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REFUGEE SHELTER ON SELAYAR ISLAND, SOUTH SULAWESI

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Abstract: Refugee shelters are a crucial asylum in restoring the physical and psychological situation. Although Indonesia is a strategic stopover country for refugees, refugee shelter facilities in the country are still far from international eligibility standards. South Sulawesi, the province with the second-highest number of refugees in Indonesia, currently does not have a shelter to accommodate the diverse needs of refugees. Therefore, the purpose of this design is to design a refugee shelter in South Sulawesi that complies with international eligibility standards and can meet the needs of refugees, and make it easier for the government to control. To meet this goal, data collection was conducted through a literature review of existing international refugee shelter standards and precedent building. After that, a site analysis is carried out to produce a building shape that is in accordance with the condition of the site. The result of the design is a refugee shelter that can complete architectural and non-architectural aspects including characteristics, basic needs, and evacuation activities.

Keywords: Refugee Shelter; Refugee Needs; Housing Standards.

INTRODUCTION

A refugee is a person or group of people who are forced to flee their country due to persecution, war, or violence. A refugee has a fear of persecution for reasons of race, religion, nationality, political opinion or membership in a particular social group. By and large, they cannot return to their original place of residence or are afraid to return. Ethnic warfare, tribal violence, and religion are the main causes of refugees fleeing their home countries(USA for UNHCR, 2017).

The 1951 International Refugee Convention or commonly called the Geneva Convention is a legal instrument that regulates the types of legal protection, other assistance, and social rights that refugees must receive from countries that have signed the treaty(USA for UNHCR, 2017) However, Indonesia is not a signatory to this convention and can only help through two solutions for asylum seekers and refugees residing in its territory, namely *repatriation* and *resettlement.* In Indonesia, identified refugees are placed in temporary shelters before being dispatched to a third country. The bureaucracy of such transfers often takes up to 8 years (Missbach, 2016).

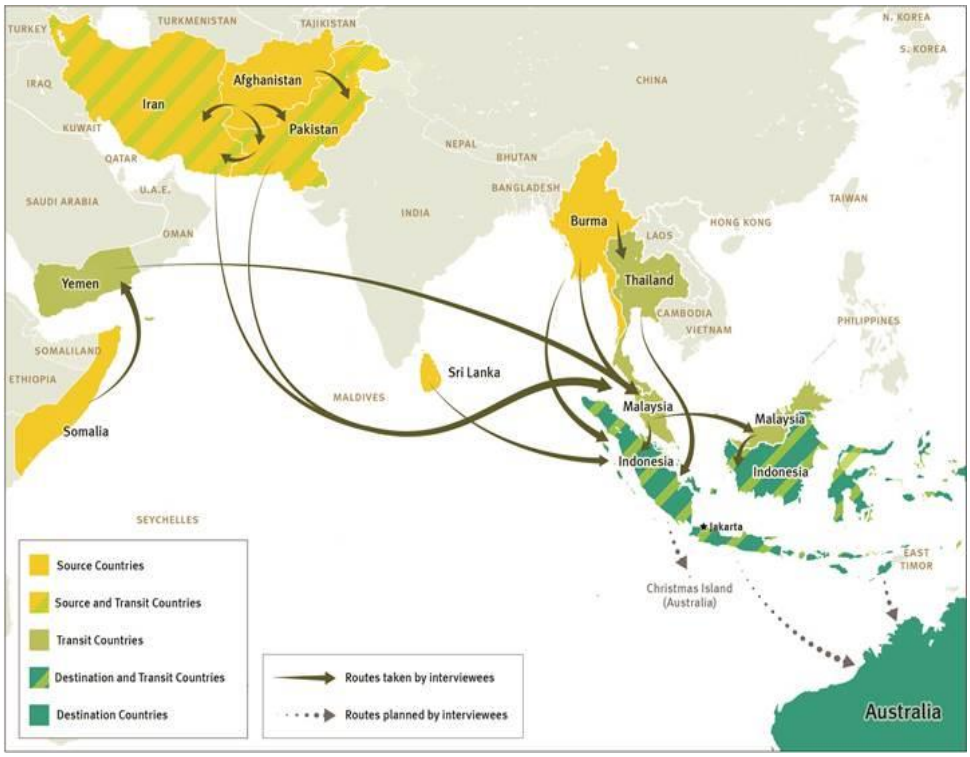


Figure 1. Migration route samples based on interviews with refugees(Human Rights Watch, 2013)

Geographically, Indonesia is a strategic stopover country for refugees. Tens of thousands of migrants and asylum seekers – many of whom come from East Africa, the Middle East, Southeast Asia – go through difficult and dangerous travel routes to Australia, where migrants hope to find opportunities for better lives and protection from violence and persecution in their home countries. To reach Australia, they made Malaysia and Indonesia the first

stopover countries(Human Rights Watch, 2013)

In order to improve the quality of life of these people, refugee shelters become a crucial asylum in improving their physical and psychological situation (Better Shelter, 2017) In addition, this building can be a vital life defense mechanism in times of crisis or displacement and can be key to restoring personal security, independence, and self-respect(United Nations High Commissioner for Refugees, 2017a).

Although the number of refugees and asylum seekers coming to Indonesia is increasing, they are distributed to various cities(Fitriani, 2017) The technical implementation unit appointed by the government to handle refugees in South Sulawesi is the Makassar Immigration Detention Center. The Makassar Immigration Detention Center not only quarantines refugees and asylum seekers who have been recorded in the immigration bureaucracy and supervises refugee shelters, but also isolates refugees and illegal asylum seekers who enter the South Sulawesi regional area (Ditjen Imigrasi Republik Indonesia, 2014).

According to the South Sulawesi Provincial Immigration Office, asylum seekers as of October 2017 in South Sulawesi were recorded at 1,855 people (Rumah Detensi Imigrasi Makassar, 2017) Even so, currently South Sulawesi still does not have a shelter facility intended to accommodate the diverse needs of refugees, in addition to making it easier for the government to carry out the quarantine process and send it to third countries. As of February 2017, refugees are spread across 4 types of shelters, namely community houses (1,171), Bolangi Prison Immigration Detention Center (151), Makassar Class I Immigration Office (6), and Temporary Center (658) (Republika, 2017(Republika, 2017)

On the other hand, Selayar Island in South Sulawesi has potential in terms of the large availability of vacant land separate from the *mainland* of South Sulawesi, thus facilitating the process of controlling and providing refugee shelter facilities according to applicable standards. The Selayar Strait is crossed by archipelago shipping both to the east and west, and has even become an international shipping. Selayar Islands Regency is an archipelago that is between alternative routes of international trade which makes this area geographically very strategic as the center of shipping entry routes both nationally and internationally. The placement of refugee shelters in these locations can make it easier for the government to detect, control, receive, and coordinate without making the shelter look like a prison. Moreover, the island can develop an integrated environment capable of meeting the needs of refugees from the individual to the communal level.

Seeing these conditions, it was felt necessary to design a refugee shelter that is not only a place to accommodate, but also an integrated environment by considering aspects of refugee security, comfort, and health in addition to making it easier for the government to carry out surveillance, quarantine, and sending refugees to third countries. Thus, later it can create synergy between the needs of refugees and the duties of the government. The purpose of this study is to compile a

reference containing the criteria and requirements for designing a Refugee Shelter on Selayar Island, South Sulawesi

MATERIALS AND METHODS

The method of designing refugee shelters starts from developing initial design ideas to solve existing problems and generate new opportunities from a status quo, conducting literature reviews of applicable standards and existing precedent buildings, conducting project reviews through macro and micro analysis, and formulating the results of the analysis into a design concept.

Data search and processing are classified into two categories, namely primary data and secondary data. Primary data is data obtained directly from the source, observed, and recorded. While secondary data is data obtained from literature materials(Marzuki, 2000). The data collection or processing stage is the process of obtaining data related to the planning and design of a Refugee Shelter on Selayar Island, South Sulawesi. At this stage, these data are obtained from primary data and secondary data that support the building design process

RESULTS AND DISCUSSION

Selection of Location

Based on the recruitment of rented places, there are 2 alternative sub-districts that were chosen as locations for refugee shelters because of their security potential, low population density, accessibility, and facilities and infrastructure that can meet the needs of refugees' lives, namely:

1) Bontosikuyu District

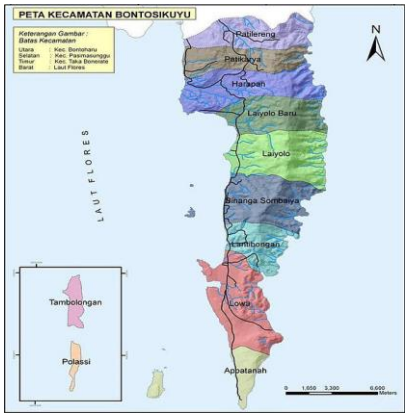


Figure 2. Bontosikuyu Subdistrict Map(Wikipedia, 2017)

It is a sub-district that is directly adjacent to the sub-districts of Bontoharu, Pasimasunggu, Taka Bonerate, and the Flores Sea (Wikipedia, 2017). The population density is 60/km^2. It has an area of 248.22 km^2 with 11 urban villages (inside and outside Selayar Island) (Badan Pusat Statistik Kabupaten Kepulauan Selayar, 2016). The 9 sub-districts of Bontosikuyu sub-district located on Selayar Island consist of Harapan Village, Appa Tanah, Lowa, Lantibongan, Binanga Sombaiya, Laiyolo, Laiyolo Baru, Patikarya, and Patilereng (Wikipedia, 2017) There are 2 villages located outside Selayar Island, namely Tambolongan and Polassi Villages. The total population is 14,873 (11,942 inhabitants on Selayar Island and 2,931 outside Selayar Island).

Public facilities in Bontosikuyu Subdistrict consist of 52 schools (15

kindergartens, 20 elementary schools, 7 junior high schools, 1 high school, 6 raudatul athfal madrasahs, 2 ibtidaiyah madrasahs, and 1 tsanawiyah madrasah); 60 health infrastructures (2 puskesmas, 11 auxiliary health centers, and 47 posyandu); 52 places of worship (47 mosques, 4 mushallah/langgar, and 1 church); 43 entertainment infrastructure (41 tourist attractions and 2 restaurants) (Badan Pusat Statistik Kabupaten Kepulauan Selayar, 2016).

2) Buki Subdistrict

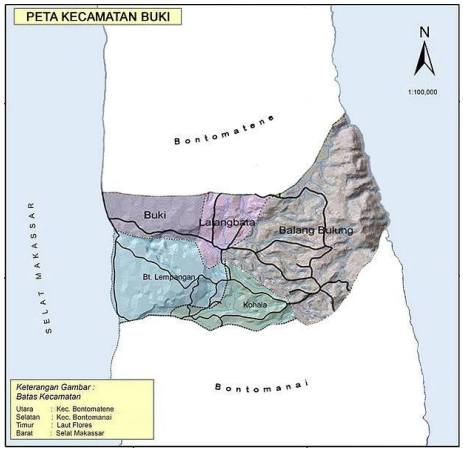


Figure 3. Buki District Map(Wikipedia, 2017)

It is a subdistrict directly adjacent to the districts of Bontomatene, Bontomanai, Flores Sea, and Makassar Strait (Wikipedia, 2017). The population density is 93/km2. It has an area of 68.14 km^2 with a total of 7 villages and villages consisting of Buki, Bontolempangan, Balang Butung, Lalang Bata, and Kohala (data area of Mekar Indah and Buki Timur is still joined by the main village). Its population was 6,317.

Public facilities in Bontosikuyu Subdistrict consist of 29 schools (10 kindergartens, 10 elementary schools, 3 junior high schools, 1 high school, 2 raudatul athfal madrasahs, 1 ibtidaiyah madrasah, and 2 tsanawiyah madrasahs); 28 health infrastructures (1 puskesmas, 4 auxiliary health centers, 23 posyandu); 32 places of worship (32 mosques); 4 entertainment infrastructure (4 tourist attractions) (Badan Pusat Statistik Kabupaten Kepulauan Selayar, 2016).

a. Comparison of Alternative Locations

Based on the comparison of locations above, the following is a table of weighting of selected locations based on criteria that support the design of a Refugee Shelter on Selayar Island.

Table 1. Site Selection Weighting

Criterion	Bontosikuyu Subdistrict	Buki Subdistrict
Low population density	4	3
Access to educational, health, places of worship, and entertainment facilities and infrastructure	4	3
Enabling the use of existing infrastructure, in the form of water, electricity, disposal, solid waste disposal, and highways	4	4

Availability of means of transport	4	4
Safe from all threats both directly and potentially	3	4
Sum	19	18

Description: 4= excellent
3= good
2= less

From the results of the weighting of alternative locations, a location was chosen in Bontosikuyu District.

Site Determination

1. Tread Determination

In determining the site of the Refugee Shelter, the things that are the subject of consideration and input used in the conceptual design are:

a) Close to facilities and infrastructure that can support refugee and management activities (educational infrastructure, health infrastructure, worship infrastructure, and entertainment infrastructure)
b) Near / easily accessible site from the highway
c) Availability of sufficient land

The alternative sites found in Bontosikuyu District are as follows.

Figure 4. Alternative Tread 1 (Google Maps, n.d.-d)

Site 1 is located in Harapan Village, Bontosikuyu District which is a land on the side of the highway with surrounding buildings that are not so dense in the form of residential houses, 4 mosques (Nurul Iman Mosque, Jabal Nur Mosque, Jami Nurul Muhajirin Mosque, Lailoyo Baru Mosque 2), UPTD Bontosikuyu Health Center, Bontosikuyu State High School 1, Warkop Siholung, Warung Inchi, Alfara Donat, Rezky Light Shop, and Rezky Kiosk. The tread area is ± 93,350.66 m^2

Figure 5. Alternative Tread 2 (Google Maps, n.d.-d)

Tabak 2 is located in Lantibongan Village, Bontosikuyu District which is a land on the side of the highway with dense surrounding buildings in the northern part in the form of residents' houses, 3 mosques (Lantibongan Mosque, Lantibongan Village Mosque, and Nurul Iman Mosque), Lowa Health Center, Lowa Village Traditional Market, and Al-Mahzan Hostel. The tread area is ± 53,521.64 m^2.

a) Access to facilities and infrastructure that support refugee activities and managers

Table 2. Comparison of access to facilities and infrastructure from sites 1 and 2

Site 1	Site 2
Close to 4 mosques, UPTD puskesmas, schools, warkop, warungs, donut shops, grocery stores, and kiosks	Close to 3 mosques, puskesmas, traditional markets, and hostels

b) The tread is easily accessible from the highway

Table 3. Comparison of access to highways from sites 1 and 2

Site 1	Site 2
Being on the side of the highway	Being on the side of the highway

c) The site has a sufficient area based on space requirements

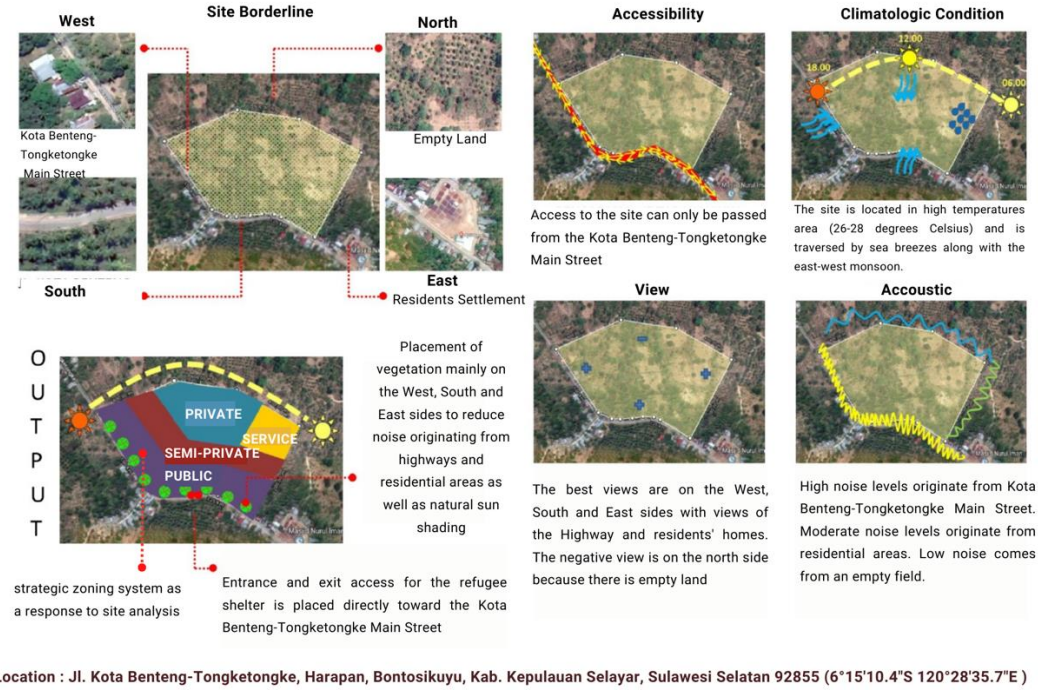
Table 4. Comparison of site areas 1 and 2 based on space requirements

Site 1	Site 2
Sufficient tread area	Sufficient tread area

From the kriteria above, then the selected tread is site 1.

Figure 6. Selected sites(Google Maps, n.d.-d)

Site Analysis



Basic Concepts of Designing a Refugee Shelter on Selayar Island, South Sulawesi

a. Basic Concepts of Transforming Forms of Accommodation Units

The refugee shelter accommodation unit basically considers the psychological condition of the refugee, so the dynamic shape of a cylinder becomes the choice of the basic shape of the building. The transformation of additives with the addition and merger of several cylinders into several variations in the shape of the building is based on considerations of the division of functions in the layout (bedroom and bathroom) and circulation so that it is not rigid, angular, or repetitive.

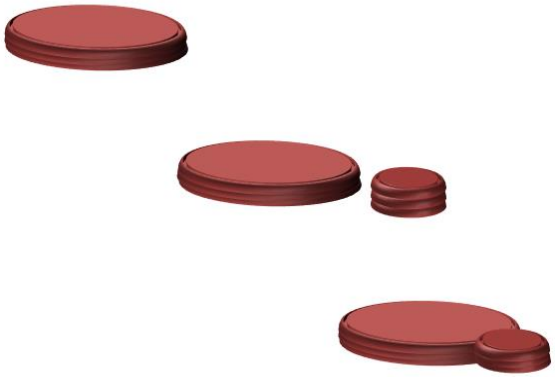


Figure 2. Shape Transformation 1

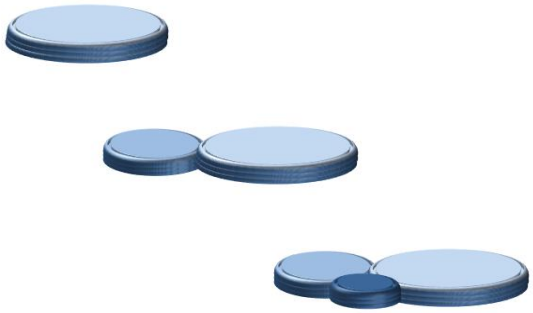


Figure 3. Shape transformation 2

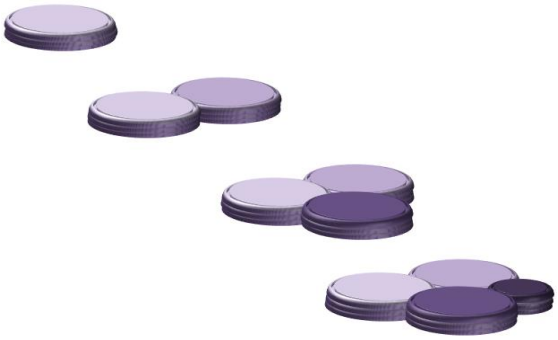


Figure 4. Shape transformation 3

b. Transformation of Communal Building Forms

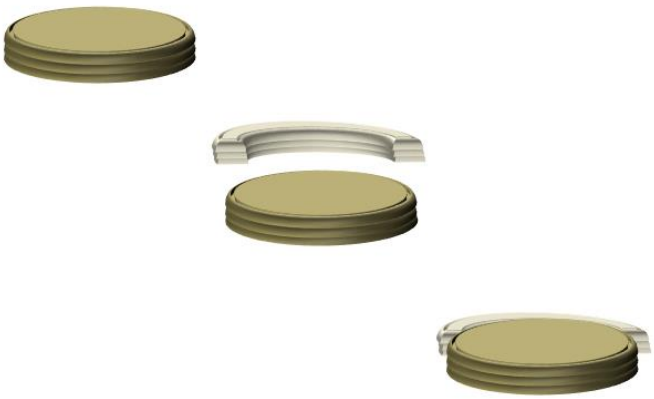
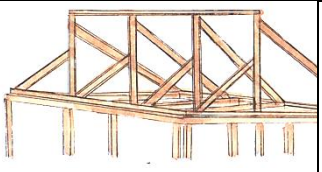


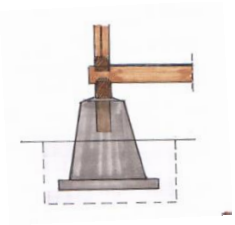
Figure 5. Transformation of Communal Building Forms

The communal building uses a cylindrical base shape which functions as a center of communal activities in the form of a multipurpose room and undergoes an additive transformation with the addition of a U-shape to produce centralization of functions, namely registration/ administration rooms, case management, counseling, training, health care, and communal kitchens.

A. Building Structure Concept

Table 5. Building Structure Concept

No	Types of structures	Criterion	Selected Structural Materials	Application to Building Design
1	*Upper structure*	• Resistant when exposed to sea breeze salt content, so as not to cause a change reaction to the material •Resistant to salt water, so it is strong when exposed to seawater •Pliable and strong, so it is easy to form curved and the tissue is strong •Materials are widely found on Selayar Island, so they are efficient in time and logistics costs	 **Figure 5.** Bamboo roof frame	The roof frame is made of bamboo because it is flexible (malleable) and strong
2	*Super structure*	•Resistant when exposed to sea breeze salt content, so as not to cause a change reaction to the material •Resistant to salt water, so it is strong when exposed to seawater •The density and hardness of the wood is high, so it is resistant to water and insects and does not need too much care •Many materials are found on Selayar Island, so it is efficient in logistics time and costs	 **Figure 1.** Laminated wooden frame and bamboo wall	The wooden frame will be combined with laminated bamboo walls so that it can become a *breathable wall* that supports the entry of natural habitation, but is resistant to pest disturbances

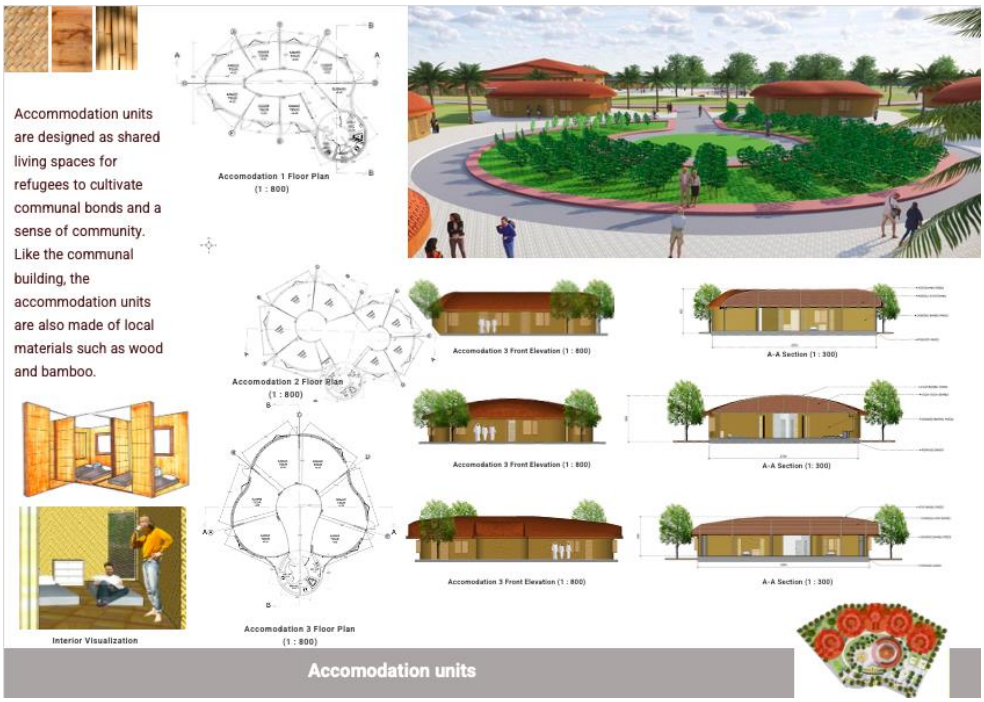
3	Bottom structure *(substructure)*	•Suitable for simple construction •Suitable for stacking wooden frame poles •Resistant to earthquakes •Materials are widely found on Selayar Island, so they are efficient in time and logistics costs	 **Figure 2.** Umpak foundation	The umpak foundation is supported by a stone foundation that is in the ground and a sloof as a binder for the structure, as well as a haul that enters the stone umpak axle from the bottom of the umpak or pole

3. Schematic Design and Site Plan

Site Plan (1:400)

4. Communal Building Design

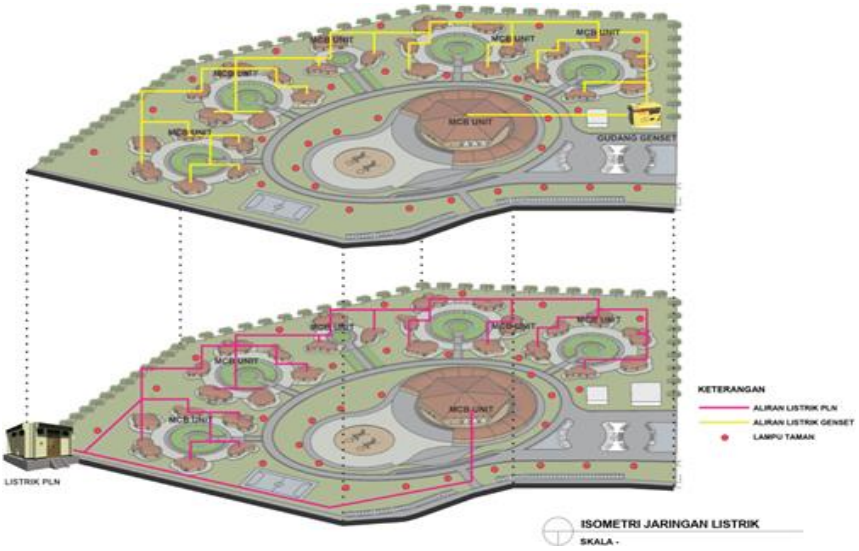
5. Accomodation Units Design



6. Circulation System

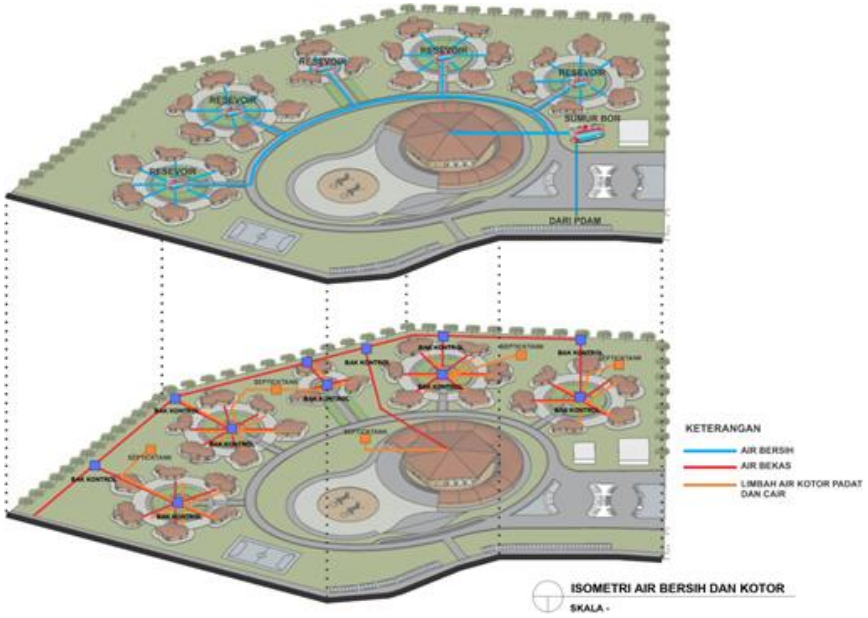
The circulation system is divided into 3, namely circulation outside the site, circulation within the site, and circulation in the building environment

7. Electricity System



Electricity is sourced from PLN And (State Electricity Company) generators so that the electrical system in the building will remain connected to the PLN network as the primary source of electricity and divert the electricity source from the generator warehouse if the PLN electricity condition is interrupted.

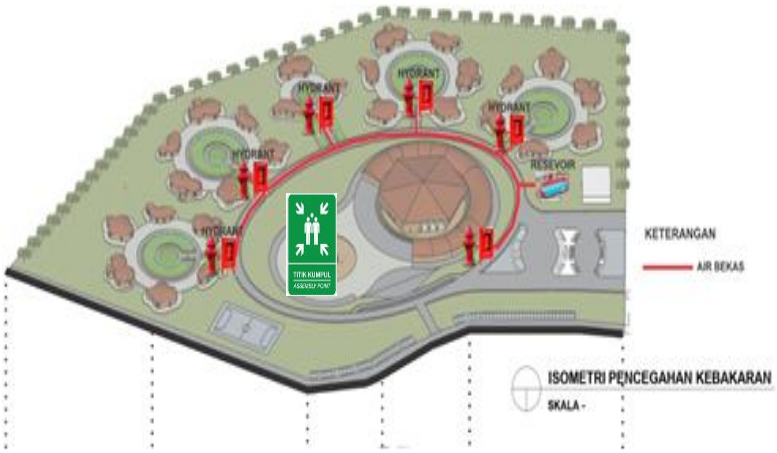
8. Clean Water and Dirty Water System



This building uses a rainwater harvesting system (accommodating and treating rainwater). Water from the PDAM (Municipal Waterworks) in-ground tanks is distributed directly to the communal buildings and reservoirsofeach accommodation cul-de-sac.

In addition, dirty water will be processed into secondary water with a wastewater treatment plan system. After solid and liquid waste are separated in a septic tank, the waste will pass through a soil filtration treatment system to be filtered and reused as water for watering plants.

9. Fire Fighting System



Hydrant systems are placed in each cul-de-sac and communal building, so they are easy to reach if there is a fire. The playground is used as a safe assembly point to gather residents during the event of a fire.

10. Communication System

The communication system is divided into 2, namely telephone and walkie talkie. The telephone is the main means of communication, while the walkie talkie is used by the security department and in times of emergency.

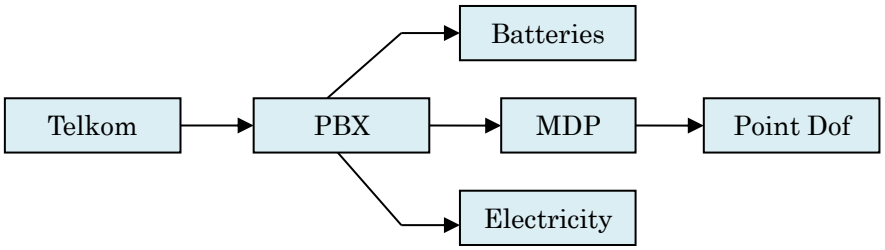


Figure 17. Phone installation system

The telephone network from Telkom is connected to a PABX (*Private Automatic Branch Exchange*) device as a control station. Furthermore, the phone is routed to the MDP (*main distribution panel*) and telephone distribution points.

11. Surveillance System

The surveillance system uses a CCTV system.

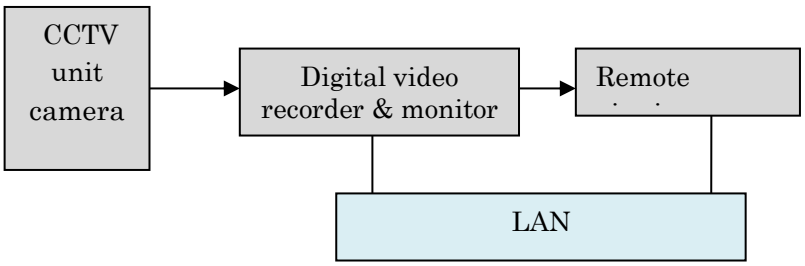


Figure 18. CCTV installation system

CCTV unit cameras are installed at points to be monitored. After that, the recording results will be transmitted to digital video recorders and monitors. So, the supervisor can see the recording display with *remote viewing*.

12. Sound System

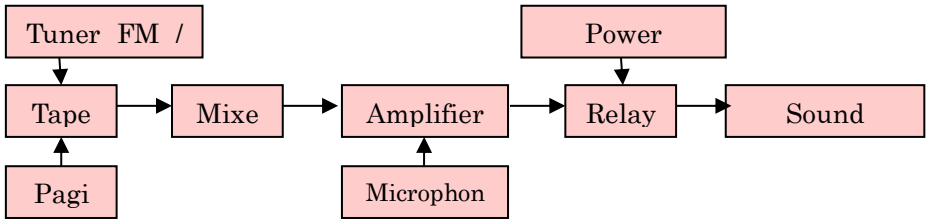


Figure 19. Sound installation system

A sound system is urgently needed in refugee shelters to appeal to refugees.

Conclusion

Currently, there are refugee accommodation facilities in Makassar City, South Sulawesi. However, these facilities are still far from meeting the standards of fulfilling the various basic needs of refugees and the government in charge of tracking, coordinating and sending them. Therefore, we designed a refugee shelter on Selayar Island, South Sulawesi based on a literature review of standard refugee shelters and existing precedent buildings as well as macro and micro analysis. The results of designing refugee shelters are 1) Analysis of site selection and selected sites that are most strategic in meeting the needs of refugees and convenience for the government to send refugees to third countries 2) Site plan management based on a zoning system that can make it easier for refugees to mingle with local residents and protected from threats of kidnapping and sexual harassment as well as the government and related NGOs to monitor and organize recovery programs for refugees 3) Selection of building designs and materials that are suitable for the tropics and can be built with local capacities.

The refugee problem is a complex and varied issue. A result of designing refugee shelters in one location may not necessarily be applicable to refugee cases in other locations. However, the method and approach used by the author in designing can be a reference for related academics/practitioners when planning to design refugee shelters in the future. The authors suggest that designers consider standard aspects as well as pre-existing buildings which are balanced with wisdom in incorporating local elements such as climate and culture in order to create a synergy with the surrounding environment.

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