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2018

PROCEEDING OF 3rd INTERNATIONAL CONFERENCE ON REBUILDING PLACE (ICRP) 2018

Towards Safe Cities & Resilient Communities

13 & 14 SEPTEMBER 2018
IMPIANA HOTEL, IPOH, PERAK

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13 & 14 SEPTEMBER 2018 | IMPIANA HOTEL, IPOH, PERAK

eISBN 978-967-5741-63-0

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Faculty of Architecture Planning and Surveying

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Faculty of Architecture Planning and Surveying
Universiti Teknologi MARA, Perak Branch
Seri Iskandar Campus,
32610, Seri Iskandar,
Perak Darul Ridzuan, MALAYSIA

ICRP2018
3rd International Conference on Rebuilding Place

13-14 September 2018
ISBN 978-967-5741-62-3 eISBN 978-967-5741-63-0

EVALUATION STUDY OF PEDESTRIAN WAY'S COMFORT CASE STUDY: BLANG PADANG AREA, BANDA ACEH CITY

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Abstract -Nowdays, footways or pedestrian ways one of important public facilities because it is not only providing a connection between place to place, but also considered as a temporary shelter (Indraswara, 2006). As a growing city which survived the 2004 Tsunami Disaster, Banda Aceh has grown rapidly, so has its public facilities. However, based on an initial observation, in spite of there are several footways available across the city, only limited numbers are intensively used. In much of Banda Aceh, walking seems to be unpleasant experiences due to lack of comfort and poor facilities. In this regards, this study aims to identify individual problems of street segments by looking at the level of pedestrian's comfort and supporting elements they need in daily uses. This study selected Blang Padang area, one of the most vibrant areas of Banda Aceh and the users were interviewed using semi structured interview. In addition to interview, this study employed field observation to record existing physical conditions. The results shows that 85% of pedestrian ways around the study area are inconvenient, uncomfortable and sometimes dangerous to be used. In addition, the existing condition of pedestrian ways are in minimum condition such as its pavement, safety, vegetation, accessibility, and cleanliness; and lack of street furniture facilities. Therefore, based this, some designs are suggested to increase level of comfort in the pedestrian way around Blang Padang and Banda Aceh, so the level of pedestrian way uses can be leveled up.

Keywords - pedestrian, comfort, street furniture, perception

1 INTRODUCTION

Blang Padang square in Banda Aceh is one of the busiest pathways of the city where several vital public facilities such offices, schools and hospitals are located. The traffic on the corridor around Blang Padang square is very influential to the driving comfort that also felt by all the pedestrians that use the area. Initial observation found the condition of pedestrian way in Blang Padang field is not functional due to its physical pedestrian way condition. Article 28 Sub-Article C of Law Number 26/2007 on Spatial Planning is mandated on the need for a city spatial plan (RTRW) to include the service plan and the utilization of pedestrian way facilities and infrastructure to carry out the functions of urban areas. Therefore, the more people who use pedestrian ways will impact on the continuity of traffic around Blang Padang square. The purpose of this research is to encourage the community to use the pedestrians that has been provided often, so it can support the realization of public city space that is safe, comfortable, productive and sustainable, so that will improve the image of Banda Aceh.

2 LITERATURE REVIEW

2.1 Pedestrian Ways As City Scape

The pedestrian way includes one of the city public space support facilities provided to support traffic activity. Indraswara (2007), reveals the term pedestrian way emerged during the reign of ancient Greece, which comes from the word Pedos which means foot or walk. Pedestrian way in its function as a mode of urban connecting system that is close related to the open spaces in a city. The open space of the city serves as a transitional space in moving from one building to another building or one place to another place. Basically the pedestrian way is one form of typologies of urban public space, Carr in Muslihun (2013). In addition about being closely related to the open spaces with a city, the pedestrian way as the built environment is also closely related to the social environment in which

human behavior is part of creating an urban area. Pedestrian way can be located in the space belonging to the road, but usually followed by an increase in traffic flow. Usually the pedestrian way placement is located in residential/school, shopping centers, bus terminals, office centers, entertainment centers, social venues and industrial areas.

2.2 Pedestrian Ways Activity and Facility

User activity on area may cause differences or equations of human behavior on the environment. Based on research conducted by Iswanto (2003), there are two elements that are strongly associated with pedestrian way activity to humans on the use of urban area elements of comfort and sense of security. Pedestrianway not only as a circulation space but also has a function as a space between human interaction with the transportation around it. Pedestrian way that has already provided needs to be checked against the capacity (width), the circumstances and its use.

A road segment needs to be equipped with pedestrian ways facilities, if along the road there are land users who have the potential for pedestrian way activity growth. According to Pushkarev and Zupan in Veronica (2014) the importance of open spaces for pedestrians in the UK are sidewalks, crossings, pedestrian way bridges, safety fences, open spaces can accommodate pedestrians so that the circulation does not interfere with vehicles that cause pedestrians to feel safe and comfortable. The availability of pedestrian ways support facilities can reduce the width of the effective pavement path provided, so that the dimensions of pedestrian ways facilities are required in accordance with prescribed standards.

Table1 Facility and width of obstacle course of sidewalk

Facility	Maximum (cm)
Park bench	15 – 25
Lighting lamppost	7,5 – 10
Traffic light pole	10 – 12
Traffic sign	7,5 – 10
Mail box	10 – 12
Trash bin	10 – 25
Shade plants	6,0 – 12
Flower pot	1,5
Tree	20 - 25

(Source: Minister of Public Works Number 03/Prt/M/2014)

Pedestrian ways generally there are elements supporting the pedestrian ways facilities of street furniture on it. This is enabled to provide the comfort of pedestrians who perform activities on pedestrian way. According to Rubenstein 1992 in Muslihun (2013), the elements that should be on the pedestrian path include paving, lighting, sign or markers, guardrails, benches, shelters and canopies, clocks, bins, and vegetation.

2.3 Public Perceptions of Pedestrian Ways Comfort

Sugihartono in Muslihun (2013) states differences in the results of observation or perception is influenced by individuals or people who observe the object around it. Convenience can be felt through the assessment of the user observation. Therefore the assessment of perception is subjective depend on one's understanding is needed by the pedestrian way planner in determining what is needed by the community both personally and as a group of users. However, it should be seen that the results of perception of user perception influenced by knowledge, experience, education level, age factor, profession and everyday habit of each person is different in judging about character or physical impression to pedestrian ways comfort.

2.4 Level of Pedestrian Ways Service

The criteria of pedestrian ways service level in design pedestrian way facilities need to be considered as a basic measure of space effectiveness (pedestrian space) especially related to the

comfort of the users. The capacity of the pedestrian way should also be considered in accordance with urban public space requirements. Khisty 2003 in Tejasomara (2011) there are factors that should be considered in designing pedestrian way facilities for comfort during activities such as convenience, safety that is the separation between vehicle traffic with pedestrians and security. Therefore the level of pedestrian way service is closely related to environmental factors. Especially with regard to the behavior of users walking on the comfort obtained is also based on user perceptions.

3 METHODS

The scope of this study involves the study of pedestrian way comfort evaluation as an aspect of urban architecture. This research uses qualitative method with descriptive approach that give a description to local pedestrian way comfort either individually or certain group of people. The focal point of this research is in the Blang Padang Square area of Banda Aceh City. There are steps in data collection techniques such as: 1) Determining the population and sample research used is purposive sampling; 2) The interview used is the type of semi stucture interview; 3) Observation by observing directly on the object or subject of research; 4) Literature study obtained from the literature and references related to the title of the study. The data obtained from interviews and observations will be documented in a way collected and grouped by categories related to the subject of research.

4 RESULTS AND DISCUSSION

Public activities of existing roads along the pedestrian path of Blang Padang Square Banda Aceh area has various activities by utilizing the public space that has been provided. Regions around Blang Padang field can be directed from various directions intersection. The results of this study took 3 segments of the research zone that potentially lead to pedestrian way user activity.



Figure 1 Map of Banda Aceh City. Source: Data RTRW Banda Aceh City Year 2029

Regions around Blang Padang field can be directed from various directions intersection. The results of this study took 3 segments of the research zone that potentially lead to pedestrian way user activity.

The research have so far various facilities in the pedestrianway in each 1, 2, and 3 zone that have different conditions. All three zones are ineffective pedestrian way facilities conditions and uncomfortable for users of the walk that is zone 1 and 2. Zone 1 is mainly caused by pavement material made of ceramic is not feasible to use due to cracks and holes. Improper arrangement of trees destroys the surrounding footway material. In zone 2, pavement material has been cracked due to vehicle parking. Zone 3 material used from concrete is good but still looks hollow and not tidy. In each zone there are no lighting facilities for night lighting as the lighting and aesthetics of a city's public space.



Figure 2 Map of Around Blang Padang Street. Source: Google Earth

Therefore, the availability of pedestrian way in Zone 1, Zone 2 and Zone 3 is very supportive as the supporting element of an urban public space, resulting in various activities around it. Similarly, as stated by Danoe Iswanto (2003) in his research that is what makes people use pedestrian path in Semarang City on the hero street, because the area is in the center of offices and trade so much of the pedestrian way activity in the area.



Figure 3 Existing pedestrian wayszone 1, zone 2, and zone 3. Source: Field observation, 2018

The survey interviewed 30 respondents. Characteristics of respondents by sex are 14 male respondents and 16 female respondents. Visitors to pedestrian paths are dominated by young people and parents aged 20-50 years old. By the 30 sample interviews at the research sites, 60% were with pedestrian path users, 27% were informants in the Blang Padang field, only 13% were interviewed with parking user in the pedestrian way area of Blang Padang, Banda Aceh. After conducting observations and direct interviews with the respondents, the researchers found various activities that took place in the pedestrian path of Blang Padang, Banda Aceh City, such as walking, sitting, vehicle parking, temporary shelter, jogging and so on.

Based on the results of interviews with a number of respondents there are 5 comfort factors that are very influential on pedestrian way users when doing activities in the pedestrianway of Blang Padang area. As shown in the graphic Figure 4.

The graphic shows the perception of interview to the pedestrian way user has several factors respectively affecting the comfort in using the pedestrian way facilities in the Blang Padang field. The five factors that greatly affect the user's convenience when passing the sidewalk from 30 respondents stated that the physical condition of the road (material pavement) is highest at 35%. Insufficient width dimensions are around 25%, 21% green path arrangement, 13% cleanliness and 6% security. The main factor that affects the comfort of walking users is pavement, because with the condition of pavement material that is not good can disrupt the free movement in the move.

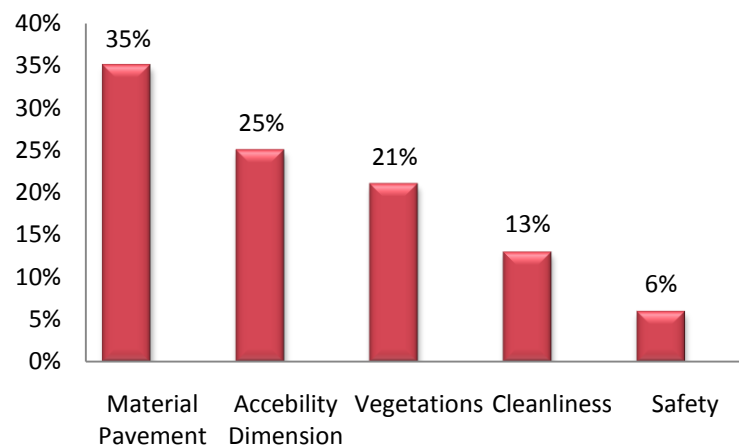


Figure 4 Pedestrian Ways Comfort Aspects. Source: Research Results, 2018

Respondents' perception as much as 80% want especially the physical condition of the road is planned better than before for the convenience when on the move. Arrangement of neat trees so there are no twigs that are not irregular. As disclosed according to Rubenstein 1992 (in Muslihun 2013) can be seen that the pedestrian way supporting element one of the vegetation, in addition to having aesthetic value also to improve the quality of life in the move. An activity arrangement should take into account the amount of walking space of pavement users. Observation results show as much as 70% of the number of pedestrians per meter based on the pedestrian way dimension of 3 or 4 people walking. This indicates that the circulation volume should be the width of the pedestrian way dimension of 1.5 or 2.5 meters in accordance with the rule of the Minister of Public Works No. 03 / PRT / M / 2014.

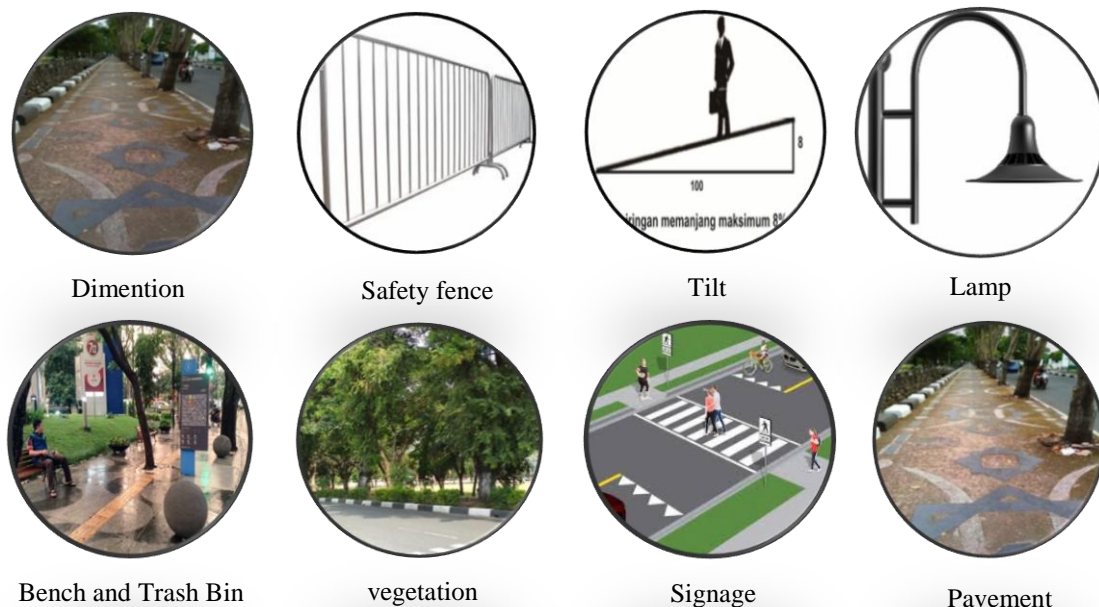


Figure 5 Pedestrian Ways Planning. Source: Research Results, 2018

The results of interviews conducted on 30 respondents have the same statement about the factors that affect pedestrian way comfort, as much as 85% said the pedestrian way is not comfortable to walk, because pedestrian way function is misused by other users of the activity and the physical condition of the road is not feasible to use.

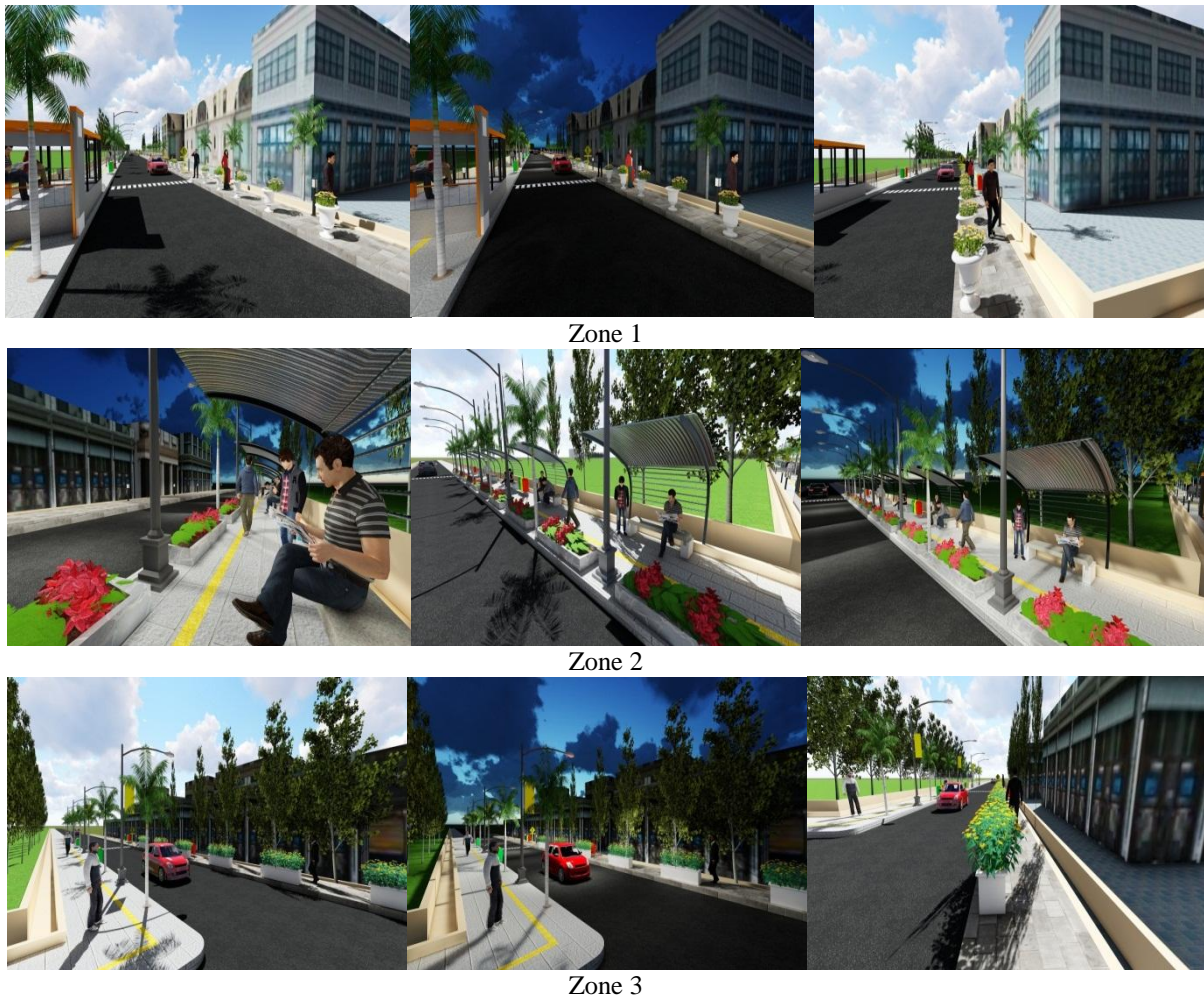


Figure 6 Design Recommendation Results. Source: Author, 2018

The above design recommendations based on observations in the field and the results of research indicate the need for special attention to the existence of street furniture pedestrian path as the fulfillment of comfort needs for the user as a city public space. The dominance of pedestrian way user perceptions of the pedestrian way support facilities most needed for the convenience of the activity is the crossing sign of one of the most desired facilities of users as much as 37%, followed by waste bins facility around 23% because based on observations in the field seen scattered rubbish, safety of 16%, resting facilities about 14% and rest lighting facilities 10%. The results of interviews conducted on 30 respondents have the same statement about the factors that affect pedestrian way comfort, as much as 85% said the pedestrian way is not comfortable to walk, because pedestrian way function is misused by other users of the activity and the physical condition of the road is not feasible to use.

As Rustam Hakim and Hardi Utomo (2003) convenience is the most important aspect of everything that shows the pedestrian space in good shape various forms such as textures, colors, symbols, and others. The pedestrians admitted that sometimes they have a sense of laziness crossing in the crossing area due to poor conditions even the motorists do not care about pedestrians.

5 CONCLUSION

The physical condition of the pedestrianways is a more dominant factor that supports the comfort of the user. However, to achieve the availability of good urban public space is required to establish a complementary facility of pedestrian way such as a street furniture that required by the citizens of Banda Aceh City for the convenience and safety of the pedestrian way user that has been provided. In addition, with these improvements hoping that people would prefer use the pedestrian

way as the secondary community transportation to make a city more clean, beautiful and pollution-free for urban environment in Banda Aceh City. For the government and related parties, it is advisable to revitalize the pedestrianway around Blang Padang Square in Banda Aceh City by disciplining parking lots that can disturb pedestrians on pedestrian lanes. Divide the public space in accordance with the activities and functions of their respective activities.

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