

# Strategy For Improving The Physical Quality of The Terong Traditional Market In Makassar City, South Sulawesi, Indonesia

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## Abstract:

The Terong Market, as one of the economic centres in the city of Makassar, has a big problem regarding convenience. Unorganized buildings form a culture that is not environmentally friendly. This study provides solutions for building physical improvements to create visitor comfort. There are lighting, ventilation, circulation, accessibility, sanitation, and green open spaces. The results of the analysis show that the design of changing the floor area by forming voids is the best solution. The void space is a source of lighting and ventilation in the market building. In addition, the wide corridor around the opening makes it easy for visitors to access all sides of the market. The sanitation system focuses on draining waste water from sales activities on the basement floor. In contrast, the top floor is the focus of green open space planning.

**Key Word:** Building; Lighting; Ventilatio; Accessibility.

## I. Introduction

The traditional market moved people's economy in Indonesia dozens of years ago[1]. This type of market has grown along with the expansion of settlement and influence structure city. The market as a meeting medium between seller and buyer functions economy. It is a source of growth and well-being for the public town. In development, interaction in traditional markets becomes a shaper character humanist and strong constructive bond between inhabitant society. Wisdom locale developed in a city can also be started from customs in the conventional market.

The existence of traditional markets in several cities in Indonesia experienced a threat consequence development of modern market forms. Central Bureau of Statistics Data 2021 released the current percentage market as much as 11.6%. This value increases if compared to data for 2019 with a percentage of 10.97%. Growth interest towards the modern market and quality service and comfort facilities continue to grow. While the traditional market experience a decline in sales, very minimal market facilities and no comfort for the buyer. Even part big building in Indonesia was built 20 years ago without a renovation process.

Market conditions traditionally are marked with appearance building that doesn't fulfil condition aesthetics consequence low care. An appearance more bad consequence arrangement stalls sales that don't want regular. Likewise, standard systems pertaining circulation of people and vehicles cause inconvenience for visitors and buyers, to transact. However, thus, this market is still crowded because it gives a choice of low prices compared to modern needs.

Terong Market is a traditional market, the largest in Makassar City, built with form building modern architecture. Even the building This be equipped with an escalator and elevator as tool transportation from floor to floor. However, Because No exists care, then facility the No works. Storey building four the at first arranged with fine; however, Because of minimal management and supervision, this facility is so chaotic. Condition wrong others are many traders selling on the edge road and the market page and cause density vehicles and people.

However thus, this market still exists and be centre of trading vegetables and produce earth in South Sulawesi. This market becomes an indicator of vegetable prices for Makassar and its surroundings. With condition facilities, a lousy market building behind important function market economy causes the need exists effort

arrangement building as well as facilities. Efforts aim: To create comfort for visitors and sellers to sustain market activity.

Understanding comfort revealed in several references is related to conditions with sensation body like beauty, cleanliness, aroma and tidiness [2]. Another sense is that comfort is related to conditions in the environment or feeling of man's influence from outside, like temperature, colour, lighting, lighting, sound, and others [3]. There are two crucial aspects of comfort: visual comfort and thermal comfort. Visual comfort can be achieved with good level lighting, whereas comfort is thermally supported with sufficient ventilation.

Lighting is essential for internal market users choosing goods and transactions [4]. Lighting buildings can be sourced from the sun and can also be something lighted artificially. However, the lighting experience choice is better-considering savings energy and good ventilation formed of the exchange process air inside the building. The more many insiders building, then the more great need will circulation air. Comfort can be achieved if Genre air in the building goes optimally and delivers coolness for occupants. Natural ventilation inside the building guarantees a good and healthy atmosphere with proper stability.

Besides lighting and ventilation, comfort can also be formed If the market building is spared from rotten smells and the system has good drainage. Traditional markets generally sell material wet wet such as fish, meat, vegetables, tofu and some commodity that use lots of water at times sales. Hence, drainage becomes important To avoid existing deep puddle market buildings.

The risk of smelling rot is also very high in traditional markets due to the decomposition process of organic material (vegetables, fish and fruit). Kindly theory, management rubbish is divided into sorting, collection, transportation, processing, and processing [5]. With good management, the risk buildup of rubbish can be reduced. Because of that, garbage management becomes essential in achieving comfort for visitors in the market.

Green open space in the market is an essential element for the convenience of visitors and sellers. Apart from being carbon absorber, the function of plants on the market also functions as shade and sun protection. With its aesthetic level, green open space can comfort visitors when visiting the market. Based on the description above, the efforts to arrange the Terong market in creating visitor comfort by paying attention to six aspects, namely lighting, ventilation, circulation, accessibility, sanitation, and green open spaces.

## II. Material And Methods

This study used descriptive qualitative phenomenology by making observations at the research location for indicators of lighting, ventilation, circulation, accessibility, sanitation, and green open spaces. Furthermore, environmentally friendly Traditional Markets are developed by designing according to architectural and physical building standards. This research was conducted from January 2022 - September 2022. This research used primary data, namely the users of the Terong Traditional Market, who were key informants and secondary data through documentation and supporting documents. Furthermore, researchers use other research instruments such as; (1) Interview guide, (2) observation guide, (3) Documentation Notes (CD), and (4) Field Notes (CL).

## III. Result

### Initial Condition

#### Condition Physique building

The Terong Traditional Market building is a traditional market selling community staples such as rice, vegetables, fish and dry ingredients. In addition, there are also stalls selling clothes and secondary needs. Its strategic location causes this market to be visited by many people, and it operates from early morning to late afternoon. A description of the physical condition of the building is revealed in table 1.

**Table no 1: Conditions Initial Physical Building**

Physique Building	Condition Market Building	
Looks Front	The wall paint outside is dark and dull Wall chipped and very dirty	
Looks Side and Back		
Inner _ Building		
	Place Selling	Market Conditions
Basement	Place sale of fish, meat beef, meat chicken and such place milling meat	the basement floor is wet, and there puddle
Floor One	Place merchandise bags and gold and place storage stock goods.	The floors many are broken, lack broken ventilation and the elevator
Second floor	Place selling material broken split, tools Cook or tools kitchen, sandals, shoes, coat traders rain and clothes	Ceiling holes, lots of broken lights, no rolling door function, circulation, no air Good, and no availability place trash.

Floor three	Not in use selling	Ceiling holes, walls peeling and dirty consequence fire
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**Ventilation and Lighting in Traditional Market Buildings Terong**

Community activities for selling and shopping require comfort in the building. Comfort is caused by lighting and ventilation. A description of ventilation and lighting is shown in Table 2.

**Table no2:Conditions Building Facilities**

Market Facilities	Market Conditions
Ventilation	Lack of ventilation, windows and doors on each floor of the market
Lighting Experience	Lack of ventilation, windows and doors on each floor of the market
	The void does not function
Lighting Artificial	The amount lights that don't function

**Accessibility Building**

**Circulation Walkers**

The Terong Traditional Market has a busy activity filled with visitors and sellers. The dense market conditions made it difficult because each corridor was only 1 meter wide. In addition, the distance of the parking lot from the entrance area makes visitors park their vehicles on the body of the market road, which can cause traffic jams. A description of pedestrian circulation and vehicle circulation is revealed in Table 3.

**Table no3:Accessibility Building**

Market Facilities	Market Conditions
Circulation Walkers	The door to enter the west side is visible and grungy, and the front floor door is muddy
	Often happen, jostling on all part door enter the traditional market Terong
	Corridors with a size of 1 meter make it difficult for buyers To move from one place to another. Especially in tight conditions
	Floor corridors that are muddy and do not support
Circulation Vehicle	Land parking is available in section lower ladder floor one.
	The parking area part south is not utilized enough Because too Far from the door to enter the market

**Sanitation and Drainage**

The use of clean water in the Terong market is using PDAM. The system distributes water to places that need moisture; water is pumped up to a water storage tank on the rooftop (roof of the building), totalling four water tanks. Then it is distributed to all floors that need water. The trading activity on the basement floor uses the most water because it is used to sell fish, meat, chicken, and shrimp. In addition, the condition of dirty water sanitation or drainage of the market building is very apprehensive because the supervision carried out by the market manager has not been optimal. A description of clean water and dirty water sanitation is revealed in Table 4.

**Table no 4:Sanitation and Drainage Building**

Market Facilities	Market Conditions
Sanitation	Availability of clean water amount four water tanks on the roof
	The cleanest water use on the basement floor
Drainage	There is a lot of trash in the channel drainage
	Condition drainage Already No function in a manner effective
	The height of the puddle is about 10 cm – 20 cm at a time Rain

**Waste Management**

The many activities in the market building produce much waste, so it needs good management. The terong market has dense activities, resulting in a lot of garbage. With a lot of waste, it is necessary to have good waste management. Waste management at the Terong market, namely in the afternoon, the garbage from the market building and around the market is taken. A description of waste management is revealed in Table 5.

**Table no 5:Waste Management**

Market Facilities	Market Conditions
Trash can	Lack of availability rubbish bin
	away place disposal until from each stall
	Happen buildup rubbish on almost every floor
	No exists election rubbish

**Green Open Space**

Green open space is used as a plant or placement of plant material. The benefits of green open space as a provider of the oxygen and as a conditioner for visitors and building users. The condition of green open spaces in market buildings has not been utilized properly. A description of green open space is revealed in Table 6.

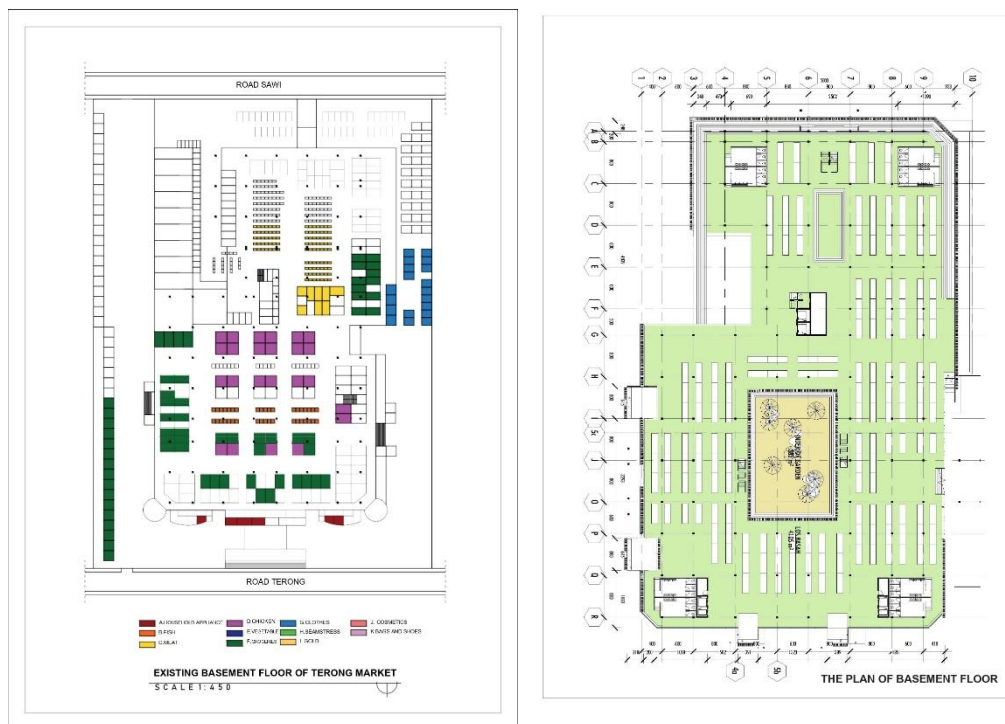
**Table no 6: Building Green Open Space**

Market Facilities	Market Conditions
Green open space	No available room open green market area
	On the rooftop, there is a small park and space open green But No function
	No, There is plant shade in the market yard
	No room particular For rest and interacting socially for visitors besides the shop

**Enhancement Quality Terong Market Physical**

Improving the physical quality of the building begins with the design of functional changes. The improvement of structure without any structural intervention as well as the basic square shape of the building. The outer wall is designed with the addition of window openings. The void is installed up to the top floor in the middle of the building. Both of these designs aim to add natural lighting and ventilation.

The basement and first-floor stall arrangement is openly designed without dividing walls. The circulation of traders and buyers is performed in a square shape that allows easy interaction and circulation. Meanwhile, on the second and third floors, stalls are limited by rolling doors. The hallway in front of the stall is designed to be 1 – 1.5 meters wide to increase accessibility throughout the building. (Figure 1).



**Figure 1. Design of Basement Terong Market**

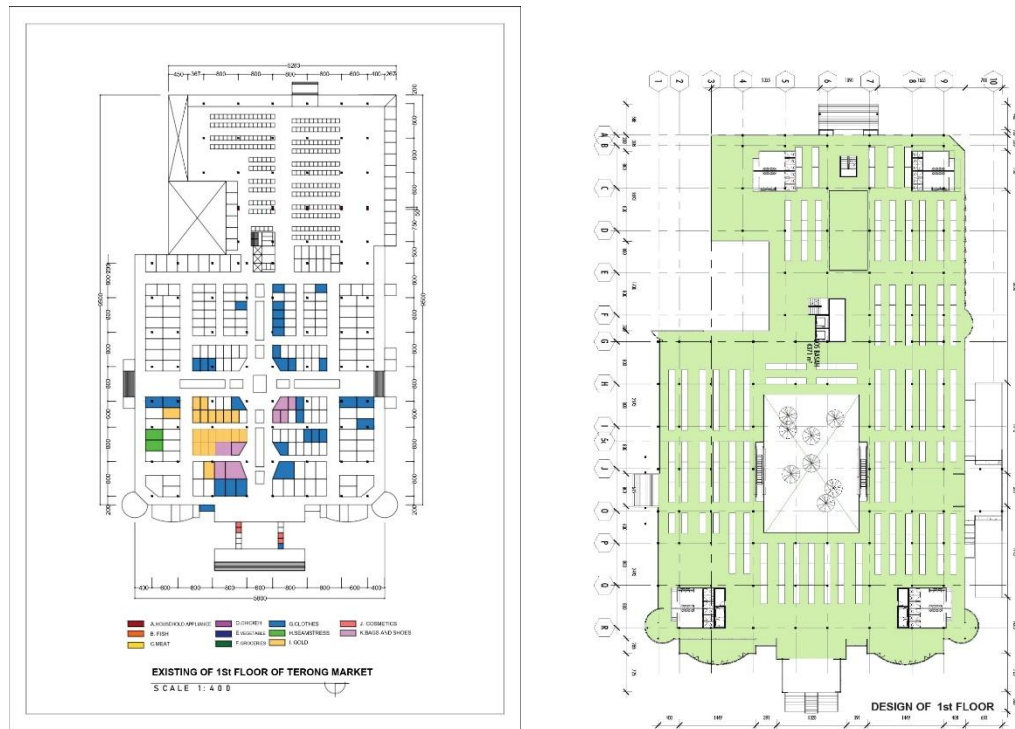


Figure 2. Design of 1st Floor Terong Market

The outside area of a building is used as a parking space for visitors. It is also used for stretches for loading and unloading goods. The design of the parking area also includes the planting of shade trees. However, seats are not provided in this area with consideration of preventing the expansion of sales activities outside the building. Development of green open spaces on rooftops to provide comfortable public spaces.

On the north side of the market, an integrated waste management facility is designed, including sorting, packaging and transportation to the final disposal site. This facility also includes an organic waste management system for compost. The description of market development is divided into five components as follows:

**Ventilation and Lighting of the Traditional Market Building Terong**

Natural ventilation as a process of air exchange inside the market building through the help of open building elements such as ventilation (vents) will save electricity. The door to the market stall must be available all day long so that air circulation occurs appropriately with the help of a fan. Hot air from the stalls or loads can escape appropriately into the openings in the walls.

Using sunlight as a source of natural lighting will save electricity and illuminate market buildings. Therefore, the opening area is enlarged. Table 7 contains descriptions of ventilation and lighting and their impact on market conditions.

Table no 7: Ventilation and Lighting

	<b>Solution</b>	<b>Impact Environment</b>
ventilation	Void on the middle part building, starting from the rooftop to the basement floor	increasing Genre air inside the building
	Available doors and vents on each stalls	Circulation air on each stall
	Exhaust van in the visible space on the side outside the building	Circulation air more Good
Lighting	Void on the middle part building, starting from the rooftop to the basement floor	Light enters the building and spreads in a manner equally
	Solar system panels as a source of energy	Use lights on the stall used at the time weather are overcast



**Accessibility Building  
Circulation Walkers**

The pedestrian system in the Terong traditional market building pays attention to biotic aspects or the flexibility of movement and the low level of movement speed. The solution for the pedestrian circulation concept is to consider the convenience of visitors in finding the items they need and aspects of physical comfort. The design of more expansive corridor spaces and the arrangement of adequate booth needs.

The circulation of goods transport vehicles and visitors to the Terong traditional market considers the ease of access to turning, loading, and unloading goods. Ease of parking is also a factor that can influence consumer shopping behaviour at the Terong Traditional Market. Table 8 describes pedestrian and vehicle circulation.

**Table no 8:** Circulation Pedestrians and Vehicles

	<b>Solution</b>	<b>Impact Environment</b>
Inside the Building (Pedestrian )	The corridor placed on the part void side with 1.5 meters wide	The corridor gives convenience for visitors To move from one place to another place with easy
		The whole side building gets the same access _
Outside of the Building (Vehicles)	Availability land ample parking with two doors enter and one door out in the East of the market	There is no congestion on the body of the market road
		In the parking area, more cars and motorcycles are organized and located in different parts _

**Sanitation and Drainage**

Utility plans for traditional market buildings are essential, especially for commercial buildings that have high activity. The canal's shape must be optimal and accommodate the maximum water discharge. Therefore, sanitation is part of the building elements and an environmental aesthetic. If it does not reduce the beauty of the building in the market building, it needs to be addressed according to conditions. In achieving the aesthetics of the building should pay attention to the abiotic environment by improving the management of environmentally friendly drainage that does not cause adverse effects on the environment. The following description of sanitation and drainage is presented in Table 9.

**Table no 9:** Sanitation and Drainage

	<b>Solution</b>	<b>Impact Environment</b>
Sanitation and Drainage	Seller material stall wet, that is, vegetables, meat, fish and milling meat placed on the basement floor with use channel stalled made from iron	Use the channel drainage stalled to make it easy for visitors to walk over the drainage
	Space available for drainage	

**Waste Management**

Waste management is essential in creating physical comfort and environmental comfort. The pattern of providing market facilities is a means of sorting organic and inorganic waste, packaging and transporting waste to the Final Disposal Site. In addition, the design of physical facilities also includes the provision of a compost processing unit. Table 10 presents the solutions and impacts achieved with waste management.

**Table no 10:** WasteManagement

	<b>Solution</b>	<b>Impact Environment</b>
Waste Management	There is a management unit rubbish	Rubbish is managed with efficient, good from facet election until to place disposal end
	Available place rubbish based on the kind	Management rubbish using the 3R is <i>Reuse, ReduceAndRecycle</i> Officers can work with easy For sort rubbish

### Green open space

As a development concept, Green Open Space is vital in creating a comfortable atmosphere for market users. The sustainable building of traditional markets suits the needs of present and future generations without compromising the ecosystem's health. The following description of green open space is presented in Table 11.

**Table no 11:** Building Green Open Space

	<b>Solution</b>	<b>Impact Environment</b>
Green open space	Provide leafy vegetation _ lush that is laid on the part the middle of the inner site buildings and rooftops	Market conditions are more excellent with existing filtering dust and hold hot sun through vegetation

### IV. Discussion

The expansion of modern market share threatens the existence of traditional markets in Indonesia. The convenience of visitors when shopping is the main reason for the weakness of conventional markets. Hot air, bad aesthetics and disorderly shopping space cause inconvenience to visitors. The characteristics of traditional markets that are smelly, dirty and dirty are common problems in Indonesia. However, on the other hand, the need for cheap and fresh food means that traditional markets are still bustling and are needed by the general public. [6].

The principle of developing traditional markets to increase visitor comfort refers to the design concept of public space. The presence of public space in cities can shape urban quality. The space creates a representation of urban community activities. Therefore, the space must be well laid out to create activities that support the city's sustainability. [7].

Furthermore, a clean and comfortable market space will create a positive perception of visitors towards the environment. This perception will give birth to an attitude to protect the environment. The weakness of this study is that it only focuses on creating visitor comfort while in the market building. In contrast, the relationship between environmental perceptions and preferences regarding public space refers to three variables. First is the feeling of stimulation or how much influence the market space has on the comfort of relaxing or enjoying the view and atmosphere of the building. The second is the feeling of security in the building, and the third is Visitability or the formation of visitors' perceptions of a friendly and comfortable space. [8], [9].

Market revitalization is an effort to improve physical and non-physical trading activities. Physically, traditional markets are designed in modern buildings and according to local wisdom. Changes in the material form of the market are expected to change society's culture. The habit of people about environmental conditions changes with the formation of a better attitude. Non-physical changes in the market or environmental education are formed simultaneously and produce market conditions that are pleasant and comfortable to visit.

### V. Conclusion

The condition of the existing Terong traditional market in Makassar City is an essential issue for the city's growth. Poorly maintained building conditions and low maintenance cause this market to produce a negative impression on visitors. Generally, the comfort conditions for visitors to this market are very low. One of the primary considerations is the solution for the physical rehabilitation of the market by providing open space in the form of voids. The Void Room is the source of lighting and ventilation in the market building. In addition, the wide corridor around the void makes it easy for visitors to access all sides of the market.

### References

- [1] Y. Yusmalina, T. Tegor, F. Haqiqi, R. E. Rosady, and N. Azura, "Comparative Analysis of Staretegi Traditional Market and Modern Markets of Consumer Valuation," *Int. J. Multicult. Multireligious Underst.*, vol. 8, no. 11, pp. 18–25, 2021.
- [2] H. Zhang, E. Arens, and Y. Zhai, "A review of the corrective power of personal comfort systems in non-neutral ambient environments," *Build. Environ.*, vol. 91, pp. 15–41, 2015.
- [3] C.-A. Roulet *et al.*, "Perceived health and comfort in relation to energy use and building characteristics," *Build. Res. Inf.*, vol. 34, no. 5, pp. 467–474, 2006.
- [4] A. Smith and M. Pitt, "Sustainable workplaces and building user comfort and satisfaction," *J. Corp. Real Estate*, vol. 13, no. 3, pp. 144–156, 2011.
- [5] K. Rousta, I. Ordoñez, K. Bolton, and L. Dahlén, "Support for designing waste sorting systems: A mini review," *Waste Manag. Res.*, vol. 35, no. 11, pp. 1099–1111, 2017.

- [6] R. Utari, T. E. B. Soesilo, and H. Agustina, "Traditional market sustainability in the perspective of market managers: A study at the Slipi Market Jakarta," in *IOP Conference Series: Earth and Environmental Science*, 2021, vol. 716, no. 1, p. 12119.
- [7] M. Carmona, "Principles for public space design, planning to do better," *Urban Des. Int.*, vol. 24, pp. 47–59, 2019.
- [8] R. Ho and W. T. Au, "Scale development for environmental perception of public space," *Front. Psychol.*, vol. 11, p. 596790, 2020.
- [9] L. S. Saragih and S. V. Meak, "Post-revitalization of traditional market in a marketing perspective," *Rev. Manag. ACCOUNTING, Bus. Stud.*, vol. 2, no. 1, pp. 58–67, 2021.

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