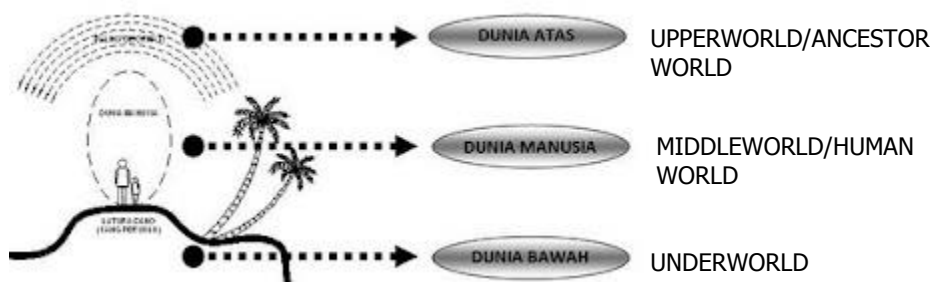
Picture 3. (a) Front section of Nias traditional houses, (b) Side section of Nias traditional houses



Picture 4. (a), (b) Axonometry of Nias traditional houses

3.2 Nias Architecture's Settlement Concept

The patterns of Nias settlement always form of straight line axis. The end of the settlement is a gateway and a ways to their work spaces such as fields and gardens, while the other end is a door leading to the back of them as a public facility or cemetery. This pattern makes a new visitor of their township will see a very long hallway with the houses on either side. The selection of the villages are always on higher ground than the surrounding environment. The reason is simple, namely to avoid flooding. Also based on cosmology, the people of Nias set three world the world over as the upperworld/ancestor world, middleworld/the human world and the underworld (picture 5). Cosmology of Nias society is a description of the public view on the origin of Nias tribe ancestors who came from Teteholi Ana'a (sky) are lowered into the earth. Cosmology influence is evident in the Nias traditional architecture form, be it in the form of their traditional houses and in the settlement pattern. In the form of traditional houses, the people of Nias put the top of the building as the most revered (hallowed). The lower place are used to garden and pet cages. In the past, when the civil and tibes war is still going on, the height of the settlements they use to spy enemy movement.

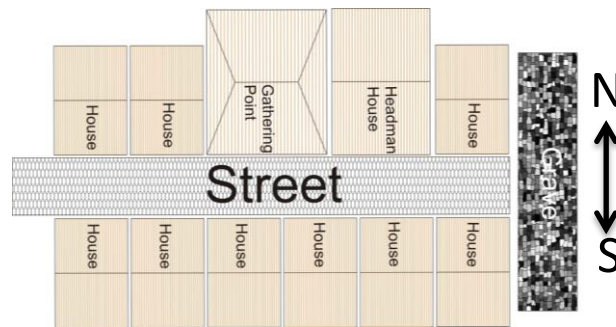


Picture 5. Cosmology of Nias society

All the houses in the village of Nias island always facing toward the street or alley the axis township (picture 6). One and other houses are connected each other, so that the excess

roof in every house that juts into the face of a very long hallway anyway. In fact, their homes can be connected from one end of the settlement to the other end of the settlement because every house has a connecting door to the house on either side. This suggests the existence of equality and openness between them. If there is a big party in the village, the way will change to the stage a party, breezeway into a decent place to watch, and the house that also continued long-connect will become the kitchen.

The pattern of settlement on Nias island is always oriented to the North-South direction, while the entrance of the villages always be on the West / East. This indicated that Nias people already know about how to placed their building with reference to the climate and the sun direction.



Picture 6. Pattern of settlement on Nias Island

3.3 Nias House Types

Nias traditional houses can be divided based on the social level and region. Based on social level is divided into:

- Omo Nifolasara: Houses for the royal power of the region.
- Omo Tuho: Houses for the noble natives.
- Omo Sala: Houses for the ordinary citizen.
- Omo Laraga / Omo Niha You: Houses of anyone regardless of their social status.
- Omo Hada: home stay family.

Based on the region, Nias traditional house is divided into two types, North Nias and South Nias (picture 7,8). The traditional house of North Nias (Omo Hada Laraga) are more likely to stand alone and oval form. This shows the harmony within each family and not in the context of the village. As for the traditional houses in South Nias elongated to the back with the boat analogy form, the process is more subtle, meticulous and perfect. Houses in South Nias is always established not stand alone, but rather in the context of the village "Banua", which houses lined very close together in two rows, this is different from house in North Nias that stand-alone.

Both differences in the form and layout of the traditional houses in Nias is caused by differences in topography, the North Nias is located in plateau, where the population earns a meager living as a farmer, so each house require a large area and can not be attached to the surrounding houses (more focus on family). While South Nias in the lowlands / coastal communities largely livelihood as a fisherman, so this affects the shape and position of his house attached to each other, indicating that fishermen tend to be social because they always do the job together .

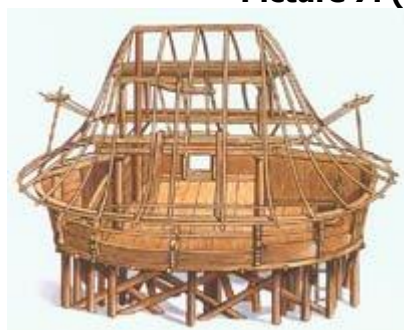


(a)



(b)

Picture 7. (a), (b) Traditional houses of South Nias



(a)



(b)

Picture 8. (a), (b) Traditional houses of North Nias

3.4 Typical Characteristics Architectural Nias

The society of the south Nias clustered between 30-40 families in one residence building, and the village like a fortress with fences and high security. While people living in the north Nias more dispersed, in a house with one or several families. The form and layout of the house consists of Moro type and Gomo type. The house with the Moro type, ovoid oval form. While the Gomo type, schematics almost a square, but contains curved lines. Construction of Nias houses made of hard and sturdy wood. Tall poles, so that people can get into under the house. Form chiefs house, the roof is dominant compared to the other houses. Another thing that is very typical in a residential neighborhood of Nias is a main road in front of the axis village headman, paved with stones (picture 9). On the side of the road made waterway, which is also made of stone. Large stones for inlay carving given pavement, after the top of the flattened surface. Seeing the use of stone elements to organize neighborhoods and the ceremony skip stones in Nias, Nias can be assumed that the population is still inherited a stone-age culture.

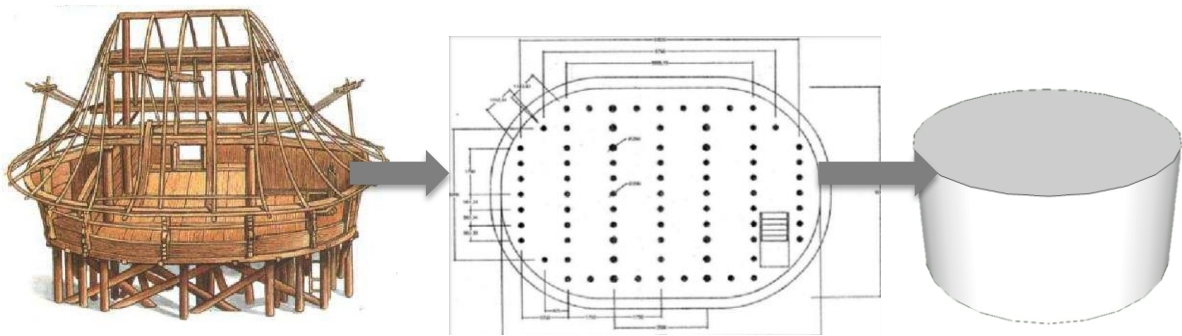


Stones material used by Nias society

Picture 9. Stones material on the front of Nias traditional houses

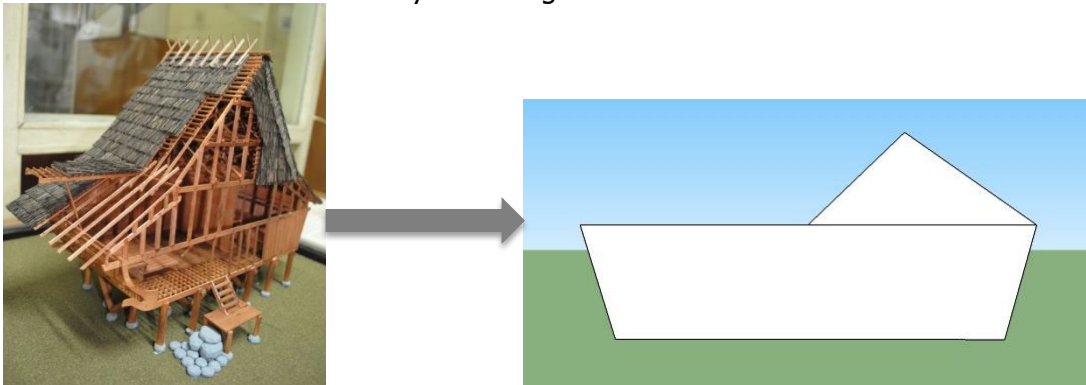
3.5 Application Modern Design of Nias Houses

Looks from many aspect in Nias traditional houses that can applied in modern building, therefore there is a possibility to designing a modern house with Nias pattern as follow.



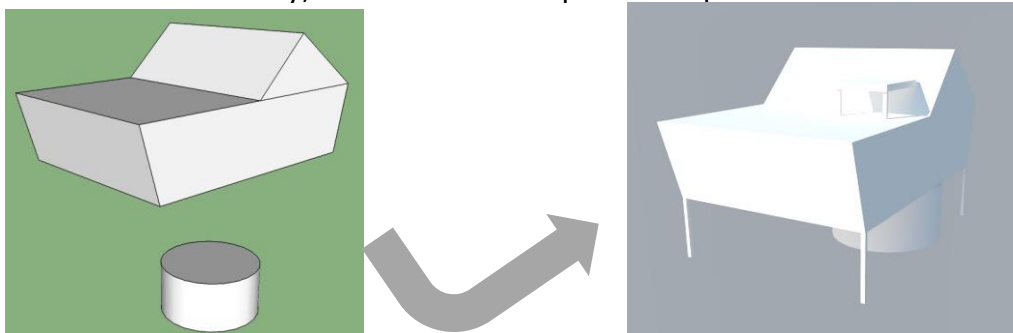
Picture 10. Transform form from North Nias traditional houses

A circle on the houses of North Nias is analogy of harmony in the family, so the shape impressed converge into (picture 10). It is influenced by their livelihood as a farmers, so the operation is the context of the family than neighbors.



Picture 10. Transform form from South Nias traditional houses

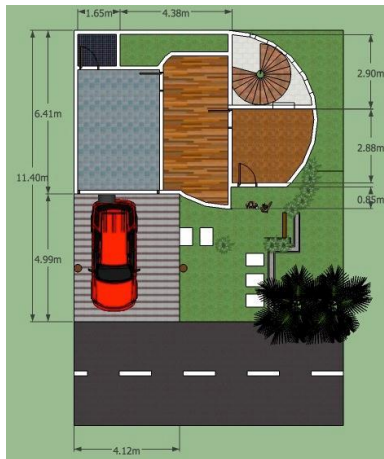
Forms of South Nias Houses takes the boat as analogy of their house (picture 11). Because their livelihood as a fisherman, makes the most of the people on South Nias have more activity with their neighbors beside with their families. This form is easier for them to arrange a settlement harmony, because it has a square floor plan.



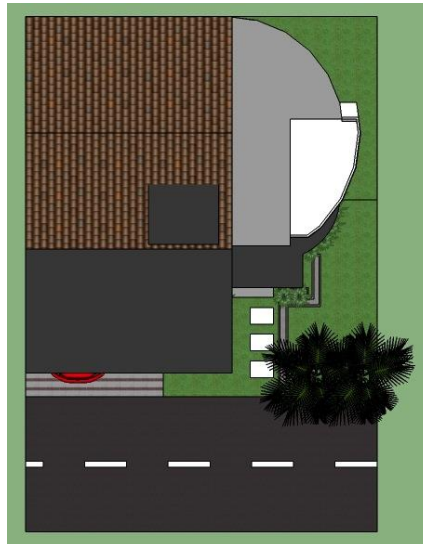
Picture 11. The final transformation form from South Nias and North Nias Traditional Houses

South and North traditional houses of Nias have the same structure as the support poles, so the building doesn't relate directly to the ground and are resistant to the earthquakes. In addition there are skylights that serves as the entry point of the air and sun, so that the temperature inside the house remains comfortable and energy-efficient.

From this similarity we try to mixing with different forms Nias significant North-South and applied to modern building (picture 12,13,14,15).



Picture 12. Siteplan of the result applicated of North and South Nias traditinal houses to the modern building



Picture 13. Blockplan of the result applicated of North and South Nias traditinal houses to the modern building



Picture 14. Front view of the results applicated of North and South Nias traditinal houses to the modern building



Picture 15. (a) Right view of the results applicated of North and South Nias traditional houses to the modern building, (b) Left view of the results applicated of North and South Nias traditional houses to the modern building



Picture 16. Perspective of the results applicated of North and South Nias traditional houses to the modern building

Nias traditional houses designed to withstand the disaster caused by the earthquake in the presence of vertical and diagonal poles in the front of the house.

In the modern architectural building, the concepts of earthquake resistant structures applied on the front of the house there are two large concrete columns with a size of 30 x 30, the paint is in use as a finishing column is a brown wood texture to make it look ethnic (picture 17).



Picture 17. Applicated of skylight in Nias houses to the modern building

4. CONCLUSIONS

Based on the data that has been obtained many traditional systems that very useful for today's modern buildings that actually have thought by ancestors since the first to build traditional houses, such as a Nias traditional houses. In addition of the strong structural system, Nias traditional house also has a unique characteristic, it can be seen from two different forms of traditional houses. The difference in the form of traditional houses is due to several factors, including differences in location (in North Nias and South Nias plateau located in the lowlands / marine), livelihoods differences and differences of people habits / behavior. Although there are difference in terms of form, but the philosophy of the two types of traditional houses have remained the same, namely dividing the house into three parts, the upper world or the world of the ancestors, the human world and the underworld. It can be concluded that all the traditional houses in Nias has uniqueness because it is built in accordance with the natural conditions and environment of the located and follow the philosophy of the origin of their ancestors. Therefore vernacular architecture is something that deserves to be preserved because it is a characteristic of Indonesian culture that we must preserve.

REFERENCES

- Alamsyah, Ir. Bhakti. (2012). *Tipologi Arsitektur Rumah Adat Nias Selatan & Rumah Adat Nias Utara*. Jakarta : Graha Ilmu.
- Brunskill, R.W. (2000) [1971]. *Illustrated Handbook of Vernacular Architecture* (4th ed.). London: Faber and Faber. ISBN 0-571-19503-2.
- Koestoro, Partanda Lucas dan Ketut Wiradnyana. (2007). *Tradisi Megalitik di Pulau Nias*. Medan : Badan Arkeologi Medan. ISBN 979-98772-1-0.
- Oliver, Paul (ed.). *Encyclopedia of Vernacular Architecture of the World* 1. ISBN 978-0-521- 58269-8.
- Duha, Nata'alui. (2011). *Omo Niha Restoration (1): To Preserve Ono Niha Wisdom*. <http://www.nias-bangkit.com/2011/09/omo-niha-restoration-1-to-preserve-ono-niha-wisdom/>. Diakses pada tanggal 19 Juni 2012.
- Duha, Nata'alui. (2011). *Restoration Omo Niha (2): Posh Tradition and Wood Shortage*. <http://www.nias-bangkit.com/2011/10/restoration-omo-niha-2-posh-tradition-and-wood-shortage/>. Diakses pada tanggal 19 Juni 2012.
- Ellisa, Evawani (2005). *Rumah Oval Tahan Gempa di Nias Utara*. Diterbitkan di Kompas, Minggu, 27 Februari 2005.
- Francisca, Patricia. (2011). *Traditional Architecture of South Nias*. <http://www.nias-bangkit.com/2011/03/traditional-architecture-of-south-nias/>. Diakses pada tanggal 19 Juni 2012.
- Theo. (2009). *Nias Dengan Dua Wajah Arsitekturnya*. <http://theodocyruz.blogspot.com/>. Diakses pada tanggal 19 Juni 2012.
- Zai, Nius. (2010). *Rumah Tradisional Nias Utara*. <http://rumahtradisionalniasutara.blogspot.com/>. Diakses pada tanggal 19 Juni 2012.