

02

A NOSEDIVE INTO BERTAPAK BUANA

Aliyah Nur Zafirah Sanusi*, Khairunnisa Abdul Halim, Muhammad Muzzammil Muhammad Taufik, & Yusfariq Iqmal
Department Architecture, Kulliyah of Architecture and Environmental Design
International Islamic University Malaysia

ABSTRACT

The Kulliyah of Architecture and Environmental Design (KAED), IIUM was given a stretch of land within the campus to develop the Malay Enclave Project. The Malay Enclave Project was initiated in 2017 through the preservation and relocation of the 111 years old Rumah Kutai from the state of Perak as a move towards preserving the Malay heritage and architecture as part of the UNESCO Sustainable Development Goal (SDG) initiative. "Reminiscing the Tradition" is the overall project concept to recall the continuity of Malay culture-their customs and institutions as well as their social attitudes.

INTRODUCTION

In this era, the adoption of Western's culture and styles are highly evident in the living environment throughout Malaysia. The impact of welcoming such culture results in the deterioration of the Malay traditional culture and heritage. Hence, the beauty of the Malay culture and heritage needs to be preserved and highlighted again amongst the community.

Kulliyah of Architecture and Environmental Design (KAED), IIUM was established in June 1996 to nurture and produce professionals of the built environment industry. KAED was deemed unique as it aims to be the pioneer in integrating Islamic worldview and values into the teachings and training of students by applying the Tawhidic educational approach. Tawhidic approach in built environment includes creating a learning environment that considers Man, Environment and the Creator in a balance. A Tawhidic design approach considers the suitability of the architecture to the climate, site context and the social-cultural needs of the people of the locality. For this site, it is imperative to understand and adopt the Malaysia Malay traditional culture and heritage context for the project.

KAED initiated The Malay Enclave Project in 2017 through the relocation and preservation of a 111 years old Rumah Kutai, which originated from the state of Perak. The activity was part of preserving the architecture and heritage of the Malays in response to the UNESCO Sustainable Development Goal (SDG). KAED was given a task to expand the Malay Enclave Project by proposing a design of an IIUM Cultural and Natural Heritage Living Centre. The proposal includes the design of five gazebos within a budget.

The project aims to produce a concept and the design of a masterplan with five gazebos within appropriate costing for the IIUM Cultural and Natural Heritage Living Centre. The concept is the philosophy that ties the masterplan and design elements of the whole project. The gazebo designs should reflect, the Bugis as one of the many cultural settlements in Gombak.

Under the Malay Enclave Project, a multidisciplinary KAED student group from the three disciplines-Architecture, Interior Design and Quantity Surveyor; were given the task to design IIUM Cultural and Natural Heritage Living Centre. The site was divided into four different plots. Each team were required to produce a strong concept and work together to create a masterplan of IIUM Cultural and Natural Heritage Living Centre. The team is also required to design five gazebos in the masterplan that reflect the Bugis culture. Bugis is one of the Malay Nusantara culture found in Gombak. The Gazebo is to be designed to budget.

Keywords: *Malay Bugis Architecture, Heritage, Cultural, Gazebo*
* Corresponding author: aliyah@iium.edu.my

METHODOLOGY

The Methodology Chart shown in Figure 1 was used to achieve the aim of the IIUM Cultural and Natural Heritage Living Centre design project. It started with a concept, followed by precedent and case studies of successful similar projects. The flow continued with the development process of the Centre's proposed masterplan and the designs its five distinct gazebos.

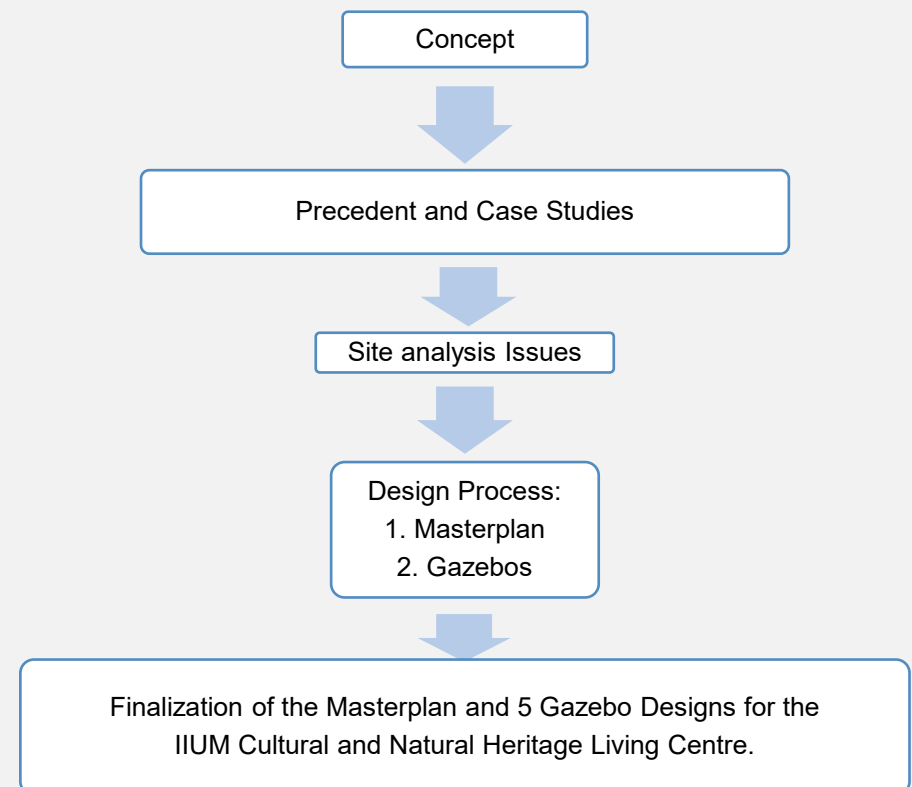


Figure 1: Methodology Chart

THE CONCEPT

"Bertapak Buana", the project concept, comes from an old Malay word. 'Bertapak' means 'placement' or 'location', while 'Buana' means 'realm' or 'world'. The concept chosen relates to KAED's initiative to strengthen the efforts in protecting, safeguarding and sustaining the local cultural and natural heritage within a regenerative development of the surrounding.

The subject matter for "Bertapak Buana" is the inverted root. The idea behind that concept is to portray a strong element that had held up the tree from falling. It also provides a sense of connectivity between the elements such as water and soil. Thus, the root is to show the bondage between our Malaysian heritage and the IIUM community. The whole layout was designed to be an initiative where the community can come together and experience the culture and nature at the same time.

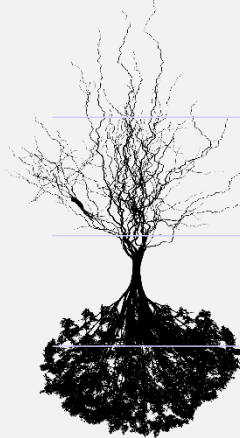


Figure 2: The inverted tree

Plot 4:	LOCAL HERITAGE FRUITS
Sub-concept:	REGENERATION
Plot 3:	URBAN FARMING
Sub-concept:	SUSTAINABILITY
Plot 2:	EDIBLE GARDEN
Sub-concept:	GUARDIAN
Plot 1:	MASS GATHERING SPACE
Sub-concept:	CONNECTIVITY

The whole layout was designed based on precedent and case studies research. It was through this research that the movement of molecules was found in parts of the root. The elements had inspired the circular layout of the entire plots in the masterplan design. The reasoning goes hand in hand with the group's original concept and aims to make the site as a place of gathering and to promote movement of the crowd throughout the whole plots. The circular layout supports a 360° view of the entire proposed masterplan. The design established a strong relationship between Man and Nature, whereby in appreciating the beauty of the site, the visitors are exposed to local cultural heritage and nature.

The inverted idea of the root indicates a game-changer in reviving concern for local heritage and nature. An image that screamed towards them, "look at me", is a symbol to indicate awareness to the public that our heritage and culture is deteriorating. This concerns should be cultivated in our memories and recalled as lessons learned throughout our lives.

Essentially, Plot 1, resemble the starting part of a root where the mass gathering area of the whole design is located. The layout at Plot 1 would be vast and opened and easy to navigate around. As one move to Plot 2, new elements were introduced to fit the edible garden theme; and the circulation gets more specified. As one move on to Plot 3, more features were added to celebrate the urban farming theme. The last plot was designed to be the most complicated layout out. Like a tree, the last plot is to resemble the end part of the roots—the circulation and facilities designed to cater to the crowd.

PRECEDENT AND CASE STUDIES

The masterplan design took precedence from a local garden located within the urban context of Kuala Lumpur - the Perdana Lake Garden. It is Kuala Lumpur's first large-scale recreational park, established in 1888 and measuring 91.6 hectares. The park serves as a refuge from the hustle and bustle of the city from colonial times until now. It contains large sculpted and manicured gardens and a host of attractions with a series of pavilions that act as the nodes along the stretch of the whole masterplan (Figure 3 & 4).



Figure 3: Perdana Botanical Garden Canopy (Source: gdparchitects.com, 2015)



Figure 4: Perdana Botanical Garden Canopy for mass gathering. (Source: stories.travel360.com, 2016)

On the global platform, more case studies on pavilion were referred. The first is a public pavilion known as 'Growing Up' from Hong Kong (Figure 5). Despite its simple volume, each angle of the pavilion reveals a different sense of porosity, materiality and scale.



Figure 5: Growing Up public pavilion in Hong Kong (Source: freight.cargo.site)

The M Pavillion in Melbourne, Australia takes its inspiration from origami, with wings opening out to welcome the city into its embrace (Figure 6). In the United Kingdom, the Serpentine Pavilion 2017 creates a sense of openness-achieved by its wall system and arrangements (Figure 7).

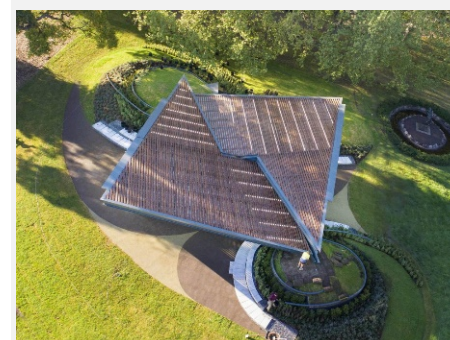


Figure 6: M Pavilion in Australia (Source: www.metalocus.es, 2018)



Figure 7: Serpentine Pavilion, United Kingdom (Source: www.archdaily.com, 2017)

The precedent and case studies of the gardens, pavilions and gazebos have guided the design process from the initial stage of design through its spatial organisation of the masterplan design right through to the design of the gazebos.

PLOT 1: MASS GATHERING SPACE

SITE ISSUES

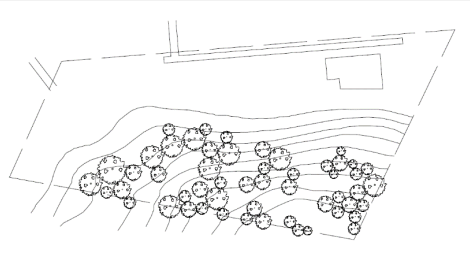


Figure 8: The original state of plot 1 on site

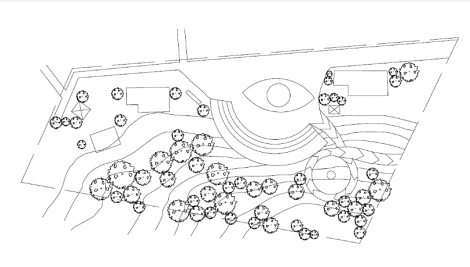


Figure 9: The first design of plot 1



Figure 10: The second design of plot 1

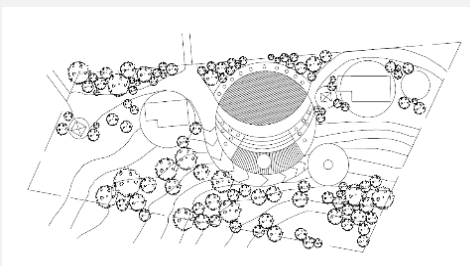


Figure 11: The final design of plot 1

The issues:

- Circulations
 - Footpath/ pathway
 - On foot and wheelchair
 - Lack of greeneries
 - Positioning of Pak Ali's land
-
- Proposed ramp impractical, very steep, unfriendly to wheelchair users
 - Inadequate facilities: toilet, musolla
 - The whole layout was disarray; circulation and positioning of facilities were not appropriately planned
-
- The water feature design is not practical
 - The ramp was unfriendly to both wheelchair users and people on foot
 - Circulation and layout were not orderly
-
- The circular layout was chosen to strengthen the whole concept
 - The mass gathering area acted as the root of the design layout, and it grew further into the entire layout plan
 - The circulation matched the layout plan of the whole site

PLOT DESIGN DEVELOPMENT

PROPOSED DESIGN FOR PLOT 1



Figure 14: Overview of plot 1



Figure 15: Viewing tower



Figure 16: Musolla



Figure 17: Bird's eye view of the viewing tower

GAZEBO 1: WAKAF EMMA' TAKKE



Figure 18: Gazebo 1 in plot 1

Wakaf Emma' Takke signifies the starting point, the roots and the beginning of the world. The 'Emma' means mother in Buginese and associated with fertility, growth and agricultural bounty. Hence, this gazebo marks the starting point of growth for KAED Heritage and Cultural Lab. The aesthetic value of the gazebo is value-added with the presence of gold-painted Semarang motif. The 3-panel Lebah Bergantung motif shows the hierarchy principle of Buginese people; water, earth and sky. The measurement size of the gazebo is 4m x 3m x 4.7m.

GAZEBO 2: WAKAF WAE SORE



Figure 19: Gazebo 2 in plot 1

Wakaf Wae Sore relates to the elemental principle of Buginese, morning dew and roots. This gazebo marks the early stage of growth and is significant to the growth of KAED Heritage and Cultural Lab. The gold-painted zig-zag motif indicates the reflection of light in the morning. Plus, the zig-zag motif is also a representation of connecting roots. The measurement size of the gazebo is 3.8m x 3.8m x 4.7m.

SPATIAL ORGANISATION

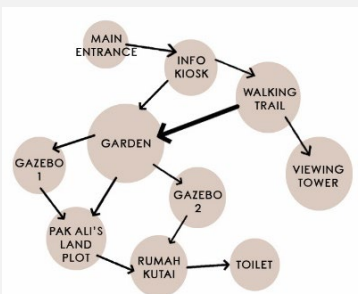


Figure 12: Relationship diagram of plot 1

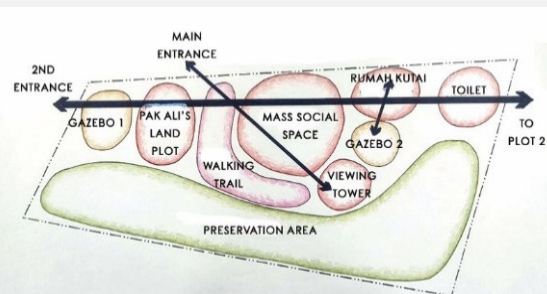


Figure 13: Schematic diagram of plot 1

PLOT 2: EDIBLE GARDEN

SITE ISSUES

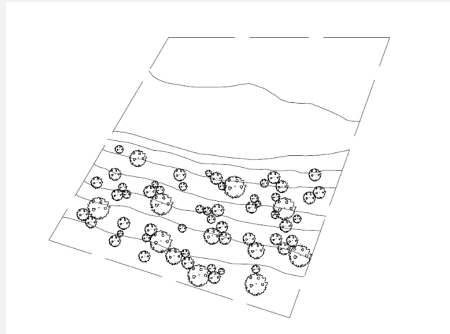


Figure 20: The original state of plot 2

The issues:

- Hilly / sloppy site
- Uneven ground
- Ground settlement near riverbank

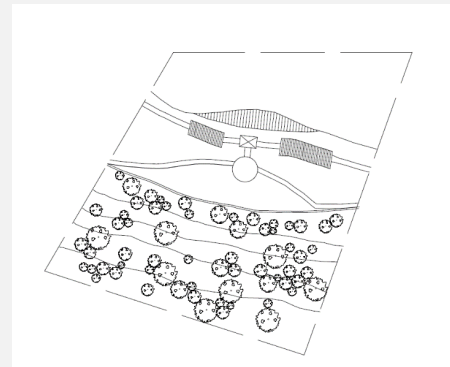


Figure 21: The first design of plot 2

- Two tunnels form a combination of pergola and living wall was connected by a walkway
- Gazebo 3 was located in between the tunnels
- Staircases from the platform were placed directly towards gazebo 3

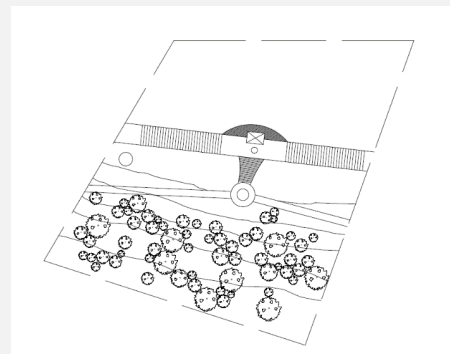


Figure 20 The second design of plot 2

- Gazebo 3 was placed in the middle of timber decking and ground walkway
- Pergola and living wall are connected by the edible vegetation to create a tunnel that acts as a shading device
- The sculpture was placed in the middle of the pergola and gazebo 3
- A staircase connects directly from the circular platform to where the sculpture stands

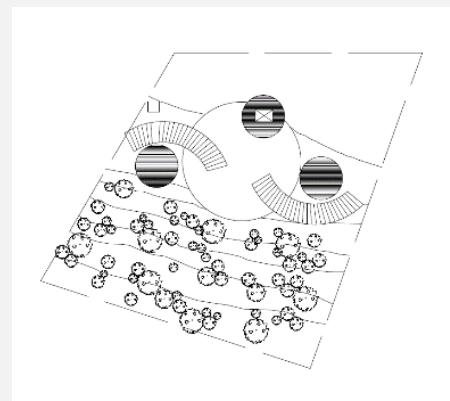


Figure 21 The final design of plot 2

- Every space was design equally with the other plots, which the circulation works in a circular pattern
- Gazebo 3 was placed on the edge of the riverbank.
- Two edible garden tunnels, both on each side of the Centre, act as a shading device for planter boxes
- The 6m platform was removed entirely

PLOT DESIGN DEVELOPMENT

SPATIAL ORGANISATION

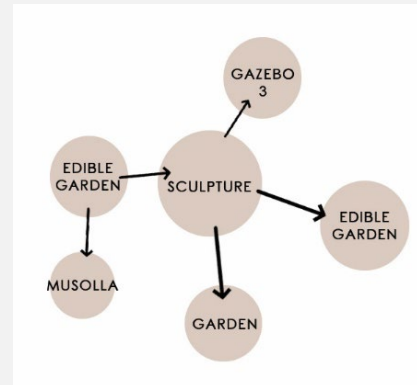


Figure 22: Relationship diagram of plot 2

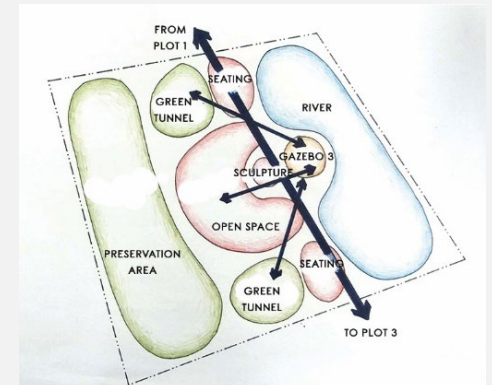


Figure 23: Schematic diagram of plot 2

SITE FEATURES



Figure 24: Green tunnel



Figure 25: Restroom

SOFTSCAPES



Figure 26: Aloe vera (Source: www.jardins-du-monde.be, 2016)



Figure 27: Bird's eye chillies (Source: liamd.pw, 2019)



Figure 28: Coriander (Source: www.pinterest.co.kr, 2019)

GAZEBO 3: WAKAF TANATUO



Figure 29: Gazebo 3 in plot 2

Wakaf Tanatuo is the third gazebo installed for KAED Heritage and Cultural Lab. Tanatuo comes from the word 'growing earth'. The connecting zig-zag motif symbolises the movement of roots which also indicates the strength of the earth. Similar to the rest of the roof, the V-shape roof is symbolic to the design of Buginese people where it represents their social strata. The measurement size of the gazebo is 3.8m x 4m x 5.3m.

PLOT 3: URBAN FARMING

SITE ISSUES

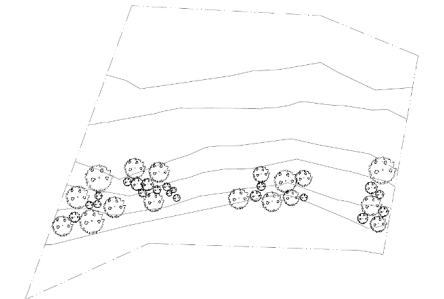


Figure 30: The original state of plot 3

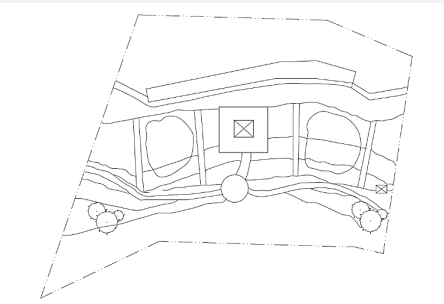


Figure 31: The first design of plot 3

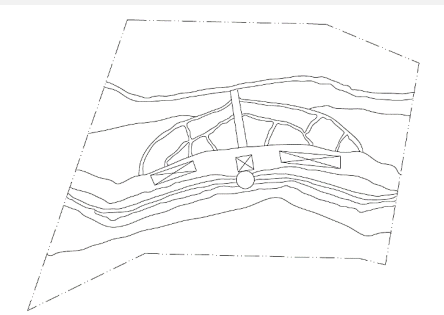


Figure 32: The second design of plot 3



Figure 33: The final design of plot 3

The issues:

- No proper walkway on site
- Hilly site with high slope
- Ground settlement near riverbank
- Non-utilized site on the upper side of the site
- No connection between canopy walk and walkway through the farming area
- Gazebo 4 was placed in the middle of the site on the timber decking that were elevated from the ground
- Circular decking connecting the canopy walk is also connected to the gazebo
- Farming area was inspired from terrace paddy field of Indonesia

- Maze farming to give adventure challenges to visitors
- Concrete staircase form the main access to the gazebo
- Gazebo was placed at a higher position to give maximum view for the visitors
- Vegetable plantations were divided into two - horizontal farming and vertical farming

- Circular layout fit aptly to the concept "Bertapak Buana"
- Horizontal farming - cabbage, carrot, lettuce
- Vertical farming - scallion, tomato, parsley
- System used - Hydroponic, Sprinklers

PLOT DESIGN DEVELOPMENT

SPATIAL ORGANISATION

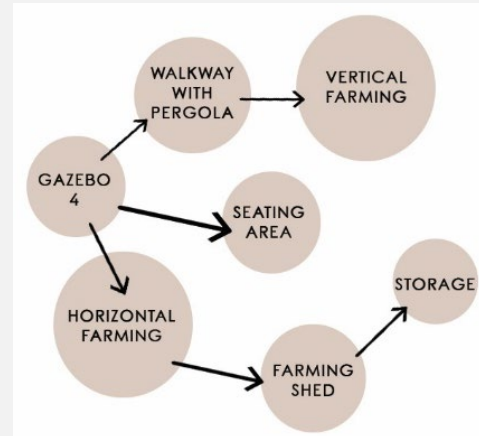


Figure 34: Relationship diagram of plot 3

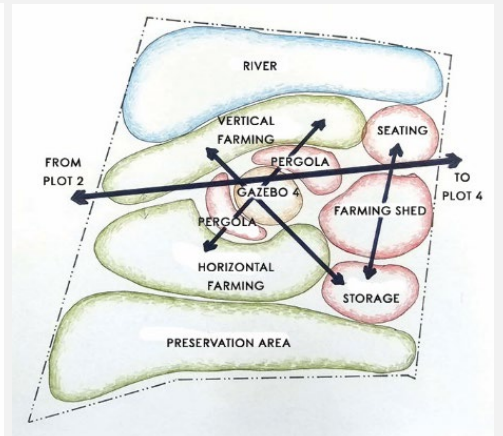


Figure 35: Schematic diagram of plot 3

SITE FEATURES



Figure 36: Overview of plot 3



Figure 37: Farming shed

SOFTSCAPES



Figure 38: Cabbage
(Source: tr.pinterest.com, 2019)



Figure 39: Garlic
(Source: brightkids.biz, 2019)



Figure 40: Cucumber
(Source: www.thespruce.com, 2019)

GAZEBO 4: WAKAF URE' TAKKE



Figure 41: Gazebo 4 in plot 3

Wakaf Ure' Takke is inspired from Buginese word 'intertwining veins/roots'. The gazebo is built on two different levels to indicate the difference in Buginese social class. The intertwining roots signify the symbiotic relationship between the two different social class and also to associate the relationship between man and nature. The gazebo has 'Lebah Bergantung' as part of the motif. The measurement size of the gazebo is 2.8m x 3.8m x 4.5m

PLOT 4: LOCAL HERITAGE FRUITS

SITE ISSUES

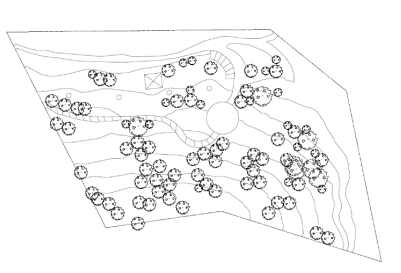


Figure 42: The first design of plot 4

- Entrance not appropriate
- Too sparse
- Very random decking trail
- Lack of identity
- No typical local fruit planted
- No toilet
- Placement of gazebo
- Cannot relate to the concept



Figure 43: The second design of plot 4

- Develop into a massive oval-shaped fruit farm
- Entrance not appropriate
- Lack of identity
- Placement of gazebo
- Unsuitable garden trail

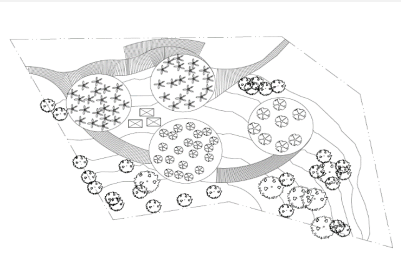


Figure 44: The third design of plot 4

- Change the garden into circular layout
- Lack of identity
- Circulation
- Placement of gazebo
- Unsuitable walkway



Figure 45: The final design of plot 4

- Finalised design of "Alam Buana Fruit Garden"
- Design relates to the concept
- Standardised circulation
- Appropriate entrance
- Presence of Sculpture to show identity of the orchard

SPATIAL ORGANISATION

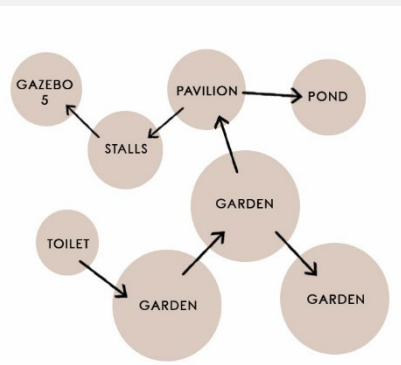


Figure 46: Relationship diagram of plot 4

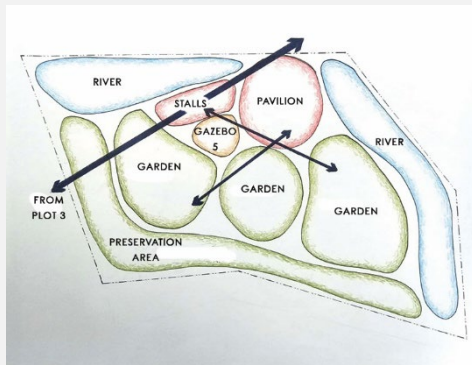


Figure 47: Schematic diagram of plot 4

PLOT DESIGN DEVELOPMENT

SITE FEATURES



Figure 48: Overview of plot 4



Figure 49: Walking trail

SOFTSCAPES



Figure 50: Rambutan tree
(Source: yaya.lk, 2019)



Figure 51: Mangoesteen
(Source: lh3.googleusercontent.com, 2019)



Figure 52: Jackfruit tree
(Source: creativemarket.com, 2019)



Figure 53: Mangoes tree
(Source: www.bioqualitum.com, 2019)

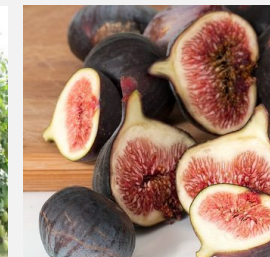


Figure 54: Figs
(Source: lh3.googleusercontent.com, 2019)



Figure 55: Banana tree
(Source: lh3.googleusercontent.com, 2019)

GAZEBO 5: WAKAF LANGIE



Figure 56: Gazebo 5 in plot 4

Wakaf Langie is the last gazebo installed for KAED Heritage and Cultural Lab. Wakaf Langie means 'sky' in Buginese. The symbolism of the sky relates to the highest hierarchy in Buginese principle. The elongated-styled roof shows the majestic value of Buginese culture. 'Lebah Bergantung' motif adds aesthetic value to the gazebo. The measurement size of the gazebo is 6.8m x 1.8m x 4.4m.

CONCLUSION

The characteristic of traditional architecture generates a friendly place through an understanding of the design to its cultural environment and the local people. The historical precedents validate how the characteristic of traditional architecture gathers and embodied the importance of traditional values in contemporary architecture. It is therefore imperative that the Malay cultural heritage is preserved to sustain the continuity of its cultural identity.

The Malay Enclave Teaching Lab project initiated by Kulliyyah of Architecture and Environmental Design has highlighted the contribution of the Malay heritage to world sustainability issues and had raised interest for today's youth to learn, follow and adopt the relevant principles as required.

The project brought together the experience of working in a multi-disciplinary team of designers and surveyors. The added value includes working together towards design decisions within the cost limitation. This experience brings maturity to both designers and surveyors in the team.



Figure 57: Masterplan

ACKNOWLEDGEMENT

All gratitude be to Allah SWT, the God almighty for giving the strength and perseverance to complete the tasks with flying colours.

To the lecturers involved in the project, the team is ever thankful for the opportunity to participate in this exciting project. The project allows the team to learn the value of trust and had guided the team throughout the course to discovering in-depth, the cultures and traditions of our heritage and understood the importance of preserving them throughout our lives.

To all Pusaka Bina Associates team members i.e. Aliyah Nur Zafirah Sanusi, Muhammad Muzzammil, Nur Arifah & Yusufariq Iqmal, Ezryn Ezyani Najwa, Nizamuddin Hafzi, Ahmad Rafie Nasrullah, Ammar Asyraf, Luqman Hakim, Izzatun Munirah, Muhammad Izzat Amir, Muhammad Afiq, Muhammad Hafiz Rahimi, Nur Hazierah, Nur Izzati Syahirah, Umi Aissar, Athirah Nazri, Sumayro Saif, Dayang Damia Batrisyia, Amierul Syaddad, Qurratu Aini, Khairunnisa, Nur Hazirah, Muhamad Irphan, Nurul Izzanie, Safia Nadzirah, Mohd Faiz, Nourelhoda Zbair, Siti Noratira, Alea Syaffa, Muhammad Miqdad, and Puteri Nurhidayah, everyone played their part diligently in making our project a success.

Thank you.

6. http://gdparchitects.com/2015/wp-content/uploads/2015/10/gdp_web_perdanacanopy_header.jpg
7. <https://stories.travel360.com/how-go-sightseeing-kuala-lumpur-without-spending-transportation/>
8. <https://www.metalocus.es/en/news/crossed-pieces-mpavilion-2018-melbourne-carne-pinos>
9. https://www.archdaily.com/874920/critics-laud-francis-keres-2017-serpentine-pavilion-for-its-simplicity-and-authenticity?ad_medium=widget&ad_name=recommendation
10. Tongkonan. (2019, July 07). Retrieved from <https://en.wikipedia.org/wiki/Tongkonan>
11. Wan Ismail, W. (2013). *Adoption of Culture in Bugis houses in Johor, Malaysia*. 3rd ed. [ebook] Skudai, Johor: Centre for Environment-Behaviour Studies (CEBs), Faculty of Architecture, Planning & Surveying, Universiti Teknologi MARA, Malaysia. Available at: <https://fspu.uitm.edu.my/cebs/images/stories/cebs/jabs392013c1.pdf> [Accessed 26 Jul. 2019].
12. <https://www.jardins-du-monde.be/nl/exotic-palmboom/319-aloe-vera.html>
13. <https://liamd.pw/>
14. <https://www.pinterest.co.kr/pin/428264245816430277/>
15. <https://tr.pinterest.com/pin/386042999293827974/>
16. <http://brightkids.biz/garlic-planting-spacing/>
17. <https://www.thespruce.com/growing-cucumbers-in-container-gardens-848163>
18. <https://yaya.lk/2019/01/27/%E0%B6%BB%E0%B6%B9%E0%B7%94%E0%B6%A7%E0%B6%B1%E0%B7%8A-rambutan/>
19. https://lh3.googleusercontent.com/HeVjnDuODIz0wM8Ohv78o0UsT6a2LyE_zNDYRM5mj8oqUWi_jyx6eHVghzLTdVjkGSrU9hg=s101
20. <https://creativemarket.com/saiko3p/4749712-Jackfruit-tree>
21. [https://www.bioqualitum.com/es/multimedia/Galer%c3%ada?_escaped_fragment_="](https://www.bioqualitum.com/es/multimedia/Galer%c3%ada?_escaped_fragment_=)
22. <https://lh3.googleusercontent.com/W-ngwi87S6RIA3UBu6oRh8NwSjnyZg4xCw2rnKQqkRF5AVv4DQLwdZFdELYlmtM0XWitFw=s89>
23. https://lh3.googleusercontent.com/yQZwkMtJ6lZO4zlBeTmKOomrAVOL_u99jxUDqFCascxAWbaRUPO23r_sGeB5bE4chKTVa_A=s110

REFERENCES

1. Bugis and Makassar Architecture and Urban Neighbourhoods in Singapore. (2017, October 01). Retrieved from <http://singapurastories.com/2017/10/bugis-and-makassar-architecture-and-urban-neighbourhoods-in-singapore/>
2. Camp Adventure Park. (n.d.). Retrieved from <https://www.oeffekt.dk/camp>
3. Frearson, A., & Frearson, A. (2019, May 15). EFFEKT completes spiralling Camp Adventure tower in midst of a Danish forest. Retrieved from <https://www.dezeen.com/2019/05/12/camp-adventure-tower-effekt-denmark-forest/#/>
4. Harizah, A. & Mohsen, M. (2018). *Traditional Procedures Of Environmental Vision Bugis Architecture Bulding Materials In South Sulawesi, Indonesia (Based On Lontara And Opinions By Panrita Bola As The Architects Of Bugis Traditional Architecture)*. 9th ed. [ebook] Makassar, Indonesia: IAEME Publication. Available at: http://www.iaeme.com/MasterAdmin/UploadFolder/IJCIET_09_11_043/IJCIET_09_11_043.pdf [Accessed 26 Jul. 2019].
5. https://freight.cargo.site/w/750/i/e26fad73466886cd0738b7d3abc75605ddc8f56d4da885deec2173ace06b3ef7/New-Office-Works_NOW14_WKCD-Pavilion_06A_LRXu-Liang-Leon.jpg