

**FOSTERING ENVIRONMENTAL STEWARDSHIP AMONG UNIVERSITY
STUDENTS – DESIGN RECOMMENDATION FOR A STUDENT PLAZA
AT THE FACULTY OF SUSTAINABLE AGRICULTURE, UMS
SANDAKAN**

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FOSTERING ENVIRONMENTAL STEWARDSHIP AMONG UNIVERSITY STUDENTS – DESIGN RECOMMENDATION FOR A STUDENT PLAZA AT THE FACULTY OF SUSTAINABLE AGRICULTURE, UMS SANDAKAN

ABSTRACT

A study was conducted at the land next to student hostel Block A in Faculty of Sustainable Agriculture (FSA), Universiti Malaysia Sabah. This study was aimed to design a student plaza in the faculty which able to encourage environmental stewardship and promote social interaction among the university students. The objectives of this study were to assess the input of the faculty's community on the idea of a successful plaza in FSA, to conduct site inventory and analysis at the proposed site and to recommend a plaza design which encourages social interaction and environmental stewardship among the community. In this study, mixed method approach (questionnaire survey and site inventory and analysis) was used to collect data. The questionnaire survey was distributed to 50 respondents of FSA to evaluate their opinions towards landscape based on the concept of 'Placemaking'. The data from the survey was analyzed by calculating and determining the frequency (N) and percentage (%) of respondents. Site inventory and site analysis was carried out in order to collect and evaluate the data from the site. The collected data from the site inventory and analysis was recorded and displayed in table form. The recommendation design plan was displayed through the use of Master plan, Elevation plan, Perspective drawing and Planting Palette. Based on the survey, it was found that the students in FSA have high environmental awareness. They preferred to do environmental activities such as edible gardening and collaborative maintenance in order to develop pro-environmental behaviours. The design of the student plaza was based on the survey under the theme of community living room. The plaza was divided into four main areas; auditorium, edible garden, discussion area and outdoor gymnasium. All these four areas were aimed to promote sociability and environmental stewardship among the students. The vegetation in this plaza design was recommended through the use of planting palette. All the vegetation possessed herbal properties which able to relax and refresh the students' minds. Another sustainable practice that can be found in this design is the materials used to build hardscapes will be reclaimed materials such as woods and bricks. Permeable paving was also another sustainable practice in this design. Insufficient of time, lack of facilities for landscape research and language constraint were the limitations that can be found in this study.



**MEMUPUK SIFAT PENJAGAAN ALAM SEKITAR DI KALANGAN MAHASISWA
DAN MAHASISWI – CADANGAN REKA BENTUK BAGI PLAZA PELAJAR DI
FAKULTI PERTANIAN LESTARI (FPL), UNIVERSITI SANDAKAN**

ABSTRAK

Satu kajian telah dijalankan di lapangan tanah sebelah asrama Blok A pelajar di Fakulti Pertanian Lestari (FPL), Universiti Malaysia Sabah (UMS) untuk mencadangkan reka bentuk bagi sebuah plaza mahasisiwa di FPL. Plaza tersebut adalah untuk menggalakkan pengawasan alam sekitar dan pada masa yang sama meningkatkan interaksi social antara pelajar. Objektif bagi kajian ini adalah menilai idea komuniti FPL bagi sebuah plaza yang berjaya, menjalankan inventori dan analisis tapak serta mencadangkan reka bentuk bagi sebuah plaza komuniti yang dapat memupuk interaksi sosial dan sifat penjagaan alam sekitar di kalangan komuniti. Soal selidik telah diedarkan kepada 50 orang responden untuk menilai persepsi dan idea mereka tentang landskap berdasarkan konsep "Placemaking". Data yang diperoleh daripada soal selidik itu telah dianalisis melalui pengiraan bilangan (N) dan peratus (%) responden. Inventori dan analisis tapak telah dijalankan untuk mengumpul dan menilai data daripada tapak kajian. Reka bentuk yang dicadangkan telah dipamerkan melalui Pelan Master, Pelan Elevasi, Pelan Perspektif dan Painting Palette. Dalam kajian soal selidik ini, didapati kebanyakan pelajar FPL mempunyai kepekaan terhadap alam sekitar yang tinggi. Mereka mencadangkan aktiviti-aktiviti seperti "edible gardening" dan menjalankan penyelenggaraan secara bekerjasama untuk memupuk kesedaran alam sekitar. Reka bentuk bagi plaza pelajar adalah berdasarkan tema ruang tamu komuniti yang bertujuan untuk meningkatkan interaksi sosial dan memupuk sifat penjagaan alam sekitar. Dalam reka bentuk plaza pelajar ini, tindakan-tindakan yang berdasarkan konsep "sustainable" seperti kompos dan penggunaan bahan kitar semula telah dijalankan supaya sifat kesedaran terhadap alam sekitar dapat dipupuk di kalangan pelajar. Kesuntukkan masa, kekurangan kemudahan untuk kajian landskap serta kekurangan mahir dalam bahasa merupakan halangan bagi kajian ini.

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LIST OF SYMBOLS, UNITS AND ABBREVIATIONS

%	Percentage
°C	Degree Celcius
E	East
FSA	Faculty of Sustainable Agriculture
km/h	Kilometer per hour
MSM	University orientation activities (Mingguan Suai Mesra)
N	Frequency
N	North
OKU	Disabled communities
UMS	Universiti Malaysia Sabah

CHAPTER 1

INTRODUCTION

1.1 Introduction

It is a fact that human activities such as forest logging, open burning, improper waste management and intensive urbanization have caused large impacts on the environment. These on-going activities have significantly deteriorated the equilibrium balance of the Earth's ecosystem, which becomes worse as the human population continues to multiply. As the world's population and living standard increase from time to time, there would be an upsurge in the global demands for resources. A technical report with the title of "Opportunities for Environmental Stewardship", by the EPA Environmental Stewardship Staff Committee for the EPA Innovation Action Council in 2005 had mentioned the impact of human population on the global energy consumption.

"Over the next 50 years, while the world's population is forecast to increase by 50 percent, global economic activity is expected to increase roughly fivefold. Conventional demand studies suggest that global energy consumption is likely to rise nearly threefold and manufacturing activity at least threefold, driven largely by industrialization and infrastructure growth in developing regions. Global throughput of material is also likely to triple, according to conventional projections."

The movement towards environmental stewardship is one of the means to encourage global awareness to promote responsible management of the environment. Worrell and Appleby (1999) said that the term "stewardship" is used to describe forms of "responsible" management where concerns such as sustainability and environmental quality are being promoted. They had defined stewardship as the



responsible use of natural resources in a way that takes full and balanced considerations of the interest of society, future generations, and other species, as well as for private purposes, and accepts the significant answerability to the society.

The Environmental Protection Agency (EPA) in 2005 defined environmental stewardship as the responsibility for environmental quality shared by all those whose actions could affect the environment, reflected as both a value and a practice by individuals, companies, communities and government organizations. Stewardship behaviour which is positive would display the acceptance of this responsibility through the continuous improvement of environmental performance in order to achieve measurable results and sustainable outcomes. Environmental stewardship that is strong is expressed in both values and practice: respect for the environment, on which life depends; acceptance of personal and organizational responsibility for environmental quality; and recognition of the need to sustain the environment for future generations.

Witkowsky (2008) reported that environmental stewardship is the top priority at the University of Washington in United States of America (USA). This university is contributing in environmental care by leading a nationwide movement among institutions of higher education in order to improve the environmental stewardship and focus on the sustainability in the country. The community of the university has given their supports in improving the sustainability of the campus by participating in the recycling and composting programmes.

The Faculty of Sustainable Agriculture (FSA), which was previously known as School of Sustainable Agriculture was established on 4th May in 2006 and moved from Kota Kinabalu to Sandakan on September 2011. This faculty has the purpose of training manpower in the fields of crop production, livestock production and horticulture and landscape. FSA is not only a higher education institution that teaches sustainable agriculture to the young generations but it is also a campus that promotes and integrates environmental education in agriculture. The faculty is currently undergoing intensive development of facilities for teaching and learning purposes. These developments adopt the core values of EcoCampus; sustainable development, ecological protection, environmental protection, environmental compatibility, resource

conservation and environmental stewardship. These core values act as guidance to the faculty to achieve sustainable development.

1.2 Problem Statement & Justification

The lack of landscape facilities in the FSA has limited the potential of the community to enjoy outdoor activities. Landscape facilities are not only able to upgrade the faculty but also the well-being of students. Hence, this study aims to propose the idea of a community plaza located near the student hostel area. The concept of environmental stewardship would be introduced into the design of this community park in order to promote the importance of environment among the students. It would also serve as a place for social purposes and to uplift the aesthetic values of FSA.

Besides, it could serve for educational purposes in terms of sustainable management of a landscape and at the same time enhancing environmental stewardship.

1.3 Objectives

The objectives of this research are:

- 1) To assess the input of community on the idea of a successful plaza in FSA.
- 2) To conduct site inventory and analysis at the proposed site (near the student hostel area).
- 3) To recommend a plaza design that is able to encourage social interaction and environmental stewardship.

CHAPTER 2

LITERATURE REVIEW

2.1 Placemaking

2.1.1 Theory of Placemaking

Placemaking is pioneered by Project for Public Spaces (PPS), a nonprofit planning, design and educational organization. This organization is dedicated in aiding people to create and sustain public spaces that build stronger communities. It was founded in 1975 in order to expand the work of William (Holly) Whyte, author of *The Social Life of Small Urban Spaces*. The approaches used in Placemaking has helped lots of people to transform their public spaces into vital places that highlight local assets, spur rejuvenation and serving the common needs to the community.

Placemaking is referring to a quiet movement which inspires people to reimagine and reinvent public spaces as the heart of every community. It has the ability to be one of the most transformative ideas. In the aspect of strengthening the connection between people and the places they share, it is also referred as a collaborative process by which the community is able to shape the public realm in order to optimize the shared values. Placemaking is able to facilitate creative patterns of use, paying particular attention to the physical, cultural and social identities which could define a place and at the same time support its ongoing evolution.

Figure 2.1 shows 11 principles of “Placemaking” concept that are needed in order to design a successful community plaza that can encourage environmental stewardship and social interaction among the university students.



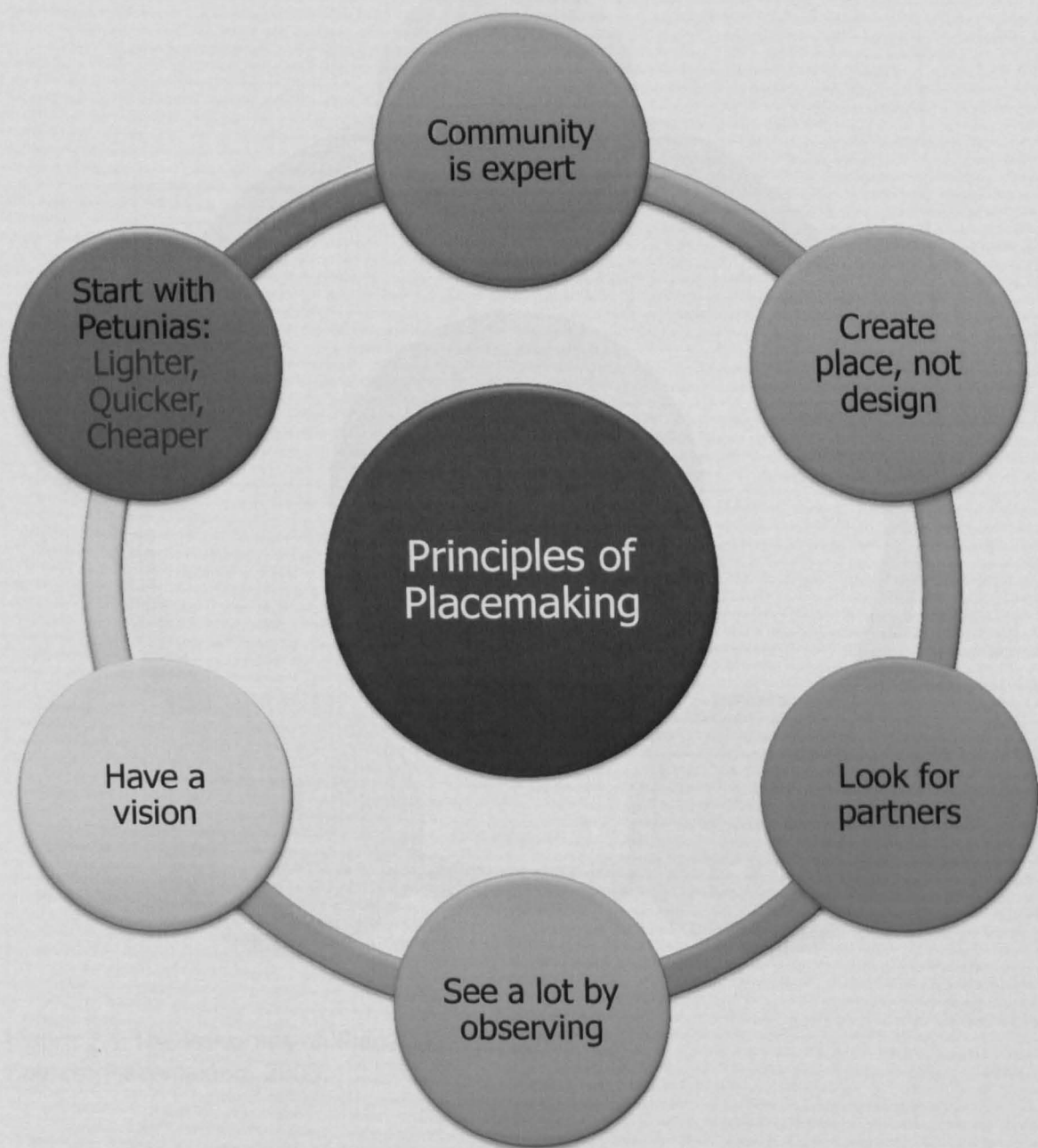


Figure 2.1 The Principles of 'Placemaking'.
Source: Placemaking, 2003.

2.1.2 Key Qualities of a Successful Place

According to PPS, for a public space to be successful, the space must possess the following four key qualities: easy to be accessed; people able to engage in activities there; the space is comfortable and portrays good images; and lastly, the space is a sociable place. Figure 2.2 summarises the four major qualities that required by a public space. A student public plaza design that are able to promote environmental stewardship and at the same time encouraging social interaction among the students can be done by using the concept in Figure 2.3. Sustainable concept practices will be implemented in order to create a systematic access and linkages and provides comfort and good images to the plaza whereas sociability and uses and activities on the public square will help to promote environmental stewardship through encouraging students to develop pro-environmental behaviours.

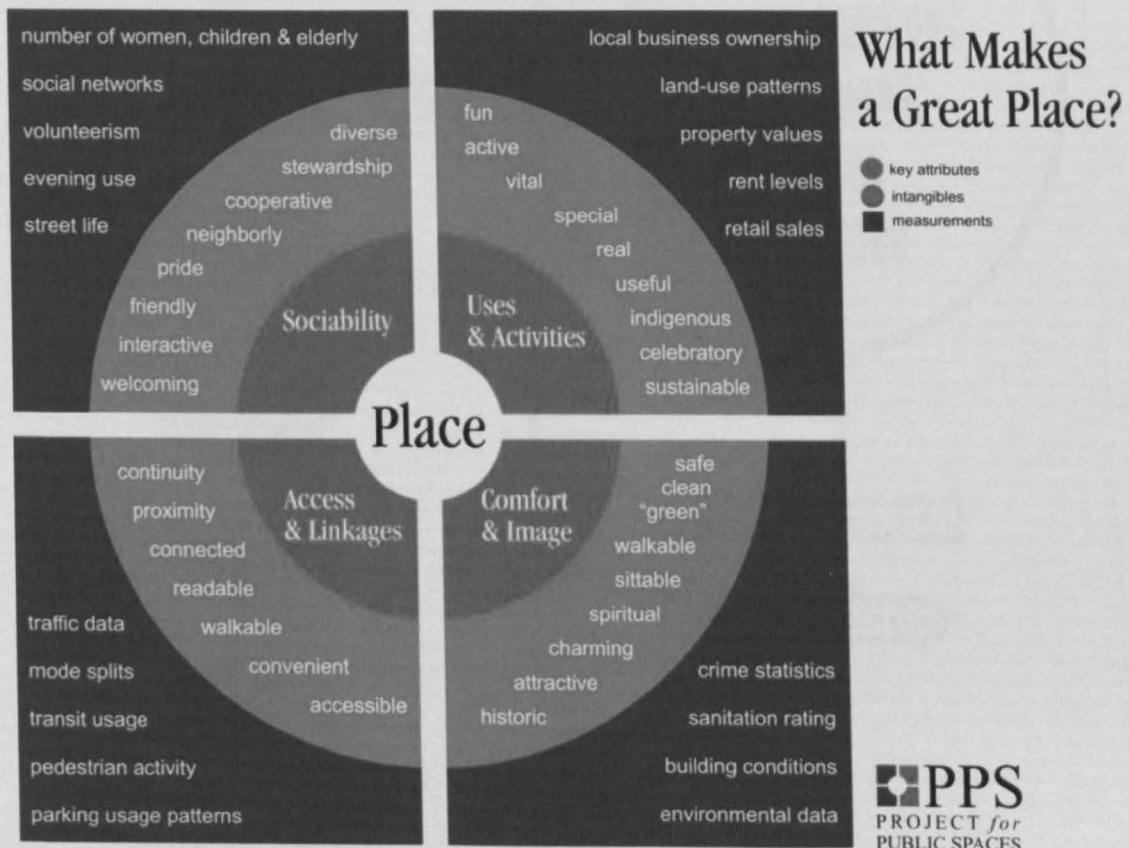


Figure 2.2 Summarised of four key qualities for a successful public space design. Source: Sobreurbana, 2012.

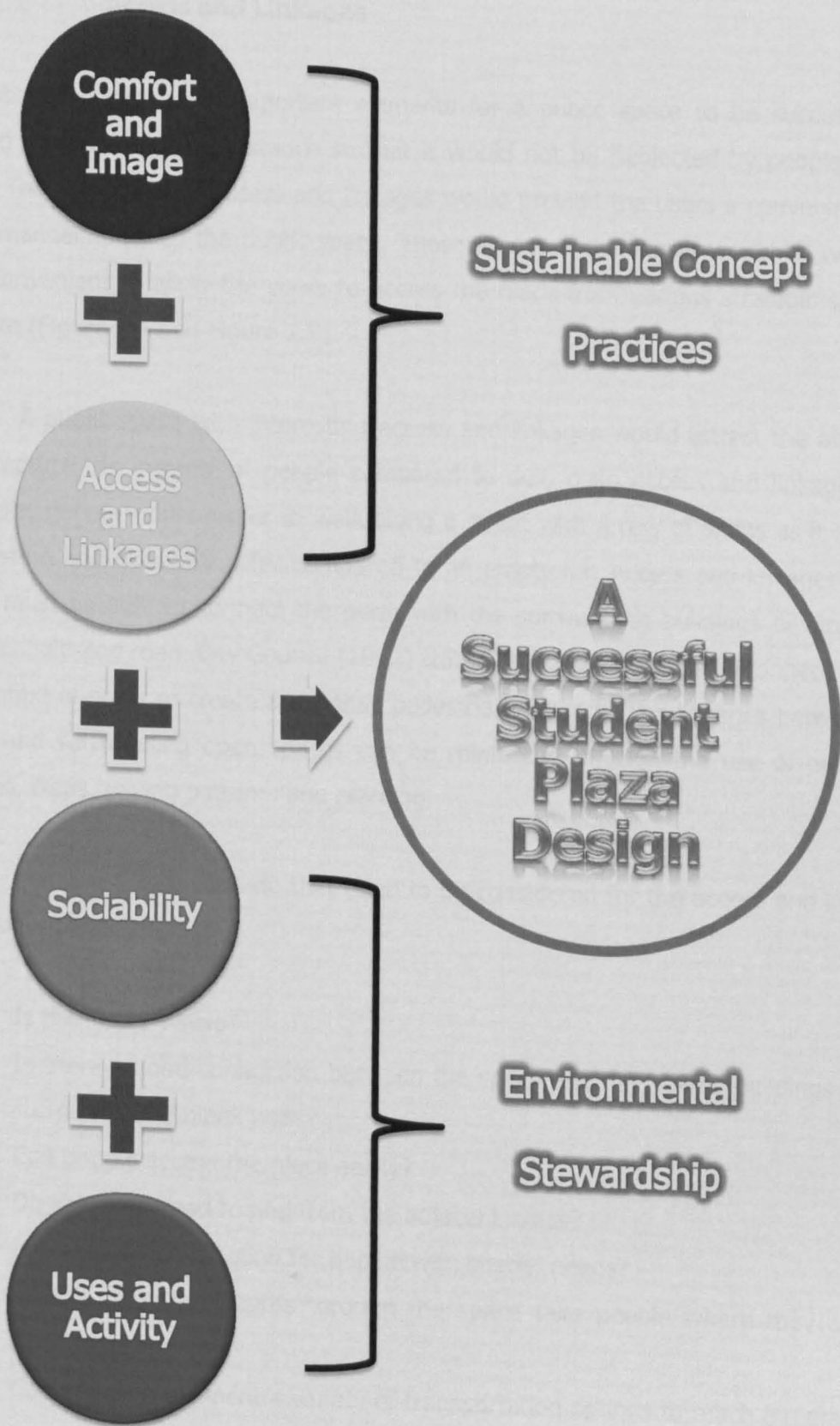


Figure 2.3 Recommended concepts to design a successful student plaza.

2.1.2.1 Access and Linkages

Access and linkages are important elements for a public space to be successful. It should be visible from a distance so that it would not be neglected by people in the area. The availability of access and linkages would provide the users a convenient and easy manner to reach the public space. These access and linkages would be walkable and convenient to allow the users to access the place from various strategic spots at the site (Figure 2.4 and Figure 2.5).

A public space with interesting access and linkages would attract the attention and capture the interest of people compared to dull, plain access and linkages. For example, people would prefer to walk along a street with a row of shops as it is more interesting and generally safer compared to an empty lot. Access and linkages of the plaza must be able to connect the plaza with the surrounding buildings or structures such as fields and roads. City Council (1992) stated that a plaza needs to connect to its context in order to create a dynamic pedestrian network. The linkages between the plaza and surrounding open spaces can be reinforced through the use of passages, bridges, steps, paving patterns and planting.

Below are some criteria that need to be considered for the access and linkages of a public plaza:

- Is the space visible?
- Is there a good connection between the space and the nearby buildings or is it surrounded by blank walls?
- Can people access the place easily?
- Do sidewalks lead to and from the adjacent areas?
- Does the space function for people with special needs?
- Do the roads and paths through the space take people where they actually want to go?
- Can people implement a variety of transportation options to reach the place?



Figure 2.4 The accessibility of a public space.
Source: Project for Public Spaces (PPS), 2013.



Figures 2.5 The accessibility and linkages of Dataran Merdeka.
Source: WadyMalaysia, 2015.

2.1.2.2 Comfort and Image

A space which is comfortable and has a good image includes the perceptions of safety, cleanliness and availability of places to sit. It is important for a space to keep its cleanliness as people prefer to spend time at places which are clean and free from any unfavourable elements. The comfortable sense given by the space to the users would allow the users to relax themselves and given them some time and space to rest. It will also encourage users to spend their time at the open space again and again. Figure 2.6 and Figure 2.7 show a good image for a public space.

The following are important considerations on the aspect of comfort and image for a public space:

- Does the place make a good first impression?
- Are there enough places to sit? Are the seats conveniently located? Do people have a choice of places to sit, either in the sun or shade?
- Are spaces clean and free of litter?
- Does the area feel safe? Is there any security presence?
- Do vehicles dominate pedestrian use of the space or prevent them from easily getting to the space?

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