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Sustainable Implementation of Universal Design in Slums: A Case Study of Taman Odah Bekesah, Samarinda

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ABSTRACT

The city of Samarinda has a vast natural landscape, and there are many open spaces that have not been optimally utilized. City parks and neighborhood parks, along with the built infrastructure, serve as spaces for activities in open areas that must accommodate inclusive principles and apply universal design. These parks are part of public spaces, which are closely related to the social life within them. In Taman Odah Bekesah, it was found that several built infrastructures have not optimally applied universal design. The aim of this research is to examine and analyze the implementation of universal and inclusive design principles at Taman Odah Bekesah using a qualitative descriptive method. This research can serve as a form of architectural and regional critique in the context of public spaces to support environmental and social sustainability. The results of this research indicate that the infrastructure built in two segments of Taman Odah Bekesah has not fully implemented universal design.

INTRODUCTION

Samarinda is often associated with the origin of the word "*samarendah*", which geographically refers to its topography of lowlands and hills evenly distributed from north to south. "*Samarendah*" also carries a philosophical value, symbolizing the principle of equality among the people of Samarinda. Based on the Human Development Index (HDI), which takes into account average life expectancy, average years of schooling, and expected years of schooling, Samarinda ranks the highest in East Kalimantan. However, efforts to reduce maternal mortality rates and address stunting are still ongoing, supported by social and health programs, especially for vulnerable populations such as the elderly, pregnant women, and children (Devina et al., 2023) and (Badan Pusat Statistik Kota Samarinda, 2024).

Samarinda also envisions itself as a livable and resilient city of civilization. In terms of public space provision, Samarinda is striving to create areas with potential as Green Open Spaces to be optimally utilized as multifunctional spaces. To create an inclusive city, a participatory approach is needed in planning and implementation to accommodate all groups that will utilize the facilities and infrastructure based on universal design principles. An inclusive city with gender equality can be achieved through the Sustainable Development Goals initiated by the United Nations, where sustainability becomes a necessity in both environmental and social development. While sustainability originally stemmed from environmental concerns, the concept has now expanded to include various other aspects of human life, such as the economy and social well-being. One often overlooked aspect of sustainability is within the social domain. Understanding sustainability from a social perspective involves equal opportunities for everyone to

attain a better quality of life, including gender equality and accessibility for all, including people with disabilities (Madina & Kusuma, 2022).

Parks, Greenery Open Spaces, and Accessibility

Greenery open space also known *"ruang terbuka hijau"* (RTH) based on *Peraturan Menteri ATR/BPN* No. 14 of 2022 is an elongated/striped and/or grouped area whose use is more open in nature. RTH consists of Public RTH and Private RTH (Fatimah et al., 2013). The Public RTH that can be provided, utilized, and managed are those that have aspects of ecological, water catchment, economic, aesthetic, disaster management, public health, and socio-cultural functions (Rahman & Kautsary, 2024) and (A. C. K. Lee & Maheswaran, 2011). One of the socio-cultural functions that are prioritized is community interaction space, recreation, productivity, and health support. The typology of RTH is determined based on its spatial utilization as regulated in the regional and urban spatial planning (RTRW and RDTR) of the Planning Area. Based on *Peraturan Menteri Pekerjaan Umum* No. 05 of 2007 concerning urban design guidelines (RTBL), parks can be public spaces whose physical characteristics are open, free, and easily accessible to the public because they do not belong to a particular party (G. K. Kurniawan et al., 2020) and (Mensch, 2007).

Land use based on land cover in Samarinda is dominated by agricultural and plantation areas. Settlement areas in both urban and rural typologies amount to 108,203 hectares or 15.1% of the total administrative area of the region. Based on data on the inventory and management of greenery open spaces, of the total area of Samarinda, only about 39.78 hectares or managed by the Environment Agency *(Dinas Lingkungan Hidup Kota),* which is spread across 9 sub-districts. This data shows that public spaces are still lacking in availability to be utilized by the people of Samarinda. greenery open spaces can be in the form of parks that are gender-responsive and inclusive, so that they can be maximally utilized and form the character of a livable city. The availability of parks is not only seen from the quantity, the main thing is that the quality can meet the criteria for good public spaces.

In public spaces, accessibility is defined as access or achievement into, out of, and using all facilities in the environment by everyone (H. Kurniawan et al., 2017) and (Rahma, 2018). The accessibility to a space indicates the access point used by each person and their method of approaching the space. This refers to the transition made by each person from the outer to the inner space. (Ching, 2015) explains that there are three types of achievement namely: (1) frontal achievement; (2) hidden achievement; and (3) spiral achievement.

Demographic Conditions and Persons with Disabilities in Samarinda

Based on *Undang-Undang* No. 08 of 2016, the term disability refers to the condition of a person who has physical, intellectual, mental, and/or sensory limitations for a long period of time, has obstacles in interacting with the environment, and causes limitations in carrying out daily tasks (Anugrah & Sukapti, 2022). In addition to people with disabilities, vulnerable groups who have limitations are people with low income and extreme poverty, women (pregnant and lactating mothers), children, and the elderly. In

the implementation guidelines of the New Urban Agenda from UN Habitat related to the provision of access to basic services, a livable city is one that has inclusive and participatory principles, which involves all groups of society including vulnerable groups. Involvement is not only in terms of access utilization, but also since planning and preparation (Sarosa, 2017).

Samarinda is the capital city of East Kalimantan Province which has an area of 71,678.36 hectares, consisting of 10 districts and 59 villages. Based on demographic data, the total population of Samarinda is 838,935 people. The largest population based on age group is those aged 10-14 years, while based on gender the male population dominates with 426,799 people. (Anugrah & Sukapti, 2022) also explained, based on data collected from the Samarinda Branch of the Indonesian Disability Association also known as "*Perhimpunan Penyandang Disabilitas Indonesia" (PPDI)* in 2022, it is known that the number of people with disabilities spread across Samarinda is dominated by people with physical disabilities (paraplegia, cerebral palsy, and dwarfism), the rest consists of sensory, mental, intellectual disabilities, and multiple disabilities (deaf-speaking and deaf-blind). Most people with disabilities were in district of Samarinda Ulu and Sungai Pinang.

Universal Design Principles

Universal design is an approach and reference to respond to the needs of diverse types of populations based on age, gender, attributes, and abilities with an inclusive mindset so that it is not limited by certain stigmas (H. Kurniawan et al., 2017), (H. S. Lee & Xie, 2024), (Persson et al., 2015), and (Ayşe Sirel & Osman Ümit Sirel, 2018). Built infrastructure that becomes a place for activities, both buildings and open spaces must accommodate inclusive principles and apply universal design. (Mace et al., 1996) from North Carolina University put forward the main principles of universal design, among others: (1) equitable use; (2) flexibility in use; (3) simple and intuitive use; (4) perceptible information; (5) tolerance for error; (6) low physical effort (Aldosari, 2024); (7) size and space for approach use (Nopianti et al., 2023).

The adaptation of the above approach through *Peraturan Menteri PUPR* No. 14 of 2017 concerning Building Facilities Requirements in article 5 paragraph 1 explains that the principles of universal design include: (1) equality of use of space; (2) safety and security for all; (3) easy access without barriers; (4) easy access to information; (5) independence of use of space; (6) efficiency of user efforts; and (7) ergonomic suitability of size and space (Prasetyorini et al., 2023) and (Belia & Setyowati, 2023).

RESEARCH METHOD

The research method is to use a qualitative descriptive approach by collecting primary data in the form of images and photos through direct observation of data sources and field surveys at the research location (Sugiyono, 2010) and (Creswell & Creswell, 2018). The limit/scope of the substance is public space with the category of neighborhood parks. The physical limit/scale of the space that is the object is a neighborhood area. The data collection was carried out by: (1) literature study by collecting secondary data and information related to relevant laws and regulations, references to infrastructure that can

be easily accessed by all (universal access), as well as several articles related to the assessment of the implementation of universal design; (2) observation and field survey after knowing several sources of information and secondary data that are relevant to the topic of discussion in the study; and (3) analyzing based on the results of measurements and observations on objects that are quantitative in nature to determine the design criteria that have or have not been fulfilled through reference to *Peraturan Menteri PUPR* No. 14 of 2017, SNI No. 03-1733-2004 concerning procedures for planning residential environments in urban areas, and the last NDA: A Universal Design Approach, Center for Excellence in Universal Design (Noviana & Hidayati, 2020) and (Masruroh et al., 2015).

The research location was Taman Odah Bekesah, which is one of the neighborhood parks/public spaces in Samarinda Ulu district, precisely in Dadimulya Village and Bandara Village. This park is separated by a river that divides the area into two, namely the Karang Mumus River which is a tributary of the Mahakam River which is the pulse and source of raw water needs in Samarinda. This park is typologically included in the greenery open spaces or RTH typology that functions as local protection, and is categorized as a neighborhood park (RTRW and RDTR). The park area is 4,250 m² with flat contour conditions. The park area is surrounded by houses and residential neighborhoods that are included in the Decree on Slum Location Determination in Samarinda *(Surat Keputusan Walikota Samarinda tentang Lokasi Kumuh).* Taman Odah Bekesah began construction in October 2019 and was completed in January 2021.

RESULTS AND DISCUSSION

Taman Odah Bekesah based on the spatial configuration is surrounded by slum areas which are strategically located in the down town. The ones that are directly adjacent to the park are slum housing on the west and east sides, river border areas on the south side, and bridges/vehicle lanes on the north side. Taman Odah Bekesah can be divided into 2 (two) segments, namely the western segment and the eastern segment which stretches linearly along 450 m. The park area is 4,250 m². In the western segment, the existing elements analyzed consist of entrances, pedestrian paths, plaza, amphitheater, stairs and ramps, rest room, and parking space. In the eastern segment, the existing elements analyzed consist of entrances, parking space, pedestrian paths, plaza, stairs and ramps, and integrated buildings (*Pos pelayanan terpadu* also known as "integrated health service post", rest room, and micro library), as shown in the figure 1.

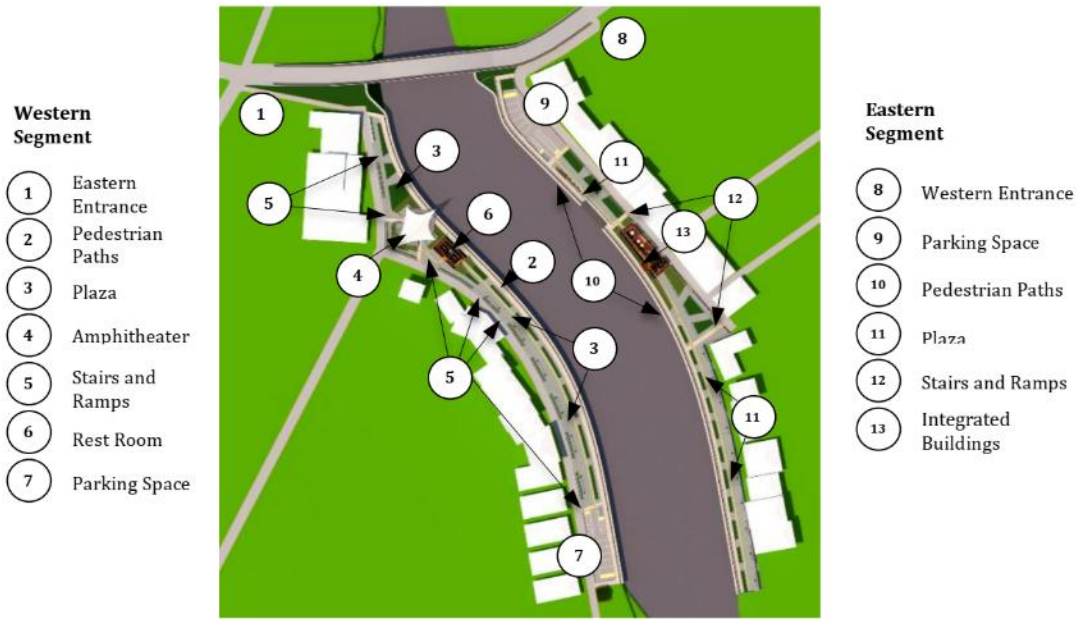


Figure 1. Existing Layout. (1-7) Elements at Western Segment, (8-13) Elements at Eastern Segment

Entrance (Western Segment)

Existing conditions of entrances in the western segment faced with the problem of land supply. Hard material elements are concrete pavement/rigid roads for 2 and 4-wheeled vehicles, and closed drainage that empties into the river border, as shown in the figure 2.

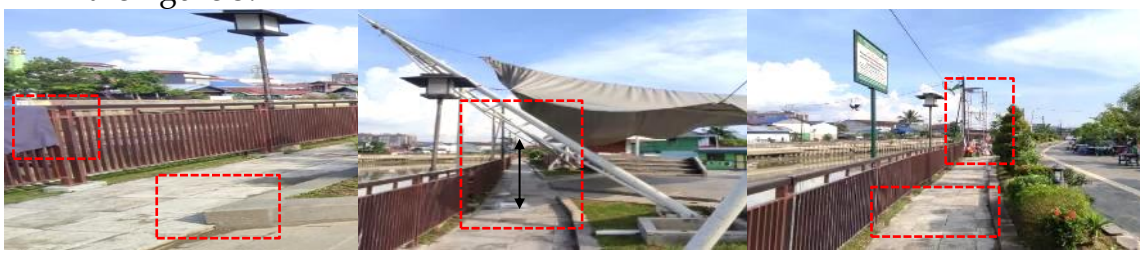
(a) (b)

Figure 2. Western Entrance. (a) Objects Around Entrance, (b) Vehicle Circulation and Hard Material Elements

Based on figure 2, problems found in photo (a): the entrance width is only available 2.1 m with a turning radius at the entrance area attached to the abutment side of the pedestrian bridge so that 4-wheeled users must take turns in order to enter the park area. Utility poles block the provision of pedestrian access. In photo (b) after passing through the narrowed entrance there is a 1.2 m wide pedestrian path, but there is no guiding path available as a direction for disabilities. The bollards placed are good enough, aiming to prevent the area from becoming a parking lot, but result in the placement of vehicles on the side of the road that disturb road users. At the end of the road towards the park, the corner is broken without any radius minimum for 4-wheeled vehicle maneuvering.

Pedestrian Paths (Western Segment)

The pedestrian path consists of hard material/pavement in the form of non-slip terasso tiles. There is a 90 cm high hand rail with square hollow material on the left side. On the right side there is a planter box containing shrub vegetation and groundcover in the form of grass as a soft material element that limits the pedestrian area with other open areas. Furnishing elements along this path are found, namely garden lights and signs prohibiting throwing objects into the river. The width of the pedestrian path is 120 cm, as shown in the figure 3.



(a) (b) (c)

Figure 3. Pedestrian Paths. (a) Planter box and Hand Rails, (b) Structure of Membrane Roof, (c) Hard Material Elements

Based on figure 3, problems found in photo (a): The hand rail is used as a drying area by the surrounding community and there is a planter box with sharp corners. In photo (b): iron/pole supporting the membrane roof in the sloping amphitheater area, the height is not significant (± 1.75 - 1.80 cm right on the pedestrian path). In photo (c): there are no guideways, no directional signs and evacuation routes and construction/repair work that is not equipped with APK (Occupational Protective Equipment) was found as standard in construction OSH (Occupational Safety and Health).

Plaza (Western Segment)

The plaza area consists of hard material/pavement in the form of non-slip burnt andesite natural stone and planter boxes containing shrub vegetation and groundcover in the form of grass as soft material elements. Furnishing elements in this area are park benches, park lights, and 3R trash cans. The area of the plaza varies and there is a guiding path, as shown in the figure 4.

(a) (b) (c) (d)

Figure 4. Pedestrian Paths. (a) Planter box and Hand Rails, (b) Structure of Membrane Roof, (c) Hard Material Elements

Based on figure 4, problems found in photo (a): the difference in height/level between the park pavement area and the planter area without being limited by curbs/canstones. In addition, because the park is close to a slum neighborhood, people do not orderly place

vehicles, carts, and clothes drying places. In photo (b): the difference in height/level between the park pavement area and the planter area without curbs/canstones. There is also an access clearance of less than 90 cm, making it impassable for wheelchair users. In photo (c): inappropriate placement of community belongings in place, blocking neighborhood trash cans. In photo (d): there are planter shapes boxes with sharp corners.

Amphiteater (Western Segment)

The amphitheater area consists of hard material/pavement in the form of non-slip burnt andesite natural stone, planter boxes containing shrub vegetation and groundcover in the form of grass as soft material elements, and a membrane roof structure that protects from heat and rain in the stands area, as shown in the figure 5.

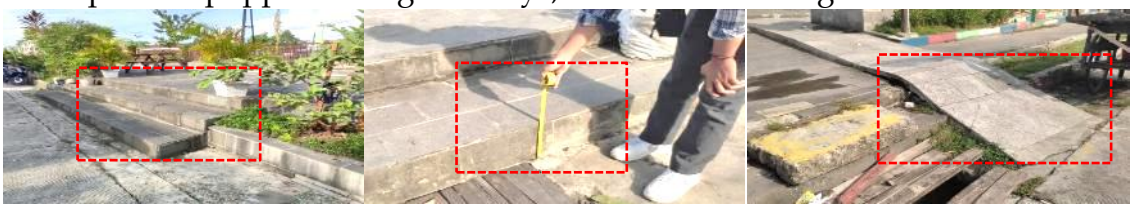
(a) (b) (c)

Figure 5. Amphiteater. (a) Grandstand Area, (b) Membrane Roof, (c) Planter and Hard Material Elements

Based on figure 5, problems found in photo (a): in the grandstand area, there is no hand railing according to the standard. The height of the grandstand area is 280 cm from the ground floor, so there needs to be a safety fence. In photo (b): the membrane roof does not completely cover the grandstand area, so it is less than optimal to provide shade for users of the grandstand area. In photo (c): there is no guideway, no directional signs and evacuation routes. In addition, there are planter boxes that have sharp corners and are not friendly to children/disabled users.

Stairs and Ramps (Western Segment)

Stairs and ramp are vertical circulation elements for movement between floor levels. In this western segment, there are 10 access stairs with the number of steps varying from 2 to 3 steps. Then there are 4 access ramps for wheelchair users. The stairs and ramp elements use andesite pavement or terasso tiles that are not slippery in texture, and some of the ramps are equipped with guideways, as shown in the figure 6.



(a) (b) (c)

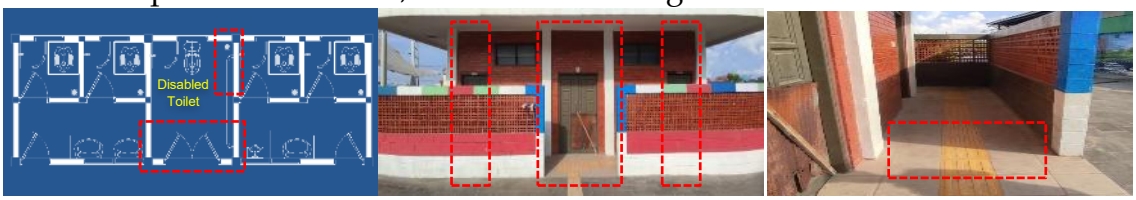
Figure 6. Stairs and Ramps. (a-b) Park Steps, (c) Park Ramps

Based on figure 6, problems found in photos (a) and (b): the height (optride) of the steps is more than 18 cm which is the recommended size. The width (antride) of the steps varies

between 25-30 cm, without step nosing. In photo (c): ramp with terasso tile pavement 130 cm wide, not equipped with a guide path, slope >5° and no safety curb. There is an uncovered drainage hole beside the ramp.

Rest Room (Western Segment)

The rest room available are separate toilets for men and women and special toilets for the disabled. The total area of the toilet area along with the hallway/circulation is 60 m². The toilet area for men and women is 2 rooms each with a size of 1.5x1.325 m and free space (sink) 1 room each with a size of 1.5x1.325 m. The area of the disabled toilet is 2x2.65 m. The area of the disabled toilet is 2x2.65 m. Problems found in photo (a): The door opening of the disabled toilet leads into the room, the distance between the hand rail inside the toilet and the toilet is >60 cm. In photo (b): Based on observation, the toilets are not used and locked because the management is not running well, so the existence of these toilets is not effective. The utility/direction signs and toilet type symbols are less visible/less large, and the door handle on the disabled toilet is not as recommended with a horizontal shape extending the width of the door leaf. In photo (c): the guideway in the hallway is not continuous to the front of the toilet door, and there are obstacles in the outer area of the toilet (vent pipe of the wastewater treatment system, manhole) that are not visible flush with the pavement surface, as shown in the figure 7.



(a) (b) (c)

Figure 7. Rest Room. (a) Layout Plan, (b) Openings of Rest Room, (c) Guideway to The Room, (d) Corridor, (e) Objects Around Pavement Surface

Parking Space (Western Segment)

The parking space in the western segment is located next to the plaza with a parking area of 175 m². Parking is available for 4-wheeled and 2-wheeled vehicles, where the pavement in the parking area is concrete/rigid concrete, as shown in the figure 8.

(a) (b) (c) (d)

Figure 8. Parking Space. (a) Vehicles, (b) Vehicle Circulation, (c-d) Vehicles Around Street

Based on the figure 8, problems found in photo (a): Based on the marking lines, the placement of 2-wheeled parking is filled with 4-wheeled vehicles. For 4-wheeled parking,

it is dominated by vehicle owners from the community who live around the park area, so visitors do not get access to parking. Then, there are no parking facilities for people with disabilities/disabilities. Appropriately, parking for the disabled is on the side that is close/adjacent/not far from ram access. There are no bicycle parking facilities equipped with bicycle racks. In photos (b), (c), and (d): vehicles of people living around the park area are parked, taking up the road body which is only 3-4 m wide. So that vehicle circulation is disrupted and not optimized.

Entrance (Eastern Segment)

Existing conditions of entrances in the segment the east is also faced with the problem of land provision. Hard material elements are concrete pavement/rigid roads for 2 and 4-wheeled vehicles, and closed drainage that empties into the river border, as shown in the figure 9.

(a) (b)

Figure 9. Eastern Entrance. (a) Entrance As Seen From The Front, (b) Entrance As Seen From Above

Based on the figure 9, problems found in photo (a): the entrance/entrance street width is only available 2.6 m with a turning radius at the entrance area attached to the abutment side of the pedestrian bridge so that 4-wheeled users must take turns in order to enter the park area. In photo (b) after passing the entrance there is no pedestrian access/pedestrian area. At the end of the road towards the park, the bend angle is broken without any minimum radius for maneuvering 4-wheeled vehicles.

Parking Space (Eastern Segment)

The parking space in the east segment is located next to the plaza with a parking area of 234 m². Parking is available for 4-wheeled and 2-wheeled vehicles, where the pavement in the parking area is concrete/rigid concrete, as shown in the figure 10.

(a) (b)

Figure 10. Parking Space. (a) Vehicles Parked in the Parking Space, (b) Objects Around Parking Space

Based on the figure 10, problems found in photo (a): parking for 4-wheeled and 2-wheeled vehicles is dominated by vehicle owners from the community who live around the park area, so visitors do not get access to parking. Then, there are no parking facilities for people with disabilities. Appropriately, parking for the disabled is on the side that is close/adjacent /not far from ramp access. There are no bicycle parking facilities equipped with bicycle racks. In photo (b): clearly visible household items (wooden racks, water tanks, used tires, etc.) and selling places (carts) owned by people who live around the park area, taking up the parking area. So that the circulation in the parking area disrupted, and not disabled-friendly.

Pedestrian Paths (Eastern Segment)

The pedestrian path consists of hard material/pavement in the form of non-slip terasso tiles. There is a 90 cm high hand rail with square hollow material on the left side. On the right side there is a planter box containing shrub vegetation and groundcover in the form of grass as a soft material element that limits the pedestrian area with other open areas. Furnishing elements along this path are found, namely garden lights and flower/plant pots. The width of the pedestrian path is 120 cm, as shown in the figure 11.

(a) (b) (c)

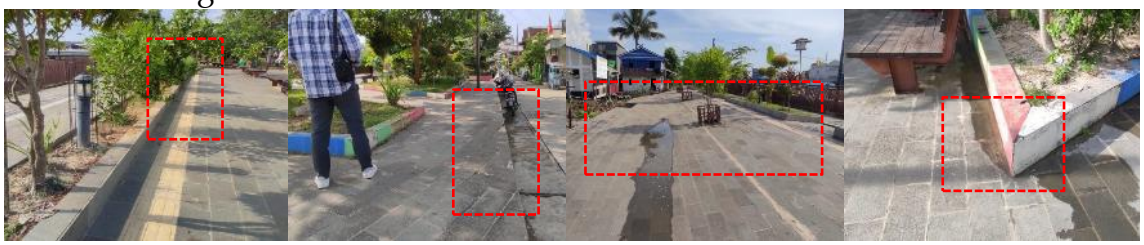
Figure 11. Pedestrian Paths. (a) Hard Material Surfaces, (b) Pedestrian Ways, (c) Trees Above Pedestrian Ways

Based on the figure 11, problems found in photo (a): the unavailability of guiding paths, there are no directional signs and evacuation routes, and there are obstacles in the form of level difference steps. In photo (b): there is a decrease in ground level on the pedestrian path, so there is a slope that makes it uncomfortable for pedestrian users. In photo (c): there are objects/items (traders' equipment) placed by the community around the park

area that block the accessibility of the pedestrian path. Similarly, there are plants (trees) whose branches are less than 2 m high, so that it also interferes with the pedestrian path.

Plaza (Eastern Segment)

The plaza area consists of hard material/pavement in the form of non-slip burnt andesite natural stone and planter boxes containing shrub vegetation and groundcover in the form of grass as soft material elements. Furnishing elements in this area include area signage, park benches, park lights, and 3R trash cans. The area of the plaza varies and there are guideways, but there are no evacuation route signs and gathering points/cluster points, as shown in the figure 12.



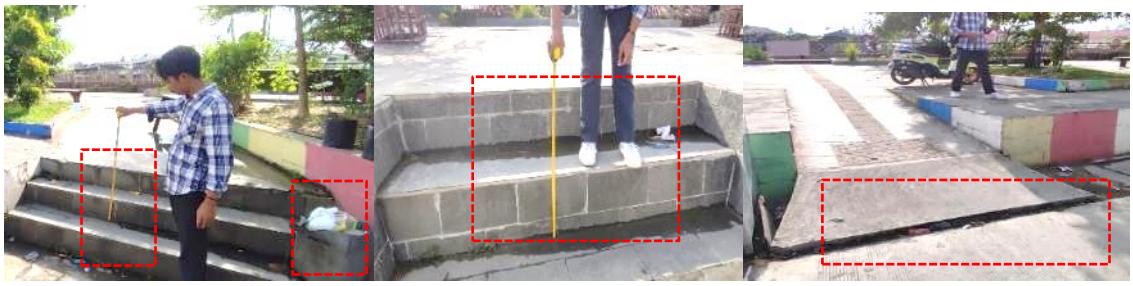
(a) (b) (c) (d)

Figure 12. Plaza. (a) Vegetation Beside The Guide Path, (b-c) Hard Material Elements, (d) Planter

Based on the figure 12, problems found in photo (a): the disabled guide path is too close to the planter box so that users can be blocked by shady vegetation objects. In photo (b): the difference in height/level between the park pavement area and the planter area without being limited by curbs/canstones. In photo (c): land subsidence occurs on the pedestrian path, so there is a slope that makes road users uncomfortable. In photo (d): there is a planter box shape with sharp corners.

Stairs and Ramps (Eastern Segment)

In this eastern segment, there are 5 access stairs with the number of steps varying from 2 to 3 steps. Then there are 1 access ramps for wheelchair users. The stairs and ramp elements use andesite pavement or terasso tiles that are not slippery in texture, and some of the ramps are equipped with guideways. Problems found in photos (a) and (b): the height (optride) of the steps is more than 18 cm which is the recommended size. The width (antride) of the steps varies between 25-30 cm, without step nosing. In photo (c): 130 cm wide ramp with guideway and warning tiles, slope of about <5°, not equipped with hand railing, at the end of the ram there is no curb and there are obstacles which makes wheelchair movement difficult, as shown in the figure 13.

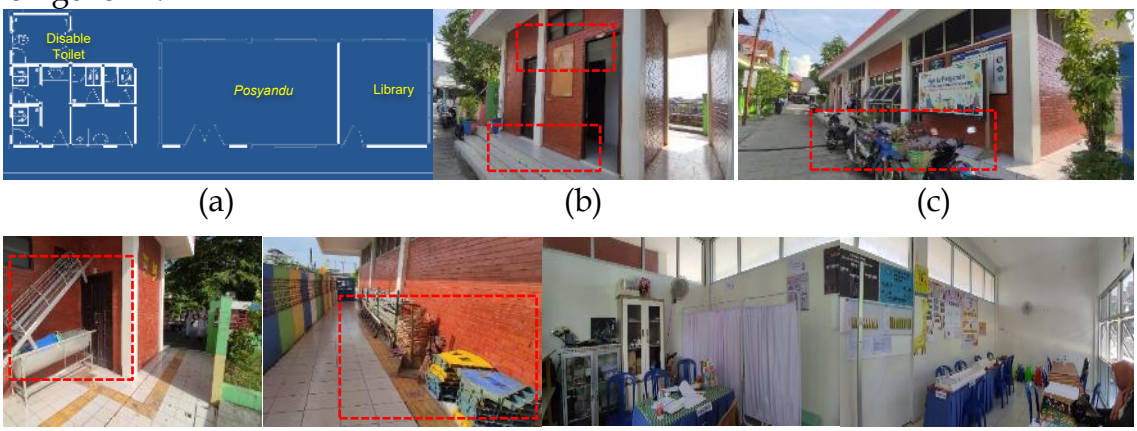


(a) (b) (c)

Figure 13. Stairs and Ramps. (a-b) Park Steps, (c) Park Ramps

Integrated Buildings (Eastern Segment)

There is an integrated *pos pelayanan terpadu (Posyandu)* also known as "integrated health service post" building equipped with rest room or disabled toilets, and a micro library. The total area of the whole area along with the hallway/circulation is 147 m², as shown in the figure 14.



(a) (b) (c)

(d) (e) (f) (g)

Figure 14. Integrated Buildings. (a) Layout Plan, (b) Openings of Rest Room, (c) Vehicles parked in front of the Rest Room, (d-e) Corridor, (f-g) Posyandu Room

Based on the layout plan, the toilet area for men and women is 2 rooms each with a size of 1.5x1.5 m and free space (sink) each 1 room measuring 1.5x3 m. The area of the special toilet for the disabled is 2x2.65 m. Problems found in photo (a): the placement of the disabled toilet is far from the access to the posyandu, and requires a winding maneuver through a 1.2-1.5 m wide hallway. In photo (b): based on observations, the toilet is not used regularly and is locked due to security factors. Utility signs and toilet type symbols are less visible/less large, and the distance between the door and the stairs is only 60 cm. The door handle on the disabled toilet is not as recommended with a horizontal shape extending the width of the door leaf. In photo (c): 2-wheeled vehicles are parked not in their proper places. In photo (d): the disabled toilet is locked and not functioning, there are items blocking the path to the toilet. In photo (e): guided path in the hallway of the back area, there are obstacles in the form of improperly placed items. In photos (f) and (g): inside the posyandu room based on the layout, it follows the general standards of the integrated buildings. There is also an action room that functions as a lactation room.

Analysis

The initial analysis carried out is to determine the most important hierarchy of 7 (seven) universal design principles based on the reference of *Peraturan Menteri PUPR* No. 14 of 2017 using a multi-criteria analysis approach (Dean, 2022). The following are the weighting results of each universal design principle or criterion as shown in the table 1.

Table 1. Determination of the Most Important Hierarchy

Universal Design Principles	1	2	3	4	5	6	7	Total	Percentage	Priority
Equal Use of Space		0	0	0	0	0	0	0	0.0%	7
Safety and Security for All	1		1	1	1	1	1	6	28.6%	1
Ease of Access without Barriers	1	0		1	1	1	1	5	23.8%	2
Easy Access to Information	1	0	0		0	0	0	1	4.8%	6
Independence of Space Use	1	0	0	1		1	1	4	19.0%	3
User Effort Efficiency	1	0	0	1	0		1	3	14.3%	4
Ergonomic fit of size and space	1	0	0	1	0	0		2	9.5%	5
									100.0%	

The assessment of each variable is based on the results of observations and previous discussions. It is known that in 2 (two) segments of Taman Odah Bekesah, namely the western segment consists of 7 (seven) existing elements that are assessed, namely accessibility at the entrance, pedestrian paths, plaza, amphitheater, stairs and ramp, rest room, and parking space. While the eastern segment consists of 6 (six) existing elements that are assessed including accessibility of entrances, parking space, pedestrian paths, plaza, stairs and ramps, and integrated buildings (Pos Pelayanan Terpadu also known as "integrated health service post", rest room, and micro library).

The assessment method for each element is to give a score based on a qualitative assessment, rated 1 (one) if it is lacking, rated (2) if it is sufficient, and rated (3) if it is good. In the end, the predicate that will be given to the analyzed object is "adequate" if the assessment results are between 80%-100%, "not completely adequate" if the assessment results are between 60%-79.99%, and "inadequate" if the assessment results are between 0%-59.99%. The following is a table of the assessment results (table 2 and 3).

Table 2. Analysis Results of the West Segment of Taman Odah Bekesah

Object of Assesment	Universal Design Principles Score						
	Equal Use of Space	Safety and Security for All	Easy Access without Barriers	Easy Access to Information	Independence of Space Use	User Effort Efficiency	User Effort Efficiency
West Segment							
Entrance	3	1	1	1	2	2	1
Pedestrian Paths	3	2	2	1	2	2	3
Plaza	3	1	2	2	2	2	3
Amphiteater	1	1	2	2	1	1	2
Stairs and Ramps	1	1	1	1	1	1	1
Rest Room	2	2	1	2	1	1	3
Parking Space	1	1	2	2	2	2	3
Score	14	9	11	11	11	11	16
Maximum Score	21	21	21	21	21	21	21
Percentage Value	0.00%	12.24%	12.47%	2.49%	9.98%	7.48%	7.26%
Total Score	51.93%						
Conclusion	**"Inadequate"**						

Table 3. Analysis Results of the Eastern Segment of Taman Odah Bekesah

Object of Assesment	Universal Design Principles Score						
	Equal Use of Space	Safety and Security for All	Easy Access without Barriers	Easy Access to Information	Independence of Space Use	User Effort Efficiency	User Effort Efficiency
Eastern Segment							
Entrance	3	1	1	1	2	2	1
Parking Space	3	2	2	1	2	2	3
Pedestrian Paths	3	1	2	2	2	2	3
Plaza	1	1	2	2	1	1	2
Stairs and Ramps	1	1	1	1	1	1	1
Integrated Buildings	2	2	1	2	1	1	3
Score	13	8	10	8	11	10	13
Maximum Score	18	18	18	18	18	18	18
Percentage Value	0.00%	12.70%	13.23%	2.12%	11.64%	7.94%	6.88%
Total Score	54.50%						
Conclusion	**"Inadequate"**						

CONCLUSION

From the results of research on the object of study Taman Odah Bekesah in Samarinda related to inclusive open space using descriptive analysis that Taman Odah Bekesah is a neighborhood park where facilities and supporting facilities are known to have used several universal design principles to meet the criteria for open space in Samarinda as a form of fulfilling the goals and vision and mission of a livable and inclusive city. Based on 7 (seven) universal design principles based on *Peraturan Menteri PUPR* No. 14 of 2017

concerning Building Facilities Requirements which are in line with the 7 (seven) universal design principles according to (Mace et al., 1996) it is necessary to translate them into an assessment using a predicate scale that makes it easier to analyse the findings and field observations in fulfilling the implementation of universal design.

Based on the multi-criteria analysis, it is concluded that the principle of "safety and security for all" is the most important variable that must be fulfilled in any evaluation or assessment of the implementation of universal design. However, this certainly does not mean that the other six principles should be neglected. Existing elements that have not yet fully met the universal design criteria in the western and eastern segments of Taman Odah Bekesah are the stairs and ramp access. The elements that almost sufficiently meet the universal design criteria in the western and eastern segments of Taman Odah Bekesah are the plaza and parking areas. The cumulative assessment results show that the western segment of Taman Odah Bekesah is inadequate in terms of fulfilling inclusive open space, with an assessment score of 51.93%. The cumulative assessment results also show that the eastern segment of Taman Odah Bekesah is inadequate in fulfilling inclusive open space, with an assessment score of 54.50%. Based on these findings, improvements are expected in the future to meet the criteria for public open spaces that accommodate all groups and fully implement universal design, supporting social sustainability.

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