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LANDSCAPE EVALUATION OF VISUAL ATTRACTIVENESS TO IMPROVE URBAN LIVING AT NAVA PARK

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ABSTRACT

The Botanic Park at Nava Park has an area of 10 hectares, consisting of green areas and open spaces for recreation and various uses, including 3.5 hectares of the artificial lake and a 15 km jogging track. However, a lack of green planning affects its attractiveness to visitors of the Botanic Park, and its existing visual potential has not been optimally utilized. This is apparent from the inexistence of outdoor activities facilities that could take advantage of this potential. The study aims to identify visual potential as the basis for developing the landscape of the Botanic Park. This study used a qualitative method with observation as the research instrument and a potential visual assessment using the Visual Resource Assessment Procedure (VRAP) and Master Plan Evaluation. Data analysis used interval classes, classified according to their visual qualities. The research findings were the visual quality of the landscape, classified into three zones of high, medium, and low visual qualities, which would help place facilities in further landscape development. The best macro visual qualities were found in the Meandering River Zone, with a score of 17, followed by the Serenity Lake Zone, with a score of 15. The lowest was in the Green Land/Wet Land Zone, with a score of 14. This study provided recommendations for managing the Botanic Park at Nava Park Bumi Serpong Damai (BSD) in the form of a green landscape design as a visual attraction.

Keywords: Botanic Park; Green Open Space; Landscape; Visual Quality

INTRODUCTION

The Botanic Park at Nava Park is an urban green open space located in Bumi Serpong Damai (BSD), South Tangerang, Banten, Indonesia. BSD is a new autonomous city established by a private company, Sinarmas, working together with a developer Bumi Serpong Damai, Tbk. in 1989, putting forward a slogan "Big City, Big Opportunity". The Botanic Park has an area of 10 hectares, consisting of green areas and open space for recreation and various usage including 3.5 hectares of artificial lake and 15 km jogging track.

The Botanic Park as a green open space conforms with the Regulation of the Minister of Public Works Number 05/PRT/M/2008, which definces it as an area, such as a pathway or cluster, where plants grow naturally or intentionally planted in. The area offers various benefits, with a minimum proportion of 30% allocated for a green open space to achieve a balanced urban ecosystem and increase its aesthetic value (Caesarina & Rahmani, 2019; Fitri et al., 2020; Rosawatiningsih, 2018).

However, a lack of green planning lessened the park's aesthetic values, hence its visual appeal. Sceneries in general can be objectively assessed for their aesthetic (Alfasha et al., 2022; Fakhira et al., 2022; Putra et al., 2017; Shahadat et al., 2015). Therefore, this research assessed the visual quality of existing zones, supported by an outdoor space as a comfortable viewpoint, to improve the Botanic Park as a functional and recreational park that also utilize natural and artificial visuals. The visual quality of a place can affect its attractiveness for visitors. Such assessment is carried out by mapping the visual quality of each zone in the assessed site, which is then sorted from the zone with the lowest visual quality to the one with the highest visual quality. Therefore, the research on the Botanic Park at Nava Park assessed the visual quality of its landscape at a macro level and found that the Botanic Park at Nava Park could optimize the natural and artificial visual potential of its site to increase its attractiveness (Krisantia (2018).

Our quality of life benefits from the attractiveness and accessibility of the landscapes around us. Attractive and easily accessible landscapes invite and encourage physical activity, and provide a momentary escape from the pace of modern life. Access to such a landscape can improve our physical and mental health, as well as our well-being as individuals. So the effort to increase the attractiveness of the Botanic Park at Nava Park ultimately aimed at improving the quality of life of local residents who access the Botanic Park NatureScot, Scotland's Nature Agency (2022). The purpose of this research was to map the visual qualities of each zone, sorted from the lowest to the highest, to optimize natural and

artificial visual potential of the Botanic Park and increase its attractiveness. Once the visual qualities of macro landscapes had been identified, areas with the lowest qualities could be improved and optimized according to the criteria. The research used qualitative methodology, with a case study approach.

RESEARCH METHODS

Time and Location

The research location is the Botanic Park at Nava Park, on Jl. Boulevard Raya, Bumi Serpong Damai, South Tangerang, Banten, Indonesia. The actual scope of the project encompassed an area of approximately 10 hectares, with 40% Building Base Coefficient and 60% Green Base Coefficient. The boundaries consist of Sinarmas Land in the north, Jakarta Nayang School in the south, Damai Indah Golf in the west, and Foresta in the east. Research time: The study was carried out from October 2021 to May 2021, starting with proposal development, conducting the research, and report finalization.
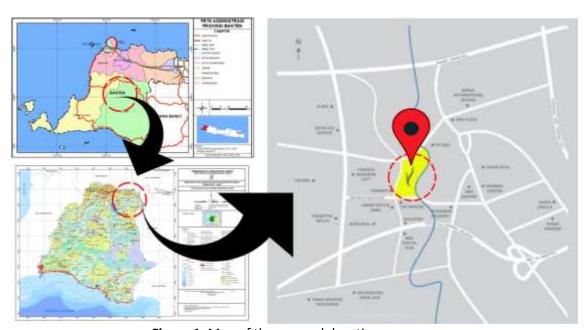

Figure 1. Map of the research location
(Source: http://www.bantenprov.go.id, Nava Park, 2022)

Data Collection

Data was collected by observation, visual landscape assessment, and documentation. The data source consisted of primary data obtained by the research authors directly from survey results. Secondary data consisted of documentation/photos.

The Data Analysis Method

The data was analyzed using the Visual Resource Assessment Procedure (VRAP) methodology to assess macro visual qualities in existing zones, carried out at viewpoints across the site (Krisantia. 2018, modified from Smardon et al. 1988).

Analysis of Macro Visual Quality Assessment

Based on the master plan of the Botanic Park at Nava Park, three main parts (zones or areas) became a reference for assessing visual qualities using the VRAP method. Calculation of variables in this study used a Likert scale with a scale of 1-3 (Distinct, Average, Minimal) with the following formula:

$$KVL = X1 + X2 + X3 + X4 + X5 + X6$$

KVL: Landscape Visual Quality

X1: Water

X2: Landform

X3: Vegetation

X4: Land Use

X5= User Activity

X6: Special Consideration

Landform map/slope was based on the following fuzzy logic:

- Flat: 0-4.5%

- Gentle: 8-15%

- Slightly steep: 18.5-21.5%

- Steep: 28.5-41.5%

- Very steep: >48,5%

a) Macro Visual Quality Assessment

Table 1. Macro Visual Assessment

Value	Minimal (Score = 1)	Average (Score = 2)	Distinct (Score = 3)
Water (X1)	There were < 3 water source items. Lake scale < 5 hectares.	There were 3 water sources. Lake scale 5-10 hectares.	There were 5 water sources. Lake scale > 50 hectares.

Landform (X2)	There were < 3 types of landform. Topography between 0-30% flat slope.	There were 3 types of landform. Topography 30-60% slope.	There were 5 types of landform. Topography slope 60%. Mountains, hills, bold mountains.
Vegetation (X3)	Little vegetation cover or no contrasting types of vegetation.	Diverse vegetation. There were only 1-2 types of contrasting vegetation.	Diverse vegetation. Various interesting forms of vegetation.
Land Use (X4)	There were < 3 types of land use.	There were 3 types of land use.	There were 5 types of land use.
User Activity (X5)	No user activity.	There was 1 type of user activity.	There were 3 types of user activity.

b) Special Consideration

Table 2. Special Consideration Assessment Criteria

Special Consideration	Yes	No
Are there any cultural/historical landmarks in this zone?		
Is there any pollution/garbage in this zone?		
Does this zone have different visual qualities and animal observations?		
Are there other aesthetic elements?		
Total Special Considerations		

(Source: Krisantia. 2018, modified from Smardon et al. 1988)

RESULTS AND DISCUSSION

Zones

The Botanic Bark at Nava Park is divided into three zones, which are the Green Land Zone, the Meandering River Zone, and the Serenity Lake Zone. The zoning was based on natural potential found in the site and the types of activities are shown in Figure 1.

- Spring Lake
- Artificial Hill
- Adventure Playground
- Jungle Walk
- River Stream
- Plaza/Amphitheater
- Active Lawn
- Recreational Lawn
- Outdoor Fitness
- Wetland Bird Sanctuary
- Jogging/Cycling Track
- Promenade Plaza
- BBQ Pavilion

- Lawn Seat
- Viewing Deck
- Gazebo
- Water Platform
- Bicycle Station
- Guard House

Figure 2. Zoning Master Plan

(Source: Agus Purniawan, 2022)

Macro Visual Quality Assessment

Zone A or Serenity Lake Zone

Table 3. Macro Visual Assessment of Serenity Lake Zone

Value	Minimal (Score = 1)	Average (Score = 2)	Distinct (Score = 3)	Notes
Water (X1)	-	-	3	Cisadane Rivers, lakes, pumps, and groundwater.
Landform (X2)	1	-	-	The shape of the topographic landform tends to be flat 0-5%.
Vagetation (X3)	-	-	3	Types of Vegetation a variety of trees, shrubs, shrubs to ground

				cover.
Land Use (X4)	-	2	-	Relaxing area, yoga, and jogging track.
User Activity (X5)	-	-	3	Recreation, relaxing and jogging area.
Special Consid-eration (X6)			3	Result from table 4.

Table 3 demonstrates that Zone A scored 3 in the Water category as it has lakes, groundwater, and water pumps, while the Cisadane River is in proximity. It scored 1 in the Landform category for its flat topography at 0-5%. In the Vegetation category, it obtained the score of 3 for a variety of trees, bushes, and shrubs as ground cover. The zone scored 2 in the Land Use category as the area is often utilized for relaxing, yoga and jogging. For these same reasons, Zone A scored 3 in the User Activity category.

Table 4. Special Considerations for Serenity Lake Zone

Special Considerations	Yes	No
Are there any cultural/historical landmarks in this zone?	0	0
Is there any pollution/garbage in this zone?	0	1
Does this zone have different visual qualities and animal observations?	1	0
Are there other aesthetic elements?	1	0
Total Special Considerations	**3**	

Based on the macro visual assessment of the Serenity Lake Zone (Zone A), the total visual quality score is 12. The above score was added by a score of 3 for a special consideration that the location is free from garbage. Different visual qualities and aesthetic elements were also found. Total score for the Serenity Lake Zone: 12 + 3 = 15 points.

Documentation on Serenity Lake Zone (Zone A)

Figure 4. Serenity Lake Zone
(Source: Agus Purniawan, 2022)

Figure 4 shows that the condition of the Serenity Lake Zone is quite good, but it still has room for improvement by adding visual landscape elements, such as fountains as well as drinking fountains. These could provide an identity and a good image for the zone. Arrangement of the vegetation could be more thoughtful, incorporating plants with different colors of flowers to enhance the zone's aesthetics and attractiveness for visitors. Tropical trees that grow tall with broad leaves could also be valuable to control microclimate in the zone. Furthermore, it could benefit from better and lovelier lighting to provide interesting landscape attractions at night. The zone could install signages to clearly divide facilities such as the jogging track, the cycling track, and pedestrian track. Last but not least, more trash bins that are strategically placed are also needed.

Zone B or Meandering River Zone

Table 5. Macro Visual Assessment of Meandering River Zone

Value	Minimal (Score = 1)	Average (Score = 2)	Distinct (Score = 3)	Notes
Water (X1)	-	-	3	Cisadane River, lakes, fountains, pumps and groundwater.
Landform (X2)	-	2	-	The shape of the topographic landform tends to be sloping 0-20% (a mound of soil was constructed for adventure sliding).

Vagetation (X3)	-	-	3	Types of vegetation consisted of a variety of trees, bushes, shrubs and ground cover.
Land Use (X4)	-	-	3	Spider web, adventure sliding, sand playground, camping site, flying kite playground, relaxing area, yoga, artificial hills, dog park, mini golf, outdoor fitness and jogging track.
User Activity (X5)	-	-	3	Jogging, relaxing, playing, walking a dog.
Special Consideration (X6)			3	Result from table 6

Similar to Zone A, Table 5 reveals that Zone B scored 3 in the Water category for having lakes, groundwater, and water pumps, as well as being close to the Cisadane River. Flat topography at 0-5% earned the zone a score of 2 in the Landform category. Score 3 was given in the Vegetation category for its trees, bushes, and shrubs as ground cover. The Land Use category as well as the User Activity category each gave the zone the score of 3 for various recreational usage such as relaxing, jogging, and walking a dog.

Table 6. Special Considerations for Meandering River Zone

Special Considerations	Yes	No
Are there any cultural/historical landmarks in this zone?	0	0
Is there any pollution/garbage in this zone?	0	1
Does this zone have different visual qualities and animal observations?	1	0
Are there other aesthetic elements?	1	0
Total Special Considerations	**3**	

Based on the macro visual assessment of the Meandering River (Zone B), the total visual quality score is 14. The above score was added by a score of 3 for a special consideration that the location is free from garbage. Different visual qualities and aesthetic elements were also found. Total score for the Meandering River Zone: 14 + 3 = 17 points.

Documentation on Meandering River Zone (Zone B)

Figure 5. Meandering River Zone
(Source: Agus Purniawan, 2022)

Figure 5 establishes that the Meandering River Zone has done quite well. However, it could still benefit from further improvements. Just like the Serenity Lake Zone, facilities such as fountains and drinking fountains could be added for extra appeal. It is also crucial to enhance the irrigation and drainage systems by installing biopori or infiltration wells to ensure that water is infiltrated before being poured into the lake. A more diverse vegetation, microclimate features such as tall trees with broad leaves, attentive lighting, signages as well as more trash bins could encourage visitors to stay longer in the Meandearing River Zone.

Zone C or Green Land/Wet Land Zone

Table 7. Macro Visual Assessment of Green Land Zone

Value	Minimal (Score = 1)	Average (Score = 2)	Distinct (Score = 3)	Note
Water (X1)	-	-	3	Cisadane River, lakes, fountains, pumps and groundwater.
Landform (X2)	1	-	-	The shape of the topographic landform tends to be flat 0-5%.
Vagetation (X3)	-	-	3	Types of vegetation consisted of a variety of trees, bushes, shrubs, and ground cover.
Land Use (X4)	-	2	-	Bird sanctuary, jogging track, cycling track.

User Activity (X5)	-	2	-	Birdwatching, jogging and cycling.
Special Consid-eration (X6)	-	-	3	Result from table 8

Table 7 validates that Zone C also scored 3 in the Water category based on the existence of lakes, groundwater, and water pumps, with the Cisadane River running through close by. Similarly with the previous zones, Zone C has a flat topography at 0-5%, earning it the score of 1 In the Landform category. In the Vegetation category, the score of 3 was awarded for a variety of trees, bushes, and shrubs as ground cover.

Table 8. Special Consideration for Green Land Zone

Special Considerations	Yes	No
Are there any cultural/historical landmarks in this zone?	0	0
Is there any pollution/garbage in this zone?	0	1
Does this zone have different visual qualities and animal observations?	0	1
Are there other aesthetic elements?	1	0
Total Special Considerations	**3**	

Based on the macro visual assessment of the Green Land (Zone C), the total visual quality score is 11. The above score was added by a score of 3 for a special consideration that the location is free from garbage. Different visual qualities and aesthetic elements were also found. Total score for the Green Land Zone: 11 + 3 = 14 points.

Documentation on Green Land Zone (Zone C)

Figure 5. Green Land Zone

(Source: Agus Purniawan, 2022)

Figure 5 shows a decent condition of the the Green Land Zone. However, improvements could add its aesthetics. Installments of more visual landscape elements, such as fountains as well as drinking fountains are recommended. Just like in the other zones, it also needs more diverse vegetation and microclimate features such as tall trees with broad leaves. Finishing touches such as attentive lighting, signages and more strategically located trash bins could enhance visitor's enjoyment in the Green Land Zone.

Table 9. VRAP Summary Table of the Botanic Park at Nava Park

(Source: Agus Purniawan, 2022)

The best macro visual quality was found in Zone B or the Meandering River Zone with a score of 17, followed by Zone A or the Serenity Lake Zone with a score of 15. The lowest macro visual quality was identified in Zone C or the Green Land with a score of 14.

CONCLUSION

The macro visual qualities of the Botanic Park at Nava Park are the best macro visual quality was found in Zone B or the Meandering River Zone with a score of 17, followed by Zone A or the Serenity Lake Zone with a score of 15. The lowest macro visual quality was identified in Zone C or the Green Land with a score of 14. The visual quality in each zone can be improved by maximizing the element of water, enhancing the diversity of vegetation, optimizing land use, developing more user activities—both active and passive—and increasing special considerations.

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