Plants, Cities and Communities

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Abstract: Plants, Cities and Communities is a must-read chapter for anyone interested in the relationship between plants and the built environment. This book explores plants' importance and vital roles in our lives and the environment, including their aesthetic value, principles, consumption, application, and benefits to humans facing COVID-19. It also delves into the significant contribution of plants to the health and well-being of the environment and city dwellers. Readers will discover how plants can promote social well-being in urban environments and serve as sustainable materials and sources of traditional knowledge.

The book is written in an easy-to-understand language and is accompanied by stunning illustrations and images to create a more exciting and impactful effect. The information in this book chapter is useful, thought-provoking, and suitable for plant enthusiasts, novice designers, and city managers. The objective of the book is to serve as reference material for students and academics in the field of the built environment. It offers invaluable knowledge and a more in-depth perspective into the numerous facets of plants in their natural habitat, urban environment, and their use in academia. With its invaluable knowledge and unique perspective, Plants, Cities and Communities is a book that will undoubtedly be used as a reference source for years to come.

Keywords: Built environment, urban well-being, environmental sustainability, traditional knowledge, urban design

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ABBREVIATIONS

ART	Attention Restoration Theory
ASLA	American Society of Landscape Architects
AHU	Air Handling Unit
BC	Before Christ
CEPA	Communication, Education and Public Awareness
COVID-19	Coronavirus
EE	Energy Efficiency
EOD	Element of Design
FSH	Finnish Homelessness Strategy
GHG	Greenhouse Gas
GPS	Global Positioning System
HF	Housing First
HSPV	High-pressure Sodium Vapor
ICOMOS	International Council on Monuments and Sites
ID	Identification
IFLA	International Federation of Landscape Architecture
IGES	Institute for Global Environment Strategies
ILAM	Institute of Landscape Architects Malaysia
ILLM	Institute of Language and Literature Malaysia
INCULS	IFLA Asia Pasicfic Regional Cultural Landscape Symposium
JAIF	Japan-ASEAN Integration Fund
JBB	Jalan Bukit Bintang
JTAR	Jalan Tuanku Abdul Rahman
JMI	Jalan Masjid India
KLSP2040	Kuala Lumpur Structure Plan 2040

LA21	Local Agenda 21
LCCF	Low Carbon City Framework
LED	Light-emitting Diode
MBI	Ipoh City Council
MBSA	Majlis Bandaraya Shah Alam
MGTC	Malaysian Green Technology Corporation
MIDA	Malaysia Investment Development Authority
MSU	Management & Science University
NGOs	Non-Governmental Organisations
NPS	National Register Registration Form (NPS 10-900)
ODL	Online and Distance Learning
PFI	Public Fund Initiative
PTPL	Kolej Pusat Teknologi Pengurusan Lanjutan
RE	Renewable Energy
SEDA	Sustainable Energy Development Authority
SDG	Sustainable Development Goals
SITES	Sustainable SITES Initiative
SRT	Stress Reduction Theory
TEK	Traditional Ecological Knowledge
T&L	Teaching and Learning
UiTM	University Teknologi MARA
UNISEL	University Selangor
UNESCO	United Nations Educational, Scientific and Cultural Organization
POD	Principle of Design
VLQ	Visual Landscape Quality
WFH	Working from Home
WHO	World Health Organization
WWI	World War I
WWII	World War II

FOREWORD

In our world's intricate tapestry, plants, cities, and communities have a symbiotic relationship. Each thread contributes to our shared existence's intricate and ever-evolving story. From the towering skyscrapers of bustling metropolises to the humble greenery adorning our urban landscapes, the interplay between nature and civilisation is a narrative of resilience, adaptation, and interconnectedness. This book, aptly titled **"Plants, Cities & Communities"** delves into the profound connections that bind these elements together. Within these pages, readers will embark on a journey that explores the vital roles plants play in the fabric of urban life, how cities shape and are shaped by their natural surroundings, and the dynamic interrelationships that define thriving communities. This multidisciplinary collection of chapters illuminates the myriad ways plants enhance our cities' aesthetic appeal and contribute to their inhabitants' health and well-being. From urban gardens and green roofs to innovative biophilic design principles, integrating plant life into urban environments offers countless benefits, from mitigating pollution and reducing stress to fostering a sense of connection to the natural world. Moreover, **"Plants, Cities & Communities"** underlines the importance of fostering sustainable practices and cultivating resilient ecosystems within urban settings. As our cities continue to expand and evolve, we must prioritise preserving and restoring green spaces, recognising them as essential components of vibrant, liveable communities. As we delve into the following chapters, may we be inspired to embrace a holistic approach to urban planning that celebrates nature's inherent beauty, fosters a sense of belonging and inclusivity and cultivates spaces that nurture both the human spirit and the environment.

Siti Rasidah Md Sakip
Zulkefle Ayob

PREFACE

We are grateful to Allah for completing the book "Plants, Cities & Communities," a compilation of writings on plants by academics in landscape architecture. This book combines science and knowledge about the importance of plants in human life in a comprehensive manner, covering aspects such as their aesthetic value, principles, consumption, application, and benefits to humans. Divided into two parts, the book aims to highlight the relationship between plants and humans and provide insights into how we can preserve and appreciate nature even in urban areas. Part 1, "Appreciating Nature Through Plants," explores the beauty and wonder of plants, including their role in plant-based medicine, mental health, and cultural significance. Part 2, "Urban Development Concept, Communities and Matters of Urban Sustainability," examines the intersection of urban development and sustainability and how to create sustainable communities that prioritise the well-being of people and the planet. The book hopes to inspire readers to view nature as an essential part of our lives, even in the midst of a rapidly urbanising world. It is accompanied by illustrations for a more impactful explanation. The book was motivated by the desire to provide invaluable knowledge and a more in-depth perspective into the numerous facets of plants to be used in academia. I extend my sincerest gratitude to all the authors of the chapters in this book who came together to make it a success. It is also hoped that academia and students in the field of the built environment will best utilise this book to gain a thorough understanding of this field.

Editor

Siti Rasidah Md Sakip
*Zulkefle Ayo*b

PART 1

Appreciating Nature Through Plants

CHAPTER 1

INTRODUCTION

Siti Rasidah Md Sakip & Zulkefle Ayob

In a world where urbanisation is growing at an unprecedented rate, it is important to pause and reflect on our relationship with nature. The book, "Plants, Cities and Communities" which is divided into two parts, aims to highlight this relationship and provide insights into how we can preserve and appreciate nature even in urban areas. Part 1, "Appreciating Nature Through Plants," explores the beauty and wonder of plants and their role in our lives. It delves into topics such as plant-based medicine, the impact of plants on mental health, and the cultural significance of plants. Part 2, "Urban Development Concept, Communities and Matters of Urban Sustainability," examines the intersection of urban development and sustainability, and how we can create sustainable communities that prioritise the well-being of both people and the planet. By combining these two parts, the book hopes to inspire readers to view nature as an essential part of our lives, even in the midst of a rapidly urbanising world.

PART 1

The first part of the book chapter consists of three sections covering ten chapters, each addressing a different aspect of plants and their roles.

Humans and nature are inseparable. Both are always dependent on life. Allah has created nature and written in the al-Quran the importance of plants and humans for the sustainability of life. As stated in Surah Yūnus (10:24):

> *The likeness of the life of the present is as the rain which We send down from the skies: by its mingling arises the produce of the earth- which provides food for men and animals: (It grows) till the earth is clad with its golden ornaments and is decked out (in beauty): the people to whom it belongs think they have all powers of disposal over it:*

CHAPTER 2

HEALING WITH NATURE

Nor Izana Mohammed Shobri

INTRODUCTION

الَّذِيْ جَعَلَ لَكُمُ الْاَرْضَ مَهْدًا وَّسَلَكَ لَكُمْ فِيْهَا سُبُلًا وَّاَنْزَلَ مِنَ السَّمَآءِ مَآءً ۚ فَاَخْرَجْنَا بِهٖٓ اَزْوَاجًا مِّنْ نَّبَاتٍ شَتّٰى

Meaning:

"[It is He] who has made for you the earth as a bed [spread out] and inserted therein for you roadways and sent down from the sky, rain and produced thereby categories of various plants" (Quran 20:53).

In recent years, the natural environment has been referred to as a restorative environment in which physiological, psychological, and social resources are restored to fulfil the demands of daily life. This natural environment alludes to Olmsted's salubrious landscape, which contains a healthy ecosystem.

In Ancient Rome, the natural environment existed due to noise, dirt and lack of greenery because of rapid urbanism. In the 19th century, Frederick Law Olmsted wrote insightfully on viewing nature to restore the stresses of cities and job expectations. Many scholars argue that urbanisation causes mental health problems, but exposure to nature can reduce stress. It has also been supported that there is a relationship between a lack of connection with nature and mental illness, and that the natural environment improves relaxation, gives positive mood outcomes and enhances one's ability to recover and prepare for new challenges.

Results from research have shown that, in the greener conditions, residents performed better on a standardised attention test and so do residents with stronger social ties than the residents of barren surrounding buildings. Study for children living in low-income housing in the greener conditions

CHAPTER 3

PLANTS IN OUR ENVIRONMENTS: THE PSYCOLOGY, BEHAVIOUR AND HEALTH OF COMMUNITIES

Siti Rasidah Md Sakip & Mohd Falihin Jasmi

INTRODUCTION

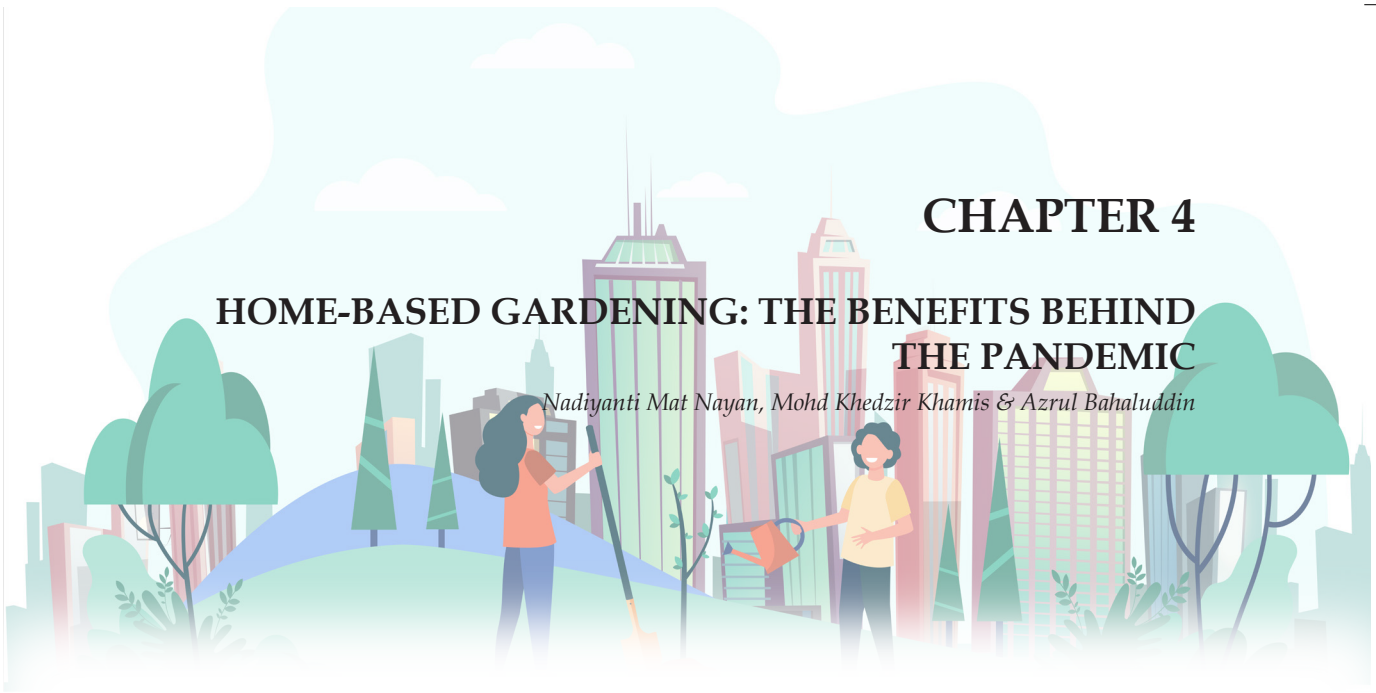
Humans are always connected and communicating with plants. Even with technological advancement, humans still need and depend on plants to live. The relationship between plants and humans is extensive. We use plants in all aspects of life, starting with our need to breathe for human survival and the use of herbal plants for healing purposes. Plants also play important roles in our custom and culture, for example the use of betel nut plants (*sirih junjung*) among the Malays as the primary energy source, and in the tradition of proposing to a woman for a hand in marriage and other matters in life such as congratulations and condolences. In addition, in the holy book of Muslims (Al Quran), there are names of plants, especially fruits, which are considered sustenance and are described as part of life in paradise. This can be referred to in al-Quran Surah Al-An'ām verse 99:

وَهُوَ ٱلَّذِىٓ أَنزَلَ مِنَ ٱلسَّمَآءِ مَآءً فَأَخْرَجْنَا بِهِۦ نَبَاتَ كُلِّ شَىْءٍ فَأَخْرَجْنَا مِنْهُ خَضِرًا نُّخْرِجُ مِنْهُ حَبًّا مُّتَرَاكِبًا وَمِنَ ٱلنَّخْلِ مِن طَلْعِهَا قِنْوَانٌ دَانِيَةٌ وَجَنَّٰتٍ مِّنْ أَعْنَابٍ وَٱلزَّيْتُونَ وَٱلرُّمَّانَ مُشْتَبِهًا وَغَيْرَ مُتَشَٰبِهٍ ۗ ٱنظُرُوٓا۟ إِلَىٰ ثَمَرِهِۦٓ إِذَآ أَثْمَرَ وَيَنْعِهِۦٓ ۚ إِنَّ فِى ذَٰلِكُمْ لَـَٔايَٰتٍ لِّقَوْمٍ يُؤْمِنُونَ

(https://tafsirweb.com/2223-surat-al-anam-ayat-99.html)

Meaning:

And He is the one who sends down rainwater from the sky, and then We grow all kinds of plants with that water; then We bring out from those plants green plants. We removed from the green plant many grains; from the palm trees unfurling branches, and vineyards, and (We bring forth also) olives and pomegranates alike and unlike. Observe the fruit when the tree bears fruit and (also observe) its maturity. Indeed, there are signs (of God's power) in that for those who believe.



CHAPTER 4

HOME-BASED GARDENING: THE BENEFITS BEHIND THE PANDEMIC

Nadiyanti Mat Nayan, Mohd Khedzir Khamis & Azrul Bahaluddin

INTRODUCTION

Home-based gardening has been practised since the early twentieth century. Historical experiences during trying times, especially during the wars, have given examples of how important gardening can be in society. However, when the world was hit by a COVID-19 pandemic at the end of 2019 and a lockdown or 'Stay at Home' order was implemented throughout the world, home-based gardening was one of main activities to be done within the house compound. Most of the species planted are edible such as vegetables, herbs and fruits. The garden has become a space to cultivate social support and emotional well-being. Gardening becomes a relatively safe space for social activity or a haven to be alone. It also offers access to nutritional foods as well as the opportunity for positive health outcomes. Most importantly, home-based gardening promotes good mental and physical well-being for communities during a time of crisis. Hence, it shows that home-based gardening has the potential to strengthen and nurture a normal space for collective action.

History of the Home-based Gardening

From Sommerville (2013), the home-based gardening history or known as the outdoor space gardening has started as early as the twentieth century. However, the early home-based garden was "more utilitarian, featuring native trees and shrubs near the house and a chicken coop, large shed, and vegetable garden at the rear" (Sommerville, 2013 in Nussel, (2013)). In the United States of America, United Kingdom, Canada, Australia, and Germany, home-based gardening started during World War I (WWI). Home-based garden had also sprung up during World War II (WWII) and was named the Victory Gardens or War Gardens. During WWII, the residents of small town and suburban areas were encouraged to cultivate

CHAPTER 5

STREET TREE PROFILE ON UiTM PERAK CAMPUS

Nur Huzeima Mohd Hussain, Norizan Mt Akhir & Suriati Ahmad

INTRODUCTION

Nowadays the role of street planting on campus is raising great attention of the institution's researchers and landscape architects on campus landscaping, designing, and planning. Street planting is a physical and visual attempt at greening and sustaining the environment and composition on campus. Street planting composition refers to various plants including trees, shrubs and groundcovers that grow along streets located in the public right-of-way to provide cooling shade, cleaner air, and to beautify the streetscape (Othman, Isa, Mohamed & Hasan, 2015). On campus, street tree composition provides many benefits such as giving a sense of direction, reducing the temperature, providing cooling effect, saving energy, reducing storm water runoff, providing clean air, attracting, and connecting people with the environment (Othman, et. al, 2015). This diversity and multiple compositions carry various roles and values that are worth to be investigated and identified. According to Amir and Misgav (1990), to develop a tree profile, the elements should be combined through two matrices, arrangement, and size, with the resulting combinations brought together with form. This leads to the specification of several tree profiles. Based on the characteristics of street tree profile, a tree's adaptation to specific site conditions is assessed. Thus, in visualising and preserving the benefits and aesthetical value of street planting on campus, this chapter presents a significant analysis of the street planting profile. Therefore, this chapter aims to analyse street tree profiles by adopting the iNaturalist digital application in identifying and locating plants virtually. This chapter emphasises the protocol road of street planting on campus based on the tree frequency and common species identified by the iNaturalist application. Furthermore, this chapter maps the findings of the street tree profile with the fundamental concept of the street planting framework in analysing the design significance, benefits, and prospects on

CHAPTER 6

USING SKETCHES TO ANALYSE THE VISUAL LANDSCAPE QUALITY IN PLANTING COMPOSITION

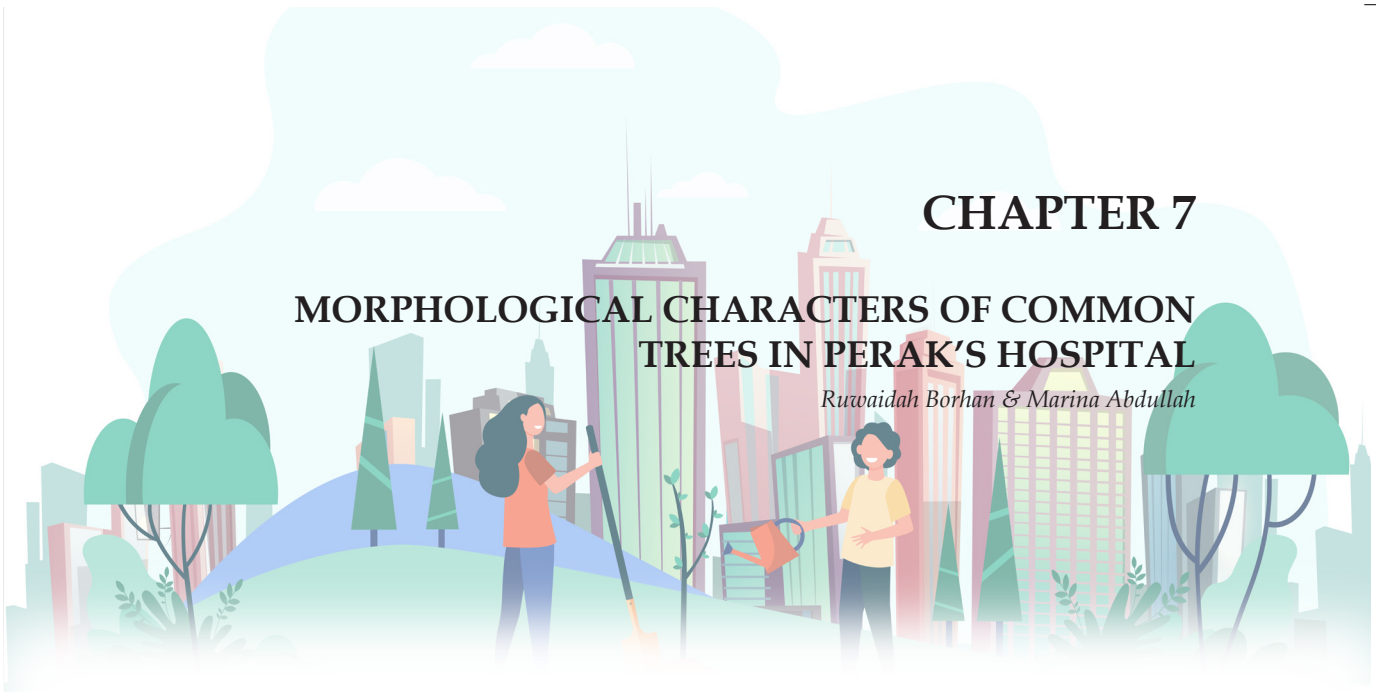
Norizan Mt Akhir & Khairul Adham Ibrahim

INTRODUCTION

Most people like green, however preferences and visual quality will vary depending on the green's composition. Visual landscape quality (VLQ) can be defined as scenic beauty evaluation. VLQ is also known as the study of human-nature interaction through visual assessment. When evaluating VLQ, visual preference is mostly employed as an indicator (Chen, Cheng, Huang, and Chen, 2020). Planting design has a great attribute to attract and influence VLQ of a certain environment. Reflecting to planting design elements such as colours, textures, shapes, and compositions are significant elements in assessing landscape quality through visual. Planting composition is the foundation of planting design, anchoring the landscape planting scene into different concepts and spaces. The sketches are used to analyse the importance of planting composition to VLQ. Sketches will demonstrate the characteristics and visibility of plants and compositions in landscape design. It is important to define and comprehend these characteristics in depth to determine the quality of planting spaces needed.

Defining Visual Landscape Quality

According to its definition, VLQ is the "relatively aesthetic impeccability of a landscape," and it can be assessed by the observer's approval (Daniel, 2001; Lothian, 1999). VLQ is a term used to describe how much people value aesthetics and have opinions about various objects, living things, and worldviews. An analysis of the environment is conducted as part of a VLQ assessment, keeping in mind the aesthetic criteria and elements that have already been established (Gobster, Ribe, and Palmer, 2019). The Kaplans' Information-Processing Theory is the one that is most frequently referenced in visual preference studies. This theory can predict and describe people's preferences for landscape composition visually. Kaplan and Kaplan (1989)



CHAPTER 7

MORPHOLOGICAL CHARACTERS OF COMMON TREES IN PERAK'S HOSPITAL

Ruwaidah Borhan & Marina Abdullah

INTRODUCTION

It was observed that most hospitals in Perak have at least twenty percent (20%) green area within the hospital boundaries. The green area that is explored in the study consists of a diversity of trees. Most of the trees are in the height range of 10 meters – 20 meters and are in the mature stage. Trees play an important role in ecological and sustainability of the hospital environments, support public health and provide aesthetic benefits to the communities of the institutions. The benefits of trees can vary widely depending on the context in which they are planted (1). Overall, hospitals in Perak have found that natural settings and trees have immense positive impacts on visitors and patients. Street tree populations have their own unique structure, tending to be in two shapes of canopy which are spreading canopy shape and columnar canopy shape. Meanwhile, open-space trees population consists of more oval canopy shape, rounded canopy shape and spreading canopy shapes. Furthermore, it contains more large-stature species and exhibits higher levels of spatial continuity than other components at the street planting.

What is Morphology?

Morphology describes structural features. Morphological character features of plants are very important in taxonomy because morphological features characteristics are used to identify particular species of trees. Shape, size, and colours are morphological characters for specific parts of trees. In this chapter, the morphological characters are explored on the physical features of trees such as the shape of the canopy, the pattern of the leaves, and the colours of the flowers and fruits.

CHAPTER 8

TREE SPECIES COMPOSITION FOR SQUIRREL OBSERVATION IN URBAN PARKS

Noraini Bahari, Norasikin Hassan & Wan Noor Anira Wan Ali@Yaacob

INTRODUCTION

Parks generally accord people the prospects to engage with nature and involve in physical activities, and the prospects are more in the outdoors for improvement of both mental and physical health. These mental and physical health benefits act as mutual motivation for people to use parks and other recreation services through engaging in both mental and physical activities, some of which may be, walking, hiking or cycling (Santos et al., 2016). All of the various activities such as playing, resting and entertainment-oriented leisure, are essential for positive improvement of people's lives. For example, Kaplan (1993) asserts that although snapshot experiences of beautiful landscapes can temporarily lift one's moods, extended interactions with wildlife can restore people psychologically and allow opportunities for inner contemplation and change. Further, Curtin (2009), advocated that, watching wildlife made participants feel the wonderment and awe beyond articulation, experiencing a state of 'flow', and sensual awakening. Inasmuch, incorporating wildlife-oriented activities into urban park design can enhance visitor's experiences and promote well-being.

Observing Wildlife in Urban Parks

Observing or viewing wildlife and interacting with them is an essential element of high-quality outdoor recreation experience (Manfredo, 2002). Studies have found that interaction with wildlife in the city is important for human health and wellbeing (Fuller et al., 2007; Luck et al., 2011). Many of these benefits depend on some kind of contact between people and urban wildlife such as hearing, seeing, feeding, photographing, or studying. As suggested by Valentine and Birtles (2004), humans often have extremely intense and deeply personal experience through wildlife

CHAPTER 9

DIGITISING PLANTS AND ANIMALS' SPECIES BY USING iNATURALIST MOBILE APPLICATION AS AN EDUCATION TOOL

Atikah Fukaihah Amir, Nadiyanti Mat Nayan & Ahmad Faizal Baharom

INTRODUCTION

Biodiversity refers to a variety of plants and animal species living in a particular outdoor habitat. People need to patiently observe and understand the species' natural habitats to learn about them. People gather knowledge inside the classroom as part of their formal education and practice their understanding outside the classroom by exploring and experiencing the environment. According to Amir (2022), learning should be versatile, and the students will be more interested in the subject if they interact with the materials and processes outside the classroom.

However, collecting data for plants and animal species in the outdoor classroom could be easier with the device's help. iNaturalist is an application built on the concept of mapping and sharing observations of biodiversity around the world. The system is accessible through mobile applications or browsers on the website. The engagement of GPS coordinates makes it easier to record and organise the data of plants and animals' habitats precisely to study biodiversity.

A biodiversity observational activity was organised by Ipoh City Council (MBI) involving students of the Landscape Architecture Program of Universiti Teknologi MARA, Perak Branch and Water Warriors of Universiti Malaya at Taman Rekreasi D.R. Seenivasagam and Kinta Riverwalk on the 21st April 2022. This activity aimed at increasing observations data and documenting the location of biodiversity species, especially wild plants and those grown for decorative and aesthetic purposes. This activity had also introduced the students to the functions and advantages of the iNaturalist application so that they could start observation activities in their respective areas later.

CHAPTER 10

CONCLUSION

Siti Rasidah Md Sakip & Zulkefle Ayob

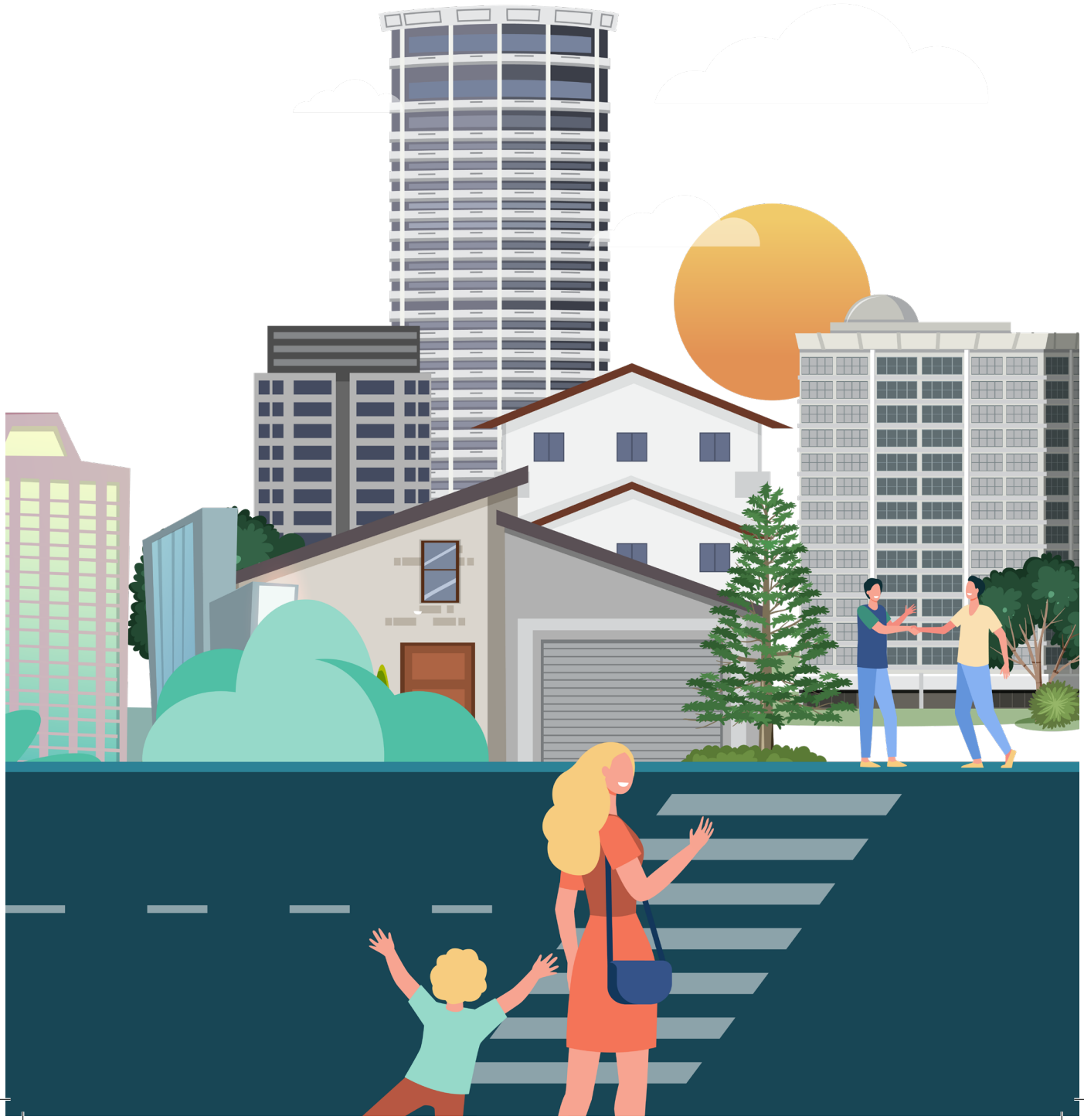
In Part 1, this book explains the natural environment related to the physiological and psychological restorative effects. So, we need to appreciate the importance of the natural environment to humans. Additionally, previous researchers have been able to prove how plants have a positive effect on humans both emotionally and physically. Whether the result is large or small is not the main issue. Importantly, it has been proven that exposure to a green environment positively and significantly affects recovery from stress and mental fatigue.

At the end of 2019, Malaysia faced anxiety and darkness when hit by the COVID-19 epidemic. The announcement of COVID-19 as a pandemic by WHO on March 11, 2020, indirectly changed the norms of human life. Humans suffer from mental and physical stress. Individuals use various methods to find peace and a way out of the pressure of COVID-19. So, the 'new normal' activities, by approaching plants such as home gardening, have been valued and recognised as contributing to community development, health, and social well-being. Gardening helps communities heal in crises and strengthens family and community bonds. This reveals that plants could become a curing element for the spiritual context.

In the institutional context, the university and the plant have always supported each other. Plants have an impact on the image of an institution. However, to ensure a visual quality of the composition of the plants, it is vital to have an attractive and quality impact. The compositional profile of the plant design at UiTM Perak Branch has been chosen to depict the arrangement of trees along with consideration of size in line with the tree profile framework. These findings help manage resources, structure maintenance, increase value, provide identity, and predict future needs. Sketch analysis is used to describe the properties of plants and show the connection with visual analysis. Therefore, we must evaluate

PART 2

Urban Development Concept, Communities and Matters of Urban Sustainability



CHAPTER 1

INTRODUCTION

Zulkefle Ayob & Siti Rasidah Md Sakip

In a world where urbanisation is growing at an unprecedented rate, it is important to pause and reflect on our relationship with nature. The book, "Plants, Cities and Communities" which is divided into two parts, aims to highlight this relationship and provide insights into how we can preserve and appreciate nature even in urban areas. Part 1, "Appreciating Nature Through Plants," explores the beauty and wonder of plants and their role in our lives. It delves into topics such as plant-based medicine, the impact of plants on mental health, and the cultural significance of plants. Part 2, "Urban Development Concept, Communities and Matters of Urban Sustainability," examines the intersection of urban development and sustainability, and how we can create sustainable communities that prioritise the well-being of both people and the planet. By combining these two parts, the book hopes to inspire readers to view nature as an essential part of our lives, even in the midst of a rapidly urbanising world.

PART 2

The second part of the book chapter consists of three sections covering eleventh chapters, each addressing a different aspect of urban sustainability. The discussion begins with urban Development that refers to the growth and transformation of cities. It involves various processes, including land use planning, transportation infrastructure, environmental management, and economic development. According to a study published in the Journal of Urban Planning and Development, urban development is "a complex and multifaceted process that encompasses a wide range of physical, social, and economic changes" (Koh et al., 2015).

One important aspect of urban development is urban design's role in shaping cities' built environment. A study published in the Journal of Urban Design notes that "urban design plays a crucial role in shaping the form and

CHAPTER 2

THE GREEN URBANISM APPROACH TO SUSTAINABLE URBAN DEVELOPMENT

Zulkefle Ayob & Zainuddin Abdul Rahman

INTRODUCTION

The rapid urbanisation due to global capitalisation has caused uneven development in many types of cities worldwide. The uncontrolled and unbalanced development eventually contribute to environmental, social-cultural, and economic tribulations. In Malaysia, this phenomenon has become apparent, especially in medium-sized cities. By concentrating on vertical-physical development, roads and highways and extensive business districts, the human factors – the residents, workers, and visitors are often disregarded. These cities failed to provide a quality urban environment for urban living; poor accessibility and walkability for pedestrian mobility; lack of greeneries for a pleasant urban environment; and neglect of historical and cultural significance for monetary gains. The concept of Green Urbanism and its principles are the catalyst to solving these problems.

The Concept of Green Urbanism

Over the years, sustainable urban development has initiated theories and concepts in urban development initiatives for the betterment of urban townships, neighbourhoods and communities, among others. Numerous labels for these sustainable urban development concepts are either genuine or eco-labels, simply marketing gimmicks to lure the general public. Among the popular concepts are 'Sustainable Cities', 'Liveable Cities', 'Smart Cities', 'Green Cities', 'Compact Cities', 'Transit-Oriented Cities', 'Healthy Cities', 'Low-Carbon Cities', 'Safe Cities', Eco-cities', 'Urban Ecology', 'Resilient Cities', 'Green Urbanism' and many others. All of these sustainable concepts may come with different taglines. Still, the central purpose and goal are to minimise environmental impact in development projects for the betterment of humankind while protecting the environment's well-being.

CHAPTER 3

INDONESIAN CAPITAL CITY OF NUSANTARA: A NEW DREAM IN THE MAKING

Eka Permanasari

INTRODUCTION

As a postcolonial city, Jakarta is rich in layers of symbolism. Formerly called Batavia in the colonial era, the city was transformed from a supply station city for colonial trade to the Dutch centre of power. The centre of colonial government was called 'Downtown Batavia' (now Kota Tua) and was surrounded by fortified walls and a river. Several forts along the wall were built to protect the city from enemy attacks (Merrilless, 2000). The city's layout was determined by the Ciliwung River, which ran through the centre. This river represented the main city canal, with its branches distributed in parallel grids [Figure 2]. The fortification and adoption of the grid system via canal distribution indicate that the city was designed as the colony's little Netherlands (Heuken, 2000). Throughout the history of colonial regimes occupying Indonesia, the centre of power has shifted from Downtown Batavia to Uptown Batavia, where the location of Merdeka Square and Lapangan Banteng is now located.

Post-independence, the postcolonial regime reclaimed the former colonial site of power and developed a new centre by continuing the axis from the colonial centre. The city expanded to the south, where the constellation of buildings such as the National Monument on the former Koningsplein site, the Semanggi Interchange, the Parliament Building, and the Bung Karno Stadium are laid out.

Jakarta – The Megacity

Many decades later, Jakarta has grown into a megacity with an estimated population of 11 million people (BPS, 2021). However, Jakarta is a city with severe problems such as population concentration, excessive groundwater extraction, land subsidence, and flood, which make it the fastest-sinking city in the world (Kusno, 2011; Permanasari, 2019). Jakarta also has a

CHAPTER 4

SHAH ALAM: THE ROAD TO SUSTAINABLE CITY 2030

Annie Syazrin Ismail & Rusdiana Ahmad

INTRODUCTION

Shah Alam is the state capital of Selangor. Originating from an oil palm estate, it has transformed into a lively, green and culturally diverse city which is also ranked as the most urbanised city in Selangor. Shah Alam was the first planned city in Malaysia and its jurisdiction area was expanded several times between 1983 and 1997, with which the last extension comprised a total area of 303 sq. km. With a 61%built-up area and 39% non-built-up area, Shah Alam is essentially a developed city.

The City of Shah Alam

Shah Alam City Council, as it is known here as Majlis Bandaraya Shah Alam (MBSA), is the custodian of Shah Alam and is a local government under the Selangor State Government. Generally, Shah Alam can be divided into three parts: North, Central and South with a total population of 686,966 in 2020. Shah Alam is also known for some of its landmarks and city assets. National Botanical Garden Shah Alam and Lake Garden Shah Alam fall into the nature category and Sultan Salahuddin Abdul Aziz Shah Mosque is one of the most known spiritual landmarks among the communities.

Shah Alam is also known for being an educational hub as it has several higher education institutions in the vicinity, namely Universiti Teknologi MARA (UiTM), University Selangor (UNISEL), Management & Science University (MSU), Kolej Pusat Teknologi Pengurusan Lanjutan (PTPL) and KDU University College, which offer education placement to everyone regardless of race or background. There are also several sports venues and theme parks in Shah Alam, which have become crowd pullers such as I-City, Wet World Theme Park, Shah Alam Stadium and Darul Ehsan Aquatic Centre.

CHAPTER 5

URBAN STREET FURNITURE ELEMENTS AS 'HOSTILE ARCHITECTURE' FOR THE HOMELESS

Atikah Raihanah Amir & Nur Huzeima Mohd Hussain

INTRODUCTION

People who are homeless are typically those who live on the streets, have no permanent residence, and constantly move from one temporary shelter to another. Homeless are also defined as individuals who live in hostels without a 'place to call home' on their census forms (Alowaimer et al., 2018). According to Li (2018), several factors have contributed to homelessness issues and conditions, including unemployment, low income, a lack of affordable housing, an abandoned ageing society, debt accumulation, drug, or alcohol addiction, and mental or health disorders. The socioeconomic issue and causes behind these phenomena are what have affected and sparked a global homeless crisis, including in Malaysia. In practice, however, the issue of homelessness, which threatens urban communities, diminishes security, and degrades the city's image, has only received little attention and concern in responding to it. As an initiative, this chapter intends to identify and investigate the elements and placement that comfort the homeless in a city. This chapter, in particular, focuses on the 'hostile architecture' of urban street furniture, which provides necessities to the homeless and serves as their 'mobile home'. The urban areas of Kuala Lumpur are also discussed in this chapter as a case study of the "home" areas or spaces of this urban refugee. The findings would assist future considerations and guidelines for the designers and decision-makers especially the authority to mitigate the homeless in the city, by giving better alternatives and securing the image of the city.

Elements and Placement of Urban Street Furniture in a City

Identifying and investigating the influential factors of urban street furniture in the city can be varied. Factors such as authority enforcement, architecture comfort, design attraction, and security have made city spaces

CHAPTER 6

BAMBOO AS SUSTAINABLE BUILDING MATERIAL: REWILDING IPOH CITY AREA

Meor Abdullah Meor Razali & Khairul Adham Ibrahim

INTRODUCTION

Bamboo is a grass specie that spreads quickly and may thrive in either a temperate or tropical temperature. There are two primary types of bamboo: monopodial, which grows in temperate climates, and sympodial, which grows in tropical climates. Due to its versatility and durability, bamboo is used in various ways, situations, and conditions. Bamboo is now on the scene, as one of the popular materials in landscape design and construction. Among the common bamboo species used in construction are bambu petung (*Dendrocalamus asper* (Schult. f.) Backer ex Heyne), bambu hitam (*Gigantochloa atroviolacea* Widj.), bambu ater (*Gigantochloa atter* (Hassk) Kurz ex Munro), bambu tali (*Gigantochloa apus* J.A. & J.H. Schult. Kurz), and bambu mayan (*Gigantochloa robusta*). In Malaysia, there are 59 species of bamboo, and there are seven available genera namely, *Bambusa, Dendrocalamus, Dinochloa, Gigantochloa, Racemobambos, Schizostachyum, Thyrsostachys*.

The Majlis Bandaraya Ipoh (MBI) Landscape Department has started using bamboo as one of the design options for both soft and hard landscaping materials due to its special characteristics. This is consistent with the rewilding approach to developing a more sustainable environment for the city. Bamboos that are currently planted in the city park were chosen due to their practicality and aesthetic appeal for the softscape design. Mature and established bamboo culms were collected and turned into park furniture at strategic places throughout the park as 'Instagrammable' photo-points for the park's younger visitors.

CHAPTER 7

SOLVING THE ENVIRONMENTAL NOISE IN URBAN SHOPPING STREETS USING A SOUNDSCAPE APPROACH

Nor Hamizah Abdul Hamid

INTRODUCTION

Urbanisation and urban development are accelerating rapidly in this era. A major concern on the urbanisation agenda in Malaysia and around the world is the provision of adequate housing and infrastructure. By concentrating solely on that matter, we have the risk of overlooking other important factors for the long-term sustainability of our cities. The soundscape of our cities is one of those aspects that frequently comes up quite late and only when it becomes apparent that a project might not comply with noise regulations. We have contended for many years that the soundscape significantly influences health and well-being. Harmful pollutants caused by unwanted or disturbing sounds (noise) are a major environmental problem affecting human health, particularly in urban areas (World Health Organisation, 2015). The importance of the soundscape stems from the fact that the auditory perception of an urban setting is on par with its visual perception. Urban soundscape must be developed for controlling, communicating and designing using criteria that go beyond current engineering solutions to be included in the planning process. This chapter explains the circumstances and conditions needed to support how the urban soundscape is experienced from the viewpoint of the end user. Additionally, this chapter will also address a number of issues that matter to people and are crucial in supporting acoustic comfort in urban shopping streets using quantitative data from surveys and observations.

Soundscape Concept

The essential aspects of urban planning are to achieve a holistic approach and to change the predominance of a vision-centred paradigm by understanding people's experiences and perceiving the spaces through the meaning and values that are attributed to them. The concept is based on

CHAPTER 8

THE BUILT ENVIRONMENT AND SCHOOL TRAVEL MODE CHOICE: DISTANCE FACTOR

Nur Shaffiqa Muhammad Soffian & Norsyazlin Mohd Rosli

INTRODUCTION

The journey from home to school represents a significant portion of all urban commuting. These journeys have a relevant impact on the urban environment since they are corresponding to time and space. Students with shorter walk or bike times to school proved significantly more likely to walk or bike. It is proven from subsequent research that neighbourhood schools serve nearby residential, especially in schools provided in urban areas. Indirectly, it serves to provide sustainable mobility to schools which helps the environment and surrounding and is aligned with Sustainable Development Goals (SDGs). In many countries, the ratio of children who actively commute between home and school is declining and it might be caused by fear towards the current scenario. Indirectly, children are no longer looking forward to actively travel to school. Even though the neighbourhood primary school is within walking distance, children avoid walking or cycling to school with the busy roads and they believe that being driven in a car is more convenient.

Consideration of SDG in Travel Mode Choice to School

Travelling to school might be considered a sustainable aspect towards bringing cities in line with the Sustainable Development Goals (SDGs) that is to make cities or the surrounding safe, resilient, and sustainable. More precisely, some SDGs, such as SDG 11.2 which provides access to safe, low-priced, accessible, and sustainable transport systems for all, and SDG 3.6 on road safety, are directly related to sustainable mode choice. SDG 3 frequently focuses on promoting well-being and healthy lifestyles for people of all ages. For example, children are encouraged to travel to school using public transport, which costs less in terms of family finances and, simultaneously, will reduce the number of vehicles around the school

CHAPTER 9

LIVEABLE CITIES: A NOTE FROM INDONESIA

Salmina W Ginting & Zulkefle Ayob

INTRODUCTION

This chapter is about liveable cities with a particular emphasis on liveable cities in Indonesia. It begins with several definitions of liveability and liveable and then the chapter proceeds to discuss the criteria used by the ranking system in assessing liveable cities, such as the availability of basic goods, housing, health care, education, communication and public spaces. In addition, this chapter also discusses liveable cities in Indonesia by choosing urban kampung (not rural kampung) as a model. Kampung was chosen because, apart from fulfilling all the basic criteria of a liveable city, it also has other positive aspects, such as economic empowerment and social capital.

What is considered a liveable city?

There is a plethora of definitions for what constitutes a liveable city. Researchers and academicians use it interchangeably with other terms such as sustainable city, smart city, eco-city, resilient city, intelligent city, or green city. The journey each city has taken or is currently taking is unique and context specific. Some cities have had a long history of developing liveability that focuses on equity, economic, and environmental concerns, while other cities are relatively new to the game. In some areas, the government has taken the lead, while in other areas, grassroots activism has been the impetus for liveability policies and programs. Each city provides unique insights into how a specific area has responded to calls for liveable cities.

Blanco (2018) cites a proper definition from an organisation named Partners for Liveable Communities, which states, “Liveability is the sum of the factors that add up to a community’s quality of life—including the built and natural environments, economic prosperity, social stability

CHAPTER 10

TRADITIONAL KNOWLEDGE FOR SUSTAINABLE LANDSCAPE

Sapura Mohamd, Amila Syazwina Mohd Nizam, Siti Nabilah Zahri & Nur Hasya Aliyah Mohd Zai

INTRODUCTION

The traditional knowledge concept and understanding are generally becoming more interesting and vital recently. Traditional knowledge refers to the local or Indigenous knowledge which had been accumulated, practised, and orally transmitted from generation to generation thus indicating the cultural or ethnic identity of a particular community or geographic region (Pathak & Avinash Bharati, 2018). In defining traditional knowledge, it is always associated with other related terminologies such as Indigenous knowledge, traditional ecological knowledge, and traditional environmental knowledge which have some similarities. In short, traditional knowledge, indigenous knowledge, and local knowledge generally refer to knowledge systems embedded in the cultural traditions of regional, indigenous, or local communities which significantly define themselves. Similarly, indigenous knowledge is currently undergoing a revival and its incorporation into development projects is seen as essential. According to the International Encyclopedia of Human Geography, indigenous knowledge is defined as knowledge which is spatially and/or culturally context-specific, collective, holistic, and adaptive (Kitchin, 2009).

Traditional Knowledge in Landscape Architecture

Throughout the years, traditional knowledge has played a great role in drug discovery, rural engineering, as well as various biological perspective research. There is an increasing trend of journals covering folklore medicine which has a significant impact on scientific research trends and movements globally. The Indian Journal of Traditional Knowledge covers important findings from all over the world in folklore medicine. The study of the impact and global visibility of the Indian Journal of Traditional Knowledge indicates the status of folk knowledge covered, the

CHAPTER 11

CONCLUSION

Zulkefle Ayob & Siti Rasidah Md Sakip

INTRODUCTION

The relationship between plants/nature and urban development and communities is essential in promoting sustainable urban development practices. Nature and plants play a crucial role in creating healthy and liveable urban environments, providing a range of benefits to urban communities, including improving air quality, reducing the urban heat island effect, providing wildlife habitats, and promoting physical and mental well-being. Urban development must be based on understanding the natural environment and its ecological processes, incorporating green spaces and plants into urban design plans.

Incorporating plants and nature into urban development plans also promotes sustainable urban communities. The presence of green spaces and plants in urban areas can help promote community cohesion and social interaction, providing opportunities for recreation and relaxation and fostering a sense of well-being. Additionally, green spaces and plants can serve as educational resources, providing opportunities for urban residents to learn about the natural world and the importance of environmental sustainability. Integrating plants and nature into urban development plans is critical in creating sustainable, healthy, and liveable urban environments that benefit both the environment and urban communities.

Furthermore, appreciating nature through plants is closely associated with the cultural identity of communities. Plants are often used to symbolise cultural values, practices, and beliefs. Urban communities incorporating plants into their urban environment promote their cultural heritage and identity. This association highlights the importance of considering cultural values in urban development plans. By recognising the significance of plants and green spaces in urban communities, urban planners can

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PLANTS, CITIES AND COMMUNITIES

Plants, Cities and Communities is a must-read chapter for anyone interested in the relationship between plants and the built environment. This book explores plants' importance and vital roles in our lives and the environment, including their aesthetic value, principles, consumption, application, and benefits to humans facing COVID-19. It also delves into the significant contribution of plants to the health and well-being of the environment and city dwellers. Readers will discover how plants can promote social well-being in urban environments and serve as sustainable materials and sources of traditional knowledge.

The book is written in an easy-to-understand language and is accompanied by stunning illustrations and images to create a more exciting and impactful effect. The information in this book chapter is useful, thought-provoking, and suitable for plant enthusiasts, novice designers, and city managers. The objective of the book is to serve as reference material for students and academics in the field of the built environment. It offers invaluable knowledge and a more in-depth perspective into the numerous facets of plants in their natural habitat, urban environment, and their use in academia. With its invaluable knowledge and unique perspective, Plants, Cities and Communities is a book that will undoubtedly be used as a reference source for years to come.

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