

Lesson Learned of Nglepen Village Dome House: Mixed-use of Residential Area and Tourist Attraction

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Abstract

The dome house, built after the 2006 Yogyakarta earthquake, has a unique and uncommon design. The dome-like shape prevents earthquakes and tornadoes from damaging the house. The construction of the dome house was initially focused as a shelter. Over time, the dome house has an additional function that changes into a tourist destination.

This condition benefits residents because it can increase their monthly income. However, it is also disrupting the lives of the settling residents. The existence of two functions, a living place and a tourist spot, is compelling. Nevertheless, integration between the two functions is needed so that residents can live comfortably and continue to gain income from the tourism sector.

This study aims to examine the integration of a dome house as a living place and tourist attraction. Employing qualitative approach, field observation and content analysis of literatures were conducted to determine the suitable integration of those two functions.

The result shows that the integration of the house as a living place and tourist attraction leaves one essential function for residents. Dome house as an attraction, amenities, accessibilities, and ancillaries for tourism area is performed well. Meanwhile, the house functions as a living place diminished one function, which is a private place to be alone and serene. Consequently, communities need to adapt or improve the house to accomplish these unfulfilled functions.

Keywords: Post-disaster Recovery, Relocated Settlement, Dome House, Mixed Use

1. Introduction

Disasters frequently occur in the area with a high hazard risk. When the risk associate with the vulnerability, but having adequate capacity, disasters might be defeat. Otherwise, when the area has no capacity, disaster will arise. Based on that matter, government play important role to managing disaster (Liu & Ni, 2021). One of the roles of government is making various kinds of plans and regulation to cope with disasters. As the disaster regulation stated in the national planning document, it is further mentioned in the regional plans as well.

In the disaster management system, there are 4 main cycles in the disaster management process (Harrison & Johnson, 2019; Rana et al., 2021). The first process is the response just after a disaster. Response is an emergency response process that begins immediately after a disaster occurs. Therefore, followed by the process of post-disaster recovery. In this process, the affected area struggle to return to its original condition by carrying out various kinds of interventions. The next cycle is mitigation, which is carried out to anticipate if the disaster occurs again. Various kinds of mitigation in the form of physical and non-physical planning are carried out to reduce losses when a disaster occurs. The last stage is preparedness. At this time, all parties began to prepare in case a disaster would occur.

One of the essential processes in the disaster management cycle is during the post-disaster recovery. This is a process where disaster casualties need to recover their life as before the disaster. At these processes, they need to permanently moves out of areas highly exposed to hazards (Bodine et al., 2022). They need to rebuild their daily lives after a disaster occurs. Affected communities need a place to live and a comfortable environment which can provide security in the living location. Relocating away from hazards will also reduce the risk of future destruction (Iuchi & Mutter, 2020).

Indonesia is the country with the highest mortality risk in Southeast Asia (Nakasu & Amrapala, 2023). In Indonesia, there have been several disasters that required people to move permanently to other locations after the disaster. For instance, Aceh Permanent Settlements after the 2004 Aceh Tsunami, the Yogyakarta Dome House after the 2006 Yogyakarta earthquake, and Sleman Permanent Settlements after the 2010 Merapi Volcano Eruption.

Among other permanent settlements, the dome house is one of the houses that have a unique dome-shaped design. This design, unlike most houses, has a function as an earthquake and tornado resistant house. There are 5 relocation areas with this design worldwide, namely in Indonesia, Haiti, Ethiopia, India, and Sri Lanka. The dome house in Yogyakarta is in Nglepen. The development of Dome House Nglepen is the result of collaboration between Domes for The World Foundation (DFTW) and the World Association of non-Governmental Organizations (WANGO) and Emaar Properties. In Indonesia itself, this area is inhabited by 71 families with a total of 80 domes. In this area, facilities are provided to be used by residents. For instance, schools, mosques, and health facilities.

The construction of the dome area was completed in just after 6 months. The community began to occupy the location shortly after the construction was completed. The dome area offers disaster safety and good sanitation. Although the dome house was initially focusing as a shelter, over time, the dome house area has changed its function to become a tourist destination. Its unique shape and neatly arranged location attract more and more tourists to visit.

In one side, this condition provides benefits for residents through the increasing monthly income. Residents could open a stall in the location, collect entry fees, and manage parking lots. But on the other hand, this condition also disrupts the lives of the residents who live there. The presence of visitors who come to visit narrowing the space for residents to do their daily activities. If this continues, it might force the residents migrating to other locations and only use their dome houses as a means of earning income.

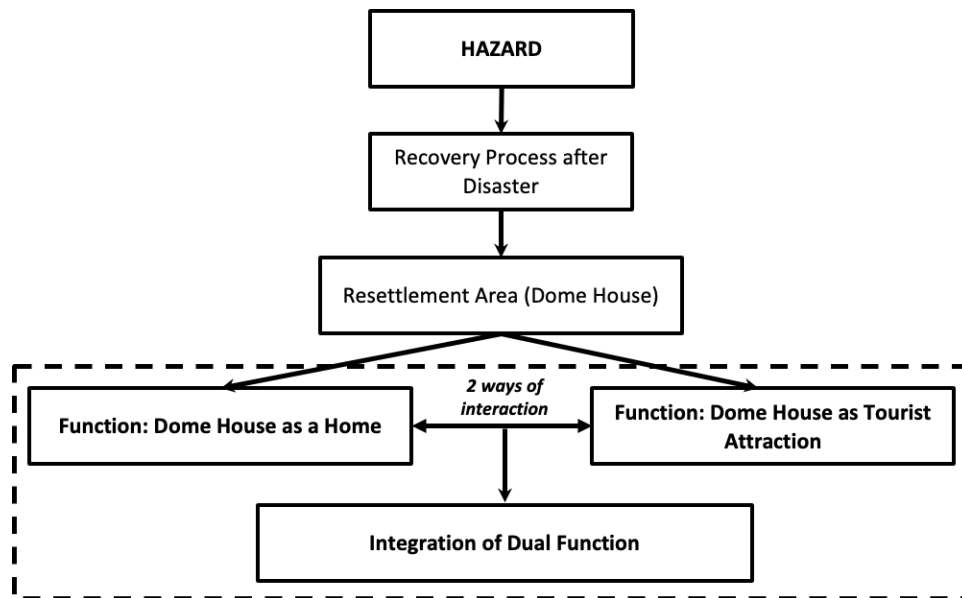
The existence of two functions as a residence and a tourist spot is quite appealing to explore. However, integration between the two functions is needed so that people can live comfortably and continue to benefit from the income from the tourism sector.

2. Method

This study employs a qualitative approach, through field observation and content analysis on the literature review. The qualitative data needed to explore the dual function, as a place to live and as a tourist attraction, of the settlements area. Therefore, dig deeper into the results of quantitative data processing (Moleong, 2016)

Primary data obtained from the field observation in the study area. Moreover, content analysis from the literature review supported the data sources. Other sources of information in the form of documents are used to complement the main data. The data is presented in a descriptive form to explore in more detail the two functions of the dome house.

Figure 1. Research Design



Source: author analysis, 2023

3. Result

3.1 The dual function of residential and tourist attractions

A house is one of the primary needs of human beings. In general, a house provides shelter for human activities, at the same time, gives them security (Saegert, 1985). After the 2006 earthquake, the residents of Nglepen were relocated to a residential area which was built in 2007. There are 80 dome houses provided by the government and private sector. Among them, there are 71 houses occupied. However, the relocation was not run well, since the residents does not get the land ownership certificates. They only have ownership rights over the house or building they live in, but not the land (Setyo Nugroho & Dhimas, 2017).

Over time, the residential area of the dome house attract people to visit because of its unique physical shape. Since 2008, the area becomes tourist destination. Due to the large number of visitors, Tourism Awareness Group called *Pokdarwis* was formed and authorized by local Tourism Bureau. Along with its development as a tourist spot, the community is trying to improve the condition of the area to make it more attractive to tourists.

This phenomena is quite rare since the combination of two functions between the residential function and the tourism function combine as one. The dome house, which is a relocation house for victims of the earthquake, has quite a unique shape so that it can attract tourists to visit. On the other hand, the function of tourist spot is providing recreation and relaxation, while residential house has its own function.

3.2 Fulfillment of House Functions

According to (Payne & Majale, 2004) and stated in the President Regulation Number 14 of 2016 concerning the Implementation of Housing and Residential Areas, a house is a building that functions as a liveable place to live. To foster a family is a dignified reflection of its owner and the dwelling asset.

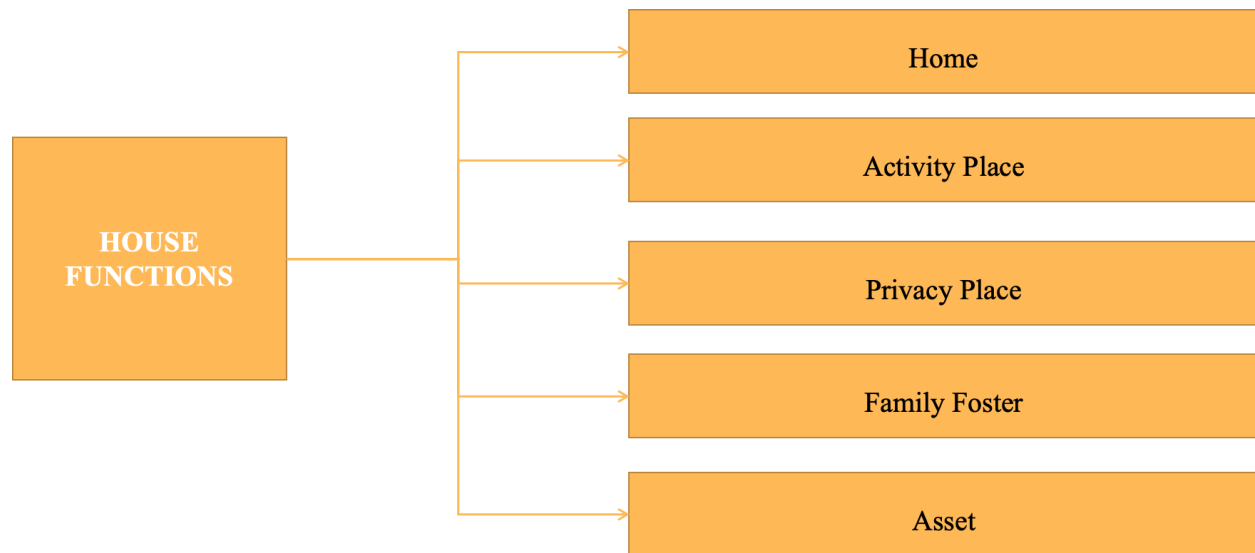
The houses' physical design in Nglepen is unlike the general houses, which have walls and a roof. The dome design has patent properties in the sense that new rooms cannot be added. Thus, it is contrary to a typical residential house's physical form, which can be renovated or subtracted according to needs. Homeowners should be able to take advantage of the shape of a dome residence which only has 4 rooms, a kitchen, 2 bedrooms, 1 living room, and half the upper floor for the family room. This form certainly has a considerable influence on the daily life of its inhabitants (Saraswati, 2007).

Prior to the disaster, residents had ample space to carry out activities and meet their needs, such as a place for livestock, storage for farming equipment, and a bathroom. This condition has made residents have to adapt their activities to the shape of the house or adapt the house to the activities. The adaptation process has been carried out in the form of adding space, adding space functions, and increasing space (Marindrha, 2018).

As its primary function for housing, the physical condition of the building is deficient. Its dome shape does not have good air circulation. The concrete building material has a relatively high level of strength but traps the heat inside. In addition, the dome shape with no roof means that there is no ventilation to reduce the absorption of solar heat (Kisnarini & Dinapradipta, 2008). Even though

the shape is dancing, this condition causes discomfort because the house feels hot, especially when the sun is hot.

Figure 2. House Functions



Source: author analysis, 2023

3.3 Fulfilments of the Tourism Function

Since becoming a tourism area in 2008, residents have tried to fulfill the tourism necessity. This condition is carried out by adding several facilities that should be fulfilled when making tourist attractions and trying to increase attractions that can attract visitors.

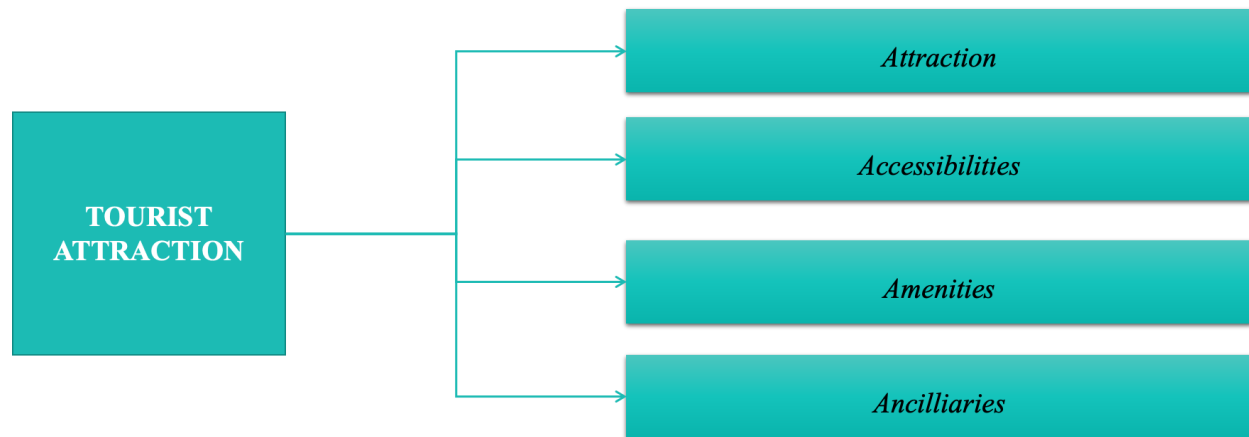
According to (Yoeti, 1991), there are 3 components that a tourist spot must have, namely: Attraction, Accessibility, and Amenity. Whilst (Fayos-Solà & Cooper, 2018), add Ancillary as 4A. Attraction is a component or object of attraction presented in a tourist destination. The main pull factor of a tourist spot lies in this attraction. Amenities are facilities owned by a tourist spot. These facilities are in the form of facilities, and infrastructure visitors need when visiting tourist attractions. Accessibility or access is all kinds of transportation services and the route to tourist attractions. The last is ancillary or additional services. This additional service can be provided by the government in order to support these tourist attractions.

Each tourist area has its attractions. This dome house is a tourist attraction because of its unique shape. In Indonesia, it is only found in Nglepen. Integrating with other developments, such as coloring the house with various colors, provides more attractiveness to tourists (Setyo Nugroho & Dhimas, 2017). Unfortunately, according to (Yuni et al., 2020) tourists have declined interest in coming because these tourist attractions are poorly planned. For example, the colors on the dome house, which used to be colorful, are fading. In addition, the current physical condition, which has experienced several additions, makes tourist sites less attractive. On the other hand, many tourists expect disaster education tourism spot in line with the history of the area's development, which are not available in the moment.

Another essential element of tourism place is promotion. Location recognition and accessible locations are parts of promotion. The realization is creating a website to inform visitors about all tourism-related matters (Kuncoro, 2013).

Until now, several residents' houses are still occupied as the main house. However, some of the houses are also starting to be abandoned. A similar case also happened in the dome house in Türkiye. Oliver in (Saraswati, 2007) said that disaster relief relocation houses with domes in Turkey do not have continuity as residential houses. Most of them were turned into shops, chicken coops, and stables after the victims managed to find more livable houses. Learning from the Türkiye case, Nglepen dome house is expected that the community can continuously inhabit the dome house in this area.

Figure 3. Tourism Components



Source: Yoety 1966 and Cooper, 2008

4. Discussion

4.1 The adaptation process as an integration of residential functions and tourist attractions

The residential area of the dome house is an outcome process of unifying the two functions that require adaptation support from the community. According to (Somayaji & Talwar, 2011), a relocation activity can be an opportunity for new development and to create jobs for residents who lose their job after the disaster. They are forced to look for additional jobs to meet their daily needs. Therefore, in almost every relocation area, tourism spot was developed.

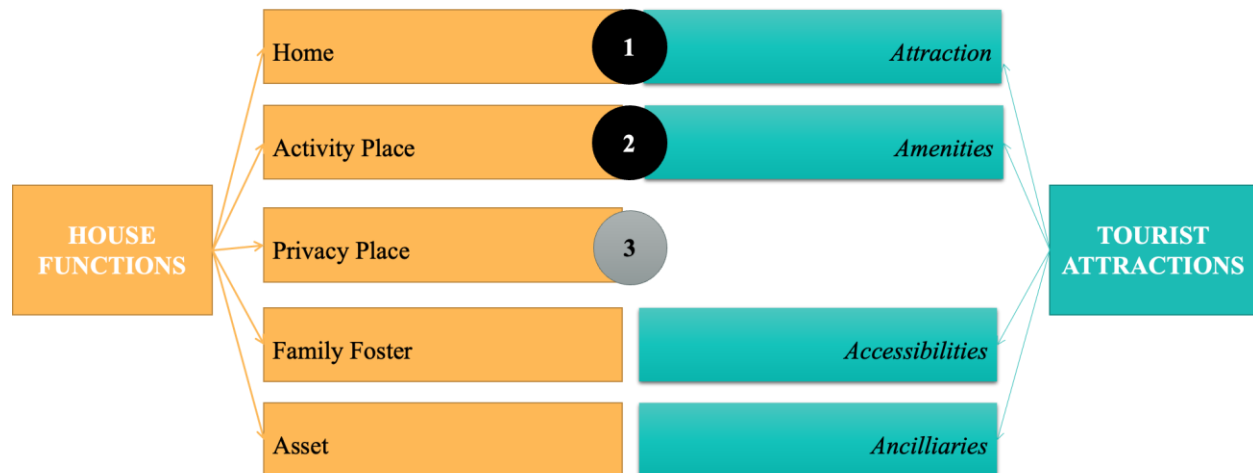
For the case of residential relocation in Sleman Regency, Merapi permanent settlements, tourist sites are developing in other areas near the peak of Merapi Volcano. Different conditions arise in Nglepen dome house.

Undeniably, the development of a tourist village can have positive and negative effects simultaneously. Residents who are relocated mostly need help to earn income. Even though there are some inconveniences because the location is combined with residential homes, this tourist spot provides economic benefits such as opening jobs, increasing residents' income, and generating

community development funds. In addition, other benefits are related to social aspects, such as increasing quality of life, community pride, and managerial capabilities of citizen organizations (Setyo Nugroho & Dhimas, 2017).

Various studies provide input on how to improve economic conditions through tourism—for example, increasing the shape or color of a dome house to make it more attractive, improving facilities, and planting more plants and flowers to make it greener and more aesthetic (Yuni et al., 2020).

Figure 4. Integration of House Functions and Tourism Components



Source: author analysis, 2023

The main parts closely intersected are (1) residential houses as the main attractions and (2) places for community activities which also serve as amenities for visitors. As well as, there are grey color areas that need to be considered, (3) privacy for residents of the area.

4.2 Residential integration as the main attraction

To maintain the privatization of the homeowner, the interior of the residential house is not allowed to be seen by visitors. As a substitute, several houses are provided as samples for visitors to see the house's interior design.

Furthermore, the residents of the dome house find it difficult because of the limited room inside the house. Thus, regulations should be made for residents who want to add extra space to avoid the contrasting design of the tourist attraction. It is necessary to make a similar unique design for the additional room along with financial assistance to build the additional room. Additional space should be designed in harmony with the existing dome house.

Cleanliness and tidiness of the house must always be maintained, and assistance can also be obtained from tourism income or government funding. An aesthetic impression should be considered, as the colorful house should be regularly painted.

4.3 Integration of activity places and visitor amenities

The initial design of the dome-house does not include a private toilet. There are several communal toilets across the area for residents. This inconvenient condition becoming more unacceptable if the communal toilet for residents use as visitor's toilet as well. Ideally, each dome-house should be equipped with private toilet. Otherwise, it is necessary to make separate toilets on the several remaining areas.

Another appearing problems are related to the sanitation, such as garbage and mosque cleanliness. Mosque as the praying facility should be maintained by the residents or *Pokdarwis* to kept clean, so that the users, residents and visitors, feel comfortable. Garbage will also be a problem when many visitors come. Proper installation to the waste management needs to be specifically maintain, especially the funding and recycling issue.

4.4 Other integrations

One other important thing is that residents need a means to be alone and socialize among residents. If every day the area is always open to visitors, then there will be no freedom for residents to live. In consequence, it is necessary to regulate the opening and closing times of tourist attractions in order to provide more space for residents.

5. CONCLUSION

In conclusions, several adjustments are needed to expand the dual functions of residential and tourist attractions area to be aligned. Adjustments can be prioritized on the intersection of residential functions and attractions as well as activity functions and amenities. After that, the psychological conditions of the occupants also need to be considered to provide privacy for the occupants.

Moreover, it is necessary to pay more attention to other inputs from key persons, residents or *Pokdarwis* member, and the government that handle the area. Future challenge of the study featuring other possibilities that can help residents to be more comfortable living while at the same time meeting the tourist needs of visitors, should be developed.

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