

INTEGRATION OF RIVER AND COMMUNITY PARK  
AS PLACE MAKING APPROACH TOWARDS  
MELANA RIVER SPORT ARENA

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requirements for the award of the degree of  
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## **DEDICATION**

Specially dedicated to my supportive family members, loved ones and friends.

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## ABSTRACT

In this dissertation, the design strategy of *Melana River Park Arena* which is proposed in Pulai, adjacent to residential area and Melana River is being discussed. In this project, *Melana River Park Arena* not only provide sport facilities which could be enjoyed by the community, at the same time, it also plays an important role as mediator between communities and river. Pulai is a suburban area. A town and federal constituency located in Johor, about 25 km or 30 minutes from Johor Bahru city centre. It encompasses a number of neighbourhoods and small towns. Some of these neighbourhoods are located on the outskirts of the area. Thus, they are more peaceful, but further away from urban facilities. Following with results obtained from questionnaires and through site review, insufficient of indoor sport facilities are found in Pulai area. From the questionnaires, aging issues are happening, however health awareness of Pulai residents exist to be low due to insufficient accessible and nearby sport facilities that open to public. Pulai area is a place which showing monotonous architecture dialogue. Proposed *Melana River Park Arena* however portray place making approach which create place identity for Pulai area. Proposed *Melana River Park Arena* with social spaces which integrate with propose horizontal park along Melana River not only raise the awareness of public towards Melana River, it also creates a liveable environment for the residents. Also, social engagement of the community could also be enhanced with the propose of *Melana River Park Arena* which connecting the residents to social spaces in the building and horizontal park along Melana River. All in all, research statement of this dissertation is to propose a sport complex that mediates between community and river in Pulai, where the aim of this dissertation is to formulate a design strategy of sport facilities that promote health, lifestyle and social engagement within the community by integrating and utilizing of Melana River. The research process of this dissertation involves earlier preliminary study of area review and preference study, where questionnaires is being produced and distributed after the preliminary study. Continuously with data analysis and synthesis of the results obtained, design of *Melana River Park Arena* is proposed followed with design strategy that parallel to the aim and objectives of the project. All in all, through this dissertation, the design strategy of *Melana River Park Arena* which mediates between communities and river is being discussed.

## ABSTRAK

Penyelidikan ini membincangkan kaedah dan langkah dalam mereka bentuk Melana River Park Arena yang dirancang di Pulau, yang mana terletak bersebelahan dengan kawasan perumahan dan Sungai Melana. Menerusi projek ini, Melana River Park Arena direka bentuk bukan sahaja untuk menyediakan kemudahan sukan yang boleh dinikmati oleh masyarakat, namun, ia juga memainkan peranan penting sebagai pengantara bagi masyarakat dan sungai. Pulau berlokasi di kawasan pinggir bandar. Pulau merupakan sebuah bandar dan kawasan pilihan raya persekutuan yang terletak di Johor, berjarak kira-kira 25km atau 30 minit dari pusat bandar Johor Bahru. Pulau meliputi beberapa kawasan kejiranan dan pekan kecil. Sebahagian daripada kawasan kejiranan ini terletak di kawasan pinggir bandar. Hal ini menyebabkan Pulau memiliki persekitaran yang lebih aman, namun ini juga menyebabkan Pulau lebih jauh daripada kemudahan bandar. Bersampingan dengan keputusan yang diperolehi daripada soal selidik dan melalui tinjauan tapak, kemudahan sukan dalaman (indoor sport facilities) didapati tidak mencukupi di kawasan Pulau. Menerusi soal selidik juga, isu penuaan didapati semakin berleluasa, namun kesedaran penduduk Pulau mengenai kesihatan didapati agak kekurangan sedangkan isu kekurangan kemudahan sukan yang berhampiran dan terbuka kepada orang ramai. Selain itu, kawasan Pulau memaparkan dialog seni bina yang serupa. Perancangan Melana River Park Arena walaubagaimanapun menggunakan kaedah 'placemaking' dengan membentuk identiti tempat (place identity) bagi kawasan Pulau. Perancangan Melana River Park Arena dengan ruang sosial yang berintegrasi dengan perancangan Horizontal Park sepanjang Sungai Melana bukan sahaja meningkatkan kesedaran orang ramai terhadap Sungai Melana, perancangan ini juga mewujudkan persekitaran yang sihat (liveable environment) bagi penduduk. Selain itu, interaksi antara penduduk juga boleh dipertingkatkan dengan perancangan Melana River Park Arena yang menyambung penduduk dan komuniti melalui ruang sosial dalam bangunan dan Horizontal Park di sepanjang Sungai Melana. Secara keseluruhannya, pernyataan penyelidikan disertasi ini adalah untuk menrancang kompleks sukan yang menjadi pengantara antara komuniti dan sungai di Pulau, di mana tujuan disertasi ini adalah untuk merangka strategi reka bentuk kemudahan sukan yang menggalakkan kesihatan, gaya hidup dan penglibatan sosial dalam komuniti dengan mengintegrasikan dan memanfaatkan Sungai Melana. Proses penyelidikan disertasi ini melibatkan penyelidikan awal termasuk tinjauan kawasan dan penyelidikan keutamaan (preference study), di mana soal selidik dihasilkan dan diedarkan selepas penyelidikan awal. Berlanjutan dengan analisis data dan sintesis data yang diperolehi, reka bentuk Melana River Park Arena telah dibentuk diikuti dengan strategi reka bentuk yang selari dengan matlamat dan objektif projek. Secara keseluruhannya, melalui disertasi ini, strategi reka bentuk Melana River Park Arena yang menjadi pengantara antara komuniti dan sungai akan dibincangkan.

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## LIST OF ABBREVIATIONS

DOE	-	Department of the Environment
HRQOL	-	Health-related quality of life
KPM	-	Ministry of Education Malaysia
MBIP	-	The <i>Iskandar Puteri</i> City Council
MBJB	-	<i>Johor Bahru</i> City Council
MRT	-	Mass Rapid Transit
NGOs	-	Non-governmental organisations
RTD	-	<i>Rancangan Tempatan Daerah</i>
SDG	-	Sustainable Development Goals
SPTS	-	Schools' High-Performance Sports Programme
SRB	-	<i>Skudai</i> River Basin
SUKMA XX	-	<i>Sukan Malaysia</i> 2020
UTM	-	University of Technology Malaysia

## LIST OF SYMBOLS

&	-	And
©	-	Copyright
>	-	Greater than
<	-	Less than
%	-	Percentage
$\tau$	-	Torque

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# CHAPTER 1

## INTRODUCTION

### 1.1 Introduction

Since this project is entitled as *Melana River Park Arena*, sports and recreation are the main building programme of this proposed building. In Malaysia, the importance of sports is always being highlighted since primary education. Sports are being emphasised and introduced to students in educational syllabus not only with the aim for physical and mental health, but also to form sports culture among students (Dr. Devika Nadarajah, 2021). There are numerous advantages on sport participation based on a good many of research on sport and fitness. According to both literature by Anthony Grant & Jane Greene (2001) and Mike Collins & Tess Kay (2014) sport and physical activities are the important factors which had led people all over the world to have meaningful lives by improving health and increasing social interaction. All of this however highlighted the significance of sports in daily lives not only to increase physical health, but also helps in improve the living quality and social interaction among the community.

Healthy lifestyle is also undoubtedly an important element that should have been implemented in all the urban and suburban communities to ensure a better living environment. This study also aims to have a community which practices healthy lifestyle, it is said to be ideal to have health awareness since childhood time (Centre on the Developing Child, 2010). Besides that, the engagement of talented athletes in Malaysia have brought the name of our nation to a bigger platform. It is important for us to cultivate more talented youths to join in sports, bringing the glory to further future. History also shows that sport culture can drive urban development and adapt to the culture of every age. Community building and social sustainability also form part of the remit of the arena construction. In addition, courts rental is one of the main

elements which generates income and benefits to the community. Overall, arena in community area could brought benefit to the development of sports in Malaysia.

Next, sports arena provides better and proper environment which enables potential youth to get better training, practice and engagement in sports. Based on location study of Pulai, Johor, and also questionnaire responded by Pulai community, it is found that the area has limited public sport facilities. Not only that, in this questionnaire, the result of low awareness of public towards *Melana River* is also obtained. Thus, in this project, *Melana River Park Arena* is proposed located near to residential housing area and *Melana River* as in this research the aim is to propose design strategy of sport facilities that promote health, lifestyle and social engagement within the community by integrating and utilizing the *Melana River*.

## **1.2 Background**

In this project (*Melana River Park Arena*), a sport arena is proposed with the aim to promote health, lifestyle and social engagement within the community in revitalizing the *Melana River* where it mediates between community and the river. The background study of this research however is divided into three main topics, which are facilities, *Melana River* and liveable environment.

### **1.2.1 Background - Facilities**

Based on investigation, study and questionnaires were done on Pulai area. Pulai area is found to have inadequate sport facilities and low health awareness. It is utmost important to provide sport facilities to Pulai community, encouraging the community to join sports and practice healthy lifestyle followed with the issue of aging community and low advanced health facilities around the area.

In Malaysia, the importance of sports is always being highlighted since primary education. The programme “*1 Murid 1 Sukan*” is introduced by *Kementerian Pelajaran Malaysia* (KPM), where all the students in primary and secondary school are required to participate one sports activity at school (*Kementerian Pendidikan Malaysia, 2022*). Through this programme, all the students are encouraged to engage in sports activities. Also, the talents of potential students will be polished and developed through the *Sukan Prestasi Tinggi Sekolah (SPTS)* in parallel with this programme. Sports are being emphasised and introduced to students not only with the aim for physical and mental health, but also to form sports culture among students. (*Kementerian Pendidikan Malaysia, 2022*). This study also aims to bring up community which practices healthy lifestyle. Since we have all undergo the scenario of pandemic Covid-19, the awareness of health and healthy lifestyle should be get further highlighted among the communities. Healthy lifestyle should become culture of communities nowadays who largely depend on electronic gadgets, lack of movement and at the same time facing population aging. It is said to be ideal to have health awareness since childhood time (*Centre on the Developing Child, 2010*). All in all, sport culture and health awareness are very important for living quality and lifestyle of a community for better future.

Besides that, the engagement of talented athletes in Malaysia have brought the name of our nation to a bigger platform. It is important for us to cultivate more talented youths to join in sports, bringing the glory to further future. History also shows that sport culture can drive urban development and adapt to the culture of every age. As Malaysian, we are always proud of our athletes who have successfully won medals in international sporting events such as *Olympic Games, the Asian Game, the Commonwealth Games* and *the Southeast Asian Games*. A total of eleven Olympic medals have been obtained by Malaysia, gaining treasure and unforgettable memories to all Malaysians. It is important for us to cultivate more talented youths to join in sports and bring the glory to further future. Moreover, Youth and Sports Ministry always highlight their intentions in boosting the country’s sport industry (*Jeremy Ng, 2021*). They aim to recruit more talented youth in the future to be trained to excel in sports. However, sport facilities are the foremost important element that are in needs for those youngsters to attain the opportunities to get knowledge, get involve and continuously get interested towards sports.

History also shows that sport facilities can drive urban development, and adapt to the culture of every age. Community building and social sustainability also form part of the remit of the sport facilities construction. In addition, sport facility's rental is one of the main elements that helps Majlis Sukan Negara Malaysia and community to generate income (Dr. Devika Nadarajah, 2021). Overall, sport facilities bring numerous benefits to sports development in Malaysia. More variety and proper sport facilities however are required to provide better and proper environment which enable potential youth to get better trained, practiced and involved in sports.

### **1.2.2 Background – Melana River**

Skudai river has been famed for years as it has gone through the process of defending the sovereignty of the country, continuing the legacy of the government, strengthening the civilization of the Malays in defending the dignity of race, religion and country. In the past, Skudai River had an important role which brought effect to the boom and bust of the country. Skudai River is one of the key aspects bringing about the development in politics, economics, and social of the area. It was once playing roles in:

- i. transportation & communication,
- ii. agriculture,
- iii. mining,
- iv. fishing and food sources,
- v. settlement development, and
- vi. domestic water source.

All the records of the glorious moments and the historic events are firmly left behind along this river to this day. However, the glory of the Skudai River has been shaded year by year. Apparently, pieces and pieces of news on pollution of Skudai River could be found where it even caused pollution to the Sultan Ismail Water Treatment Plant (Malaymail, 2021).



Melana River, as one of the main distributaries of Skudai River is treated as a drainage by most of the nearby residents. To prevent Melana River from getting into worse condition as an illegal dumping area, space for illegal gathering, place spreading of mosquito diseases and low river bed/ low water level which brought harm to the nearby residents. It is urged to highlight interventions that seek to protect and revitalize our riverine ecosystem.

Thus, in this project, the design strategy of the proposed *Melana River Park Arena* which merges with the concept to utilize and integrate with Melana River is being highlighted with the aim to bring more people and community to the river, where at the same time increases public awareness towards the Melana River.

### **1.2.3 Background – Liveable environment**

Based on Maslow's Hierarchy of needs, people and community require different needs to carry out their lives (Dr. Saul McLeod, 2020). In the past, we could see that typical kampung involved different typology of buildings which provide different needs for the entire villagers. However, with the development of housing industry nowadays in more and more undeveloped places, the concept of different typology of building forming a complete typical kampung (V.F. Chen, 1998) had been almost faded due to better and faster returning of income through residential housing industry.

Followed to this, construction of 15-minute neighbourhood has been highlighted in most of the study which prevent a city or place become a disconnected city due to sprawling and segregated urban structure (Lulu Hou & Yungang Liu, 2017). 15-minute neighbourhood concept are produced with the aim to organize urban development and urban living which could improves air quality and makes neighbourhood safer, quieter, more diverse, inclusive, and economically viable, at the same time making life more liveable for people (Lulu Hou & Yungang Liu, 2017).

Also, in this project, the propose of *Melana River Park Arena* not only to fulfill the need of community in having a place for sport and leisure activities. The introduction of green element and environment beautification also provide better and fresh environment for the public to enjoy while having their activities at the site. Not only that, in this proposed Melana River Park Arena, natural context of Melana horizontal park is also being expand, connect and bring to the site to produce a more liveable environment for the sport facilities.

### **1.3 Problem Statement**

The problem statement in designing the *Melana River Park Arena* could be divided into following categories:

- (a) Facilities
  - i. What is the way to encourage community to join sports and promote healthy lifestyle?
  - ii. How to encourage community to cultivate sports talents?
- (b) Melana River
  - i. How to revitalize and encourage the public to gain awareness towards Melana River?
  - ii. How could Melana River become an advantage for the nearby residents and community?
- (c) Liveable environment
  - i. How to made liveable environment for the surrounding community?

### **1.4 Research Agenda**

In this subtopic on research agenda, it involves the discussion of the frame of this dissertation. Through this subtopic, the goals of the dissertation are being highlighted. Also, the objectives of this dissertation which would continue to discuss

and define through this dissertation in producing the end products of this research is also being discussed.

#### **1.4.1 Research Aim**

The aim of this dissertation is to formulate a design strategy of sport facilities that promote health, lifestyle and social engagement within the community by integrating and utilizing the *Melana River*.

#### **1.4.2 Research Objectives**

Research objectives are commonly the results that would come across by conducting the research which is the helps in leading towards the answer of the research questions or problem statement. It is generally tailored to a specific topic or category. In this dissertation, the research objectives could be categorized into 3 main topics, which is sport facilities, Melana River and liveable environment. The three objectives of this dissertation however are as shown below:

- i. To provide better and wider types of sport facilities to encourage healthy lifestyle within the community.
- ii. To raise awareness of public towards Melana River by integrating it with sport activities.
- iii. To expand, connect and bring the natural context of Melana horizontal park into proposed site to form a sport arena with more liveable environment.

## 1.5 Significance of Research

There are a total of 195 nations who agree with the United Nation to change the world for better future on 25<sup>th</sup> September 2015. Leaders all over the world had endorsed the 2030 Agenda for Sustainable Development (2030 Agenda) at the United Nations General Assembly, New York. The 17 Sustainable Development Goals represent this worldwide commitment to a more resilient, inclusive, and sustainable form of development (SDGs). Thus, in this study, it is intended to address the issue as a result and represents a commitment to attaining the SDGs goals highlighted below (Figure 1.0):



Figure 1.0: 2030 Agenda (WorldTop20, 2022)

To simplify, in this project, the proposed of *Melana River Park Arena* will fall under following 6 SDG:

- i. SDG 3: Establish Good Health and Well-Being
- ii. SDG 7: Grow Affordable and Clean Energy
- iii. SDG 8: Create Decent Work and Economic Growth
- iv. SDG 11: Mobilize Sustainable Cities and Communities
- v. SDG 13: Organize Climate Action
- vi. SDG 14: Develop Life Below Water

Although the design strategy involves the 6 SDGs as shown below, however, in this research, the focus of the dissertation would be only based on the design strategy of *Melana River Park Arena* or sport arena which sit between the community and ecology. Where the main highlight of this dissertation is basically on the relationship of the proposed Melana River Park Arena with facilities, Melana River and liveable environment as explained in problem statement in 1.3 above.

## 1.6 Research Methodology

In this research, it involves both qualitative and quantitative paradigm to conduct the study. The research process of this dissertation involves earlier preliminary study of area review and preference study (qualitative paradigm), where questionnaires (quantitative paradigm) is being produced and distributed after the preliminary study. The study of this research largely involves secondary data from literature review and other studies where it is then being assessed qualitatively through feasibility study. Continuously with data analysis and synthesis of the results obtained, design of *Melana River Park Arena* is proposed followed with design strategy that parallel to the aim and objectives of the project. The following figure (Figure 1.1) however shows the flow chart of research methodology of this dissertation.

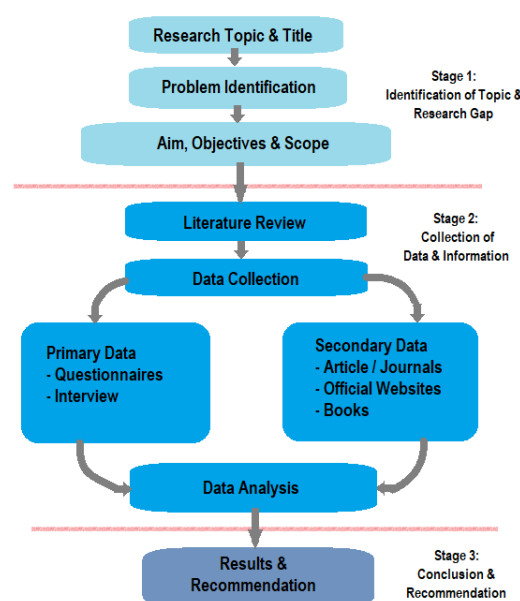


Figure 1.1: Flow chart of research methodology.

In addition to that, the research process of the project of *Melana River Park Arena* is also shown in Figure 1.1. It involves following phase and process before the production of end product which hit the aim and goals of the project:

- i. Area review
- ii. Data analysis
- iii. Data synthesis
- iv. Elimination of exceeding data
- v. Design thinking
- vi. Design Study
- vii. Design Phase

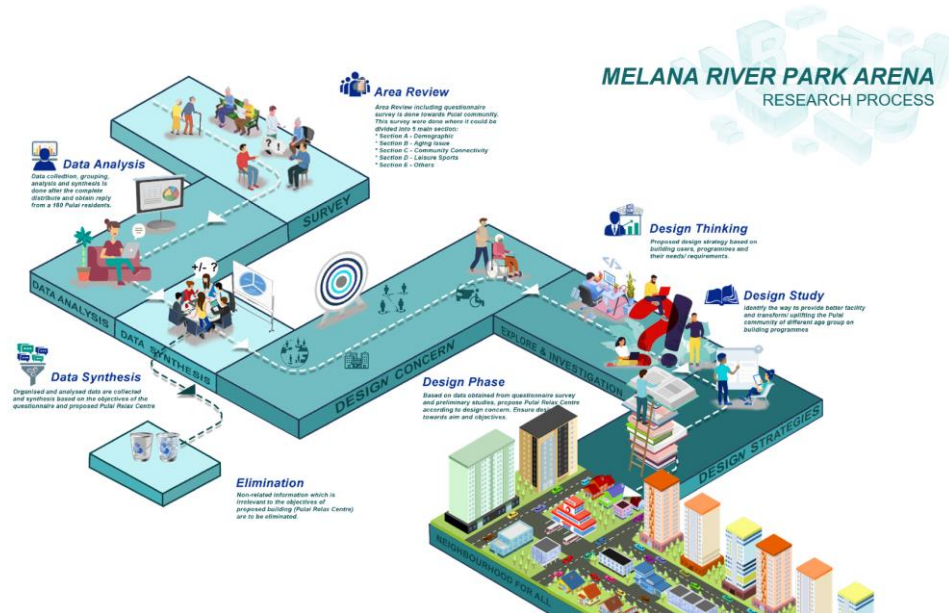


Figure 1.2: Research process of *Melana River Park Arena*.

All in all, through this dissertation, the design strategy of *Melana River Park Arena* which mediates between communities and river is being discussed in the following chapters. The aim of this dissertation is to formulate a design strategy of sport facilities that promote health, lifestyle and social engagement within the community by integrating and utilizing the Melana River.

## CHAPTER 2

### LITERATURE REVIEW

#### 2.1 Preliminary Study

In preparation of questionnaires, a preliminary study has been done based on the 5 sections set. In which the preliminary studies involve literature review, site study and preference study (Figure 2.0). Data and information related to the research scope are collected and analyse to form a questionnaire to be distributed to the 180 sample/ target group (Pulai residents).

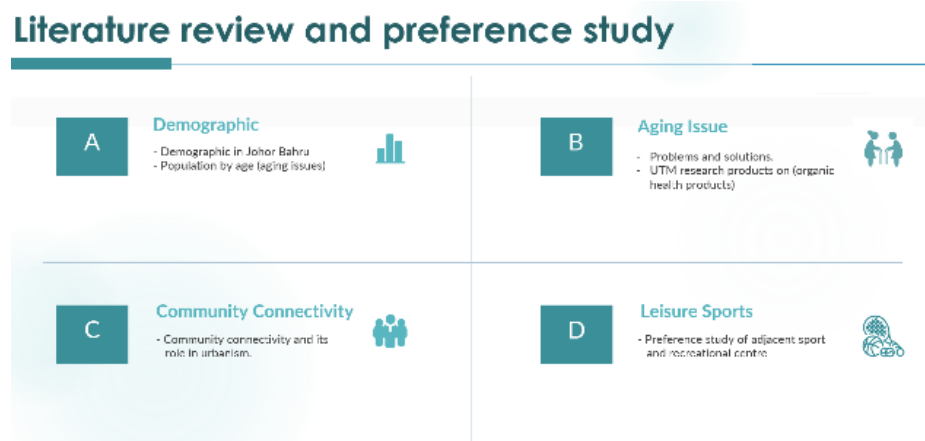


Figure 2.0: Preliminary study.

## 2.2 Section A – Demographic

For Section A or section on demographic, literature review is being done to understand the overall demographic of target groups. The information and results obtained through literature review are being discussed in this subsection.

### 2.2.1 Demographic (Literature Review)

In this section, literature review that have been done involved demographic in Johor Bahru and the data of population by age is obtained (Figure 2.1).



Figure 2.1: Demographic data obtained (Department of Statistics Malaysia Official Portal, n.d.).

As obtained from the Department of Statistics Malaysia Official Portal (n.d.), the age structure of the RTD population is expected to move forwards, where for the age group of 65 years and above is expected to record an increase of 4.88% by 2025. Also, based on Malaysia Population Forecast obtained from Worldometer (n.d.), the population ageing issue in Malaysia is clearly seen. As shown in Figure 2.2, the median age of Malaysian is expected to increase by 10.2 age in 30 years.



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