“One”

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Abstract. The robustness of the One building as the main building of Sa’o traditional house in Ngada Regency, Flores, has been proven to be reliable. The experience and testimony of indigenous people proves that when there was a shock in the area due to the earthquake and tsunami, the human victims who lived in traditional houses were the least number. The most severe damage occurred when Sa’o was shaken violently, until the One building fell to the ground. The One building is located on a stage floor made of wooden beams with split bamboo floor coverings. The stage floor is supported by wooden pillars or megalithic stone pillars. Floor and ceiling construction are tightly integrated with wooden columns and plank walls. The construction of the One building use wooden pegs, interlocking board walls, without nails or screw bolts, and tied thatched roof coverings. Therefore, inspired by the One building is the Ngadha architectural identity I designed the "One" model as a space box rescue from the earthquake and tsunami disaster. The goal is that when the disaster occurs, each family could save themselves to the "One" box rescue, close tightly for several minutes to avoid accidents and security threats from more severe natural disasters. The "One" prototype model must be tested for its strength, patented, calculated the technical feasibility, collaborated with industry, the government, and the local government.

1. Introduction
Actually, the One building which is the core space inside the Sa’o traditional house in Ngadha culture, in the Ngada Regency, the Province of Nusa Tenggara Timur, Flores Island, proved to be reliable. Although the earth of Flores is located on the ring of fire, and tectonic earthquake shocks that often hit the region are at risk of coming tsunami waves, but the record of human victims in the Ngadha traditional settlement due to these natural disasters are not much in number. Many indigenous people believed that living in the One building will be surviving from any disaster and threat. Their ancestors are in side of the One building, and would always protect them. Therefore, the One is a cube-shaped building, measuring ± 3.60 x 3.60 square meters, height from floor to ceiling is about 3.00 meters, made of wood and bamboo structures, which are constructed strongly, with the connection methods by wooden pegs without using nail or screw bolt.

Referring to the experience and testimony of indigenous people in the event of a shock caused by an earthquake, the damage to the One building was the least in number. Likewise, with the safety of humans who lived in the One building. The worst damage if the One building is shaken violently so that the building is separated from its position on the construction of the stage floor, where the construction is supported by the foundation of wooden pillars or megalith pillars which can also collapse, and finally the One building fell on to the ground [1]. The floor and ceiling part which were
firmly integrated with the construction of the One, wooden columns and plank walls, even though there was a strong earthquake shock, the floor and ceiling construction elements would not be released, or broken due to being hit by roof construction. The wooden post connection system and interlocking board walls without screws or screw bolts are made so solid, both in terms of workmanship and in terms of material usage.

Therefore, inspiring to the traditional building of One in the traditional house of Sa'o which became a peculiarity of Ngadha architecture, then I was designing an idea of the “One” as a savior space, a savior box from the earthquake (and tsunami). The goal is that in the event of an earthquake, every family must save themselves by entering to the “One” for a few minutes to avoid accidents and/or safety threats due to more severe natural disasters. The “One” prototype model was patented, and then tested for its strength, its solidity, its technical feasibility study and its market feasibility. Further, by collaboration with the industry, the government and the local government I create it to be a real savior property in the context of earthquake (and tsunami) disaster.

2. Understanding the Sa’o traditional house

Traditional houses in Ngadha culture are referred to as the Sa’o. The Sa’o structure of the Ngadha traditional house vertically is made up of heads - bodies – feet, or in the local language is called zeta ulu - zale wekki / zeta wekki - zale wai, as well as calling the human body parts. Ulu is the head, wekki is the body, and wa’i is the foot. When referring to the roof space, walls, and stage floor poles, the roof space as zeta ulu, the wall as zeta wekki, the stage floor as zale wekki. Space under the floor stage as a foundation pole room with a stage construction called zale wa’i. So, vertically, traditional houses are grouped into four vertical spaces, namely: the roof (ubu sao), the wall (kebi ube kedu), the stage floor (befa), and the stage pile (tere leke / leke) [2]. The structure of the Sa’o traditional house is understood vertically and horizontally as shown in Figure 1.

Horizontally, the components of the traditional house spaces are the One, the Teda one, and the Teda wewa. Particularly in the One room, there are two recitations, namely: the women's room, it is called papa bhoko; and the men's room, it is called papa lewa. This enlightenment is not interpreted as segregation of room functions, but as a state of mutual complementarities. Whereas, the Teda one and the Teda wewa are not conceptualized as different zones. However, these two spaces are enlargement of the One, as the additional rooms, or bheli in local language, at the right or at left of the One, where the floor surface is made not as high as the surface of the One floor. The functions, benefits, and meaning of these rooms in traditional houses are as follows [3].
2.1. The One
The *One* is as a core space inside the *Sa’o*, the main room of the *Sa’o*, or it is called the real residence. The word of *One* means a space to live in, a place to get togetherness. Multi-use functions of the *One*, namely: accommodating the independent activities of family members/clans, they are called *ana woe* in the local language; resting, cooking, traditional rituals, traditional meetings, giving birth to babies, laying down bodies, and others. The benefits of the *One* room are to get protection, security and safety from the ancestors. By living in the *One* room together in a family/clan entity, then protecting each other, keeping each other safe, and surviving can be realized. In the *One* room, there are ancestral spirits that guard the spiritual life of the inhabitants of the traditional house, they are called *ana sa’o* in the local language; guarding against interference from evil spirits around the area. The ancestor which is called *ebu nusi* in the local language, is symbolized in the form of *sau uwi*, a piece of bamboo *aur* and *bhoko*, the *tuak* traditional drink bottles, which are stored in the *mata raga* on the middle wall of the *One*, is called as *ube kedu*. The meaning of the *One* is a space to bring together the spiritual needs between *ana sao* and *ebu nusi*. In addition, the *One* is the base of their life, which is called *ulu* in the local language and the end room of their life, which is called *eko* in the local language. Thus, the *One* is as the smallest world, or micro cosmos, of the life of *woe* and *ana sa’o* in the indigenous people of the *Ngadha* culture. Therefore, this meaning is articulated more clearly by the *Lima pade*, the name of ‘traditional architect’ of the *Ngadha* culture, by making the floor surface of the *One* has the highest floor surface among the other rooms in the *Sa’o*. The room of *One* is a single building without a permanent connection, without the use of nails and iron hinges, and has a separate structure and construction from the *Teda one* or the *Teda wewa* building. Besides being used for traditional ritual activities, the *One* room is also used for cooking chicken as a sacrifice for ancestors. Therefore, on the right side near the entrance are three stone stoves as a traditional kitchen, is called *lapu lika* in local language. The right side of the *One* area, there is a traditional kitchen is called a female area, or *papa bhoko ana fai* in the local language, and vice versa it is called a male area, or *papa lewa ana saki*.

![Figure 2. the zoning of the One][2]

2.2. The *Teda one* and the *Teda wewa*
The *Teda one* and The *Teda wewa* have functions as a porch, or additional space for storing devices for daily work activities, for resting, accepting family/clan guests, tourists/researchers, and others. In addition, the function room is used to accommodate general activities, additional activities, or new activities that were previously unthinkable by indigenous people who are generally engaged in agricultural livelihoods, teachers, civil servants and tourism services in recent times. Activities carried out by indigenous villagers, such as: farming activities, weaving, reading, watching television, listening to the radio, and others. So, the function of worldly activities, semi-private and semi-public activities are accommodated in the *Teda one* room and the *Teda wewa* room. The benefits of *Teda one* is to accommodate the abundant activities in the *One* room, especially related to the traditional ritual activities of the *Mosalakali* at the *One* room. The benefit of the *Teda wewa* is to accommodate the
abundant activities in space of the One room and the Teda one room, especially related to the semi-private and semi-public activities.

Indeed, the Teda one and the Teda wewa actually are as foyer space which is a transitional space from ‘the smallest world,’ i.e. the One to ‘small world,’ i.e. the Sa’o up to the ‘outside world,’ i.e. the Loka or the Kisa loka, and vice versa. The Teda one and the Teda wewa are meant as space to create brotherhood with residents/tourist guests/researchers from outside the traditional village. Another meaning is as a tourist service building, which constructively is not attaching permanently to the One construction. The height of the both floors are lower than the One. Thirty years ago, the Teda wewa and the Teda one has the roofs of split bamboo, are called lenga in the local language. But at the present, the One and the Teda one has only thatch roof construction, which is as the modification of the structure and construction of the thatch roof, is called keri in local language. The lenga roof changed to be the thatch roof due to the limitations of the betho bamboo material in Ngadha traditional villages. Meanwhile, the difference in the floor height between the Teda wewa, the Teda one, and the One are as expression of the hierarchy of space values in term of worldly transitional activities in the Teda one and Teda wewa, and transcendental activities in the One.

![Isometry of the room of One-Teda One-Bheli-Teda Wewa](image_url)

**Figure 3.** Isometry of the room of One-Teda One-Bheli-Teda Wewa [2]

2.3. The Bheli

The Bheli is a room that was built as additional room. It could be on the right side or the left side of the One room, or in between two One rooms if two Sa’o building units are continuous into one large house unit with two One rooms. The function of the Bheli room is a place for resting sleep, to do independent activities, or additional space to store valuables, and others. In addition, the Bheli serves to accommodate special activities, such as accepting family/clan guests, or live-in tourists/researchers. The benefit of Bheli is to increase the capacity of room around the One so that a traditional ritual ceremony can be held which involve many ana woe or ana sao, then all participants can be accommodated in the Sa’o. In addition, the existence of the Bheli further develops brotherhood with residents/tourist guests/researchers from outside the traditional village. Another benefit is as a tourist service room. Therefore, this meaning is articulated by the Lima pade by making separate buildings from the One building, not attaching permanently to the construction of the One, not nailing or installing iron hinges, and making the floor lower than the floor surface of the One. Figure 2 Isometry of the room of One-Teda One-Bheli-Teda Wewa, where the Bheli looks are made in between two One of two Sa’o units, so that the Bheli room is quite large. The surface of the floor is also not as high as the One floor, but it is the same height as the floor surface of the Teda one. So, the Bheli additional room has the same hierarchy of values as the Teda one. The production of the Bheli is also based on
the utilization of the piro sao, the space on the right side and on the left side of the One. Moreover, after the One and the Teda one room has one thatched roof, so that the span of the Soku dolu, the beam which extends to the front is used while at the same time compensating for the Soku dolu span towards the rear, and the space under the roof on the right and the left of the One is used for making the Bhei. Even though the construction of the building is close to the One wall, the construction of this room does not stick to the construction of walls and floors to the One permanently.

3. Methodology

The research method which I used to understand the traditional houses in Ngadha culture was an inductive method with a scope of problems in the Sa’o design in several traditional villages in the Ngada Regency. Further, lesson learnt about the character of the One building, how its strengths and weaknesses in accommodating indigenous people's activities, the impact of security and safety of indigenous people, and specifically understanding its rigidity so that it has advantages as a building that can be used as a lifeline for earthquakes and tsunami disaster.

4. The “One” a savior of the earthquake and tsunami

Understanding the features of the One building from Ngadha traditional house in Flores, namely as a main residential building, protecting and rescuing indigenous people from various threatening dangers, and knowing the One building is traditionally believed by indigenous people as ancestral dwellings, places of ulu and eko of their life in the smallest world, then inspired by the power of the One I was designing a new One building, which has more or less the same meaning, namely a space box rescue from the dangers of earthquakes and tsunami. The new One building is not intended to replace the existence of the One in Ngadha's traditional houses today. However, the new One building is intended for villagers in the area of earthquake and tsunami hazards throughout Indonesia. Actually, in fact, this design is the development of ideas from the model of sustainability of vernacular kampongs, the Ngadha district, Flores as I have discussed in my previous paper [4]. Further, I wrote the new One building as the "One" with an apostrophe sign on it.

The building material is selected from high quality and transparent fiberglass material. The structure and construction system used an interlocked joint model, very strong in accepting earthquake and tsunami loads, stable and solid construction, tightly closed and waterproof and shocks. In fact, to maintain the tidiness I add a rubber belt that will automatically lock when the last door is closed. In the building, of course, there is enough space to breathe, for the adequacy of food and drink supplies, so that those who live in it will survive in an emergency. This rescue cube box is also equipped with a number of balloons that automatically expand when stagnant in the water, so that this will lift the “One” always above the water level if there is an earthquake followed by a tsunami hazard. This kind of idea should be introduced and socialized to the Ngadha traditional people, especially the Utu Bhou Dia Sa’o, the forum in construction of Ngadha traditional houses. Perhaps, there will be some wise advice from the forum to make the “One” design better for the future. Because, the Ngadha traditional people really understand the characters of the earthquake or/and tsunami in the Flores island. More important thing to convey at the forum is that the Ngadha traditional people must know the idea of “One” is derived from their traditional architecture and is designed for those who really need safety devices from earthquake and tsunami natural disaster. By doing so the sense of pride and confidence would grow in the hearts of the Ngadha traditional people to continue to be the people who advance where they are. I know that in the Ngadha area, the lagging factor in the human resources and the threat of natural disasters are parts of serious problems that must be addressed immediately in addition to the problem of poverty. Therefore, academics and the government have the time to be responsible for solving these problems.
Figure 4. The "One" a savior of the earthquake and tsunami [4]

The "One" structure and construction system will continue to be tested for strength in civil and water engineering laboratories, tested for its durability, technical feasibility, market feasibility, so that the construction industry is willing to hold it. The concept and schematic of the "One" design of the rescue cube box from the dangers of the earthquake and tsunami is currently being handled by my patent, so that it can later be developed by the industry, and then marketed to the government and local governments who need it. This "One" building can be placed in the inner room, on the terrace of the building, on the porch of the house, on the yard, in the green open space, on the sports field, on the beach space, and especially on disaster evacuation routes made by architects so that it can be easily seen, can be reached by families, residents of residential areas, or the general public who are facing the dangers of earthquakes and tsunamis. I will improvise its architectural design towards better product design, more effective and efficient, funny and interesting to have it. Of course, as attractive as any of the "One" design must be guaranteed to be robust, their reliability highly tested in accepting earthquake and tsunami loads. As for globally, the intended "One" design is as shown in Figure 4 the "One" a savior of the earthquake and tsunami.

References
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