

**A COMPENDIUM OF URBAN AND
REGIONAL PLANNING STUDIES
IN THE BUILT ENVIRONMENT
OF MALAYSIA**

MARIANA MOHAMED OSMAN
SYAHRIAH BACHOK
MOHAMMAD ABDUL MOHIT
MANSOR IBRAHIM



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INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA

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CONTENTS

	<u>Page No.</u>
Contents	v
List of Tables	vii
List of Figures	viii
Foreword	ix
Preface	x
Contributors	xii
CHAPTER 1: KUALA LUMPUR DRAFT CITY PLAN 2020 LOCAL INQUIRY: AN ANALYSIS OF ITS SHORTCOMINGS <i>Alias Abdullah, Zulaikha Nurulzuhri zahar and Muhammad Faris Abdullah</i>	1
CHAPTER 2: RESIDENTS' PERCEPTION OF SAFETY OF BACKLANES AT TERRACED-HOUSING AREAS IN KUALA LUMPUR <i>Alias Abdullah, Nurul Hana Mustaffa and Muhammad Faris Abdullah</i>	8
CHAPTER 3: EFFECTIVNESS OF NOISE BARRIERS IN RESIDENTIAL AREA: A CASE STUDY OF USJ 3/1 AND USJ/2 OF SUBANG JAYA, SELANGOR DARUL EHSAN <i>Mansor Ibrahim and Mohd Azli Ngateman</i>	19
CHAPTER 4: MANAGING STORMWATER THROUGH LANDSCAPE DESIGN FOR URBAN SUSTAINABILITY <i>Mohd Faiz Musa, Ismawi Hj. Zen, and Izawati Tukiman</i>	32
CHAPTER 5: PROBLEMS OF ALLEVIATING POVERTY IN LESS DEVELOPED COUNTRIES (LDCs) <i>Lukman Hakim Mahamod</i>	39

CHAPTER 6:	MALAYSIA URBAN INDICATORS NETWORK (MURNInet) IN THE CONTEXT OF MAQASID AL-SHARIAH: AN OVERVIEW	49
	<i>Nurul Aida Salim, Azila Ahmad Sarkawi and Alias Abdullah</i>	
CHAPTER 7:	ZAKAT IN MALAYSIAN RURAL DEVELOPMENT	57
	<i>Lukman Hakim Mahamod</i>	
CHAPTER 8:	INEQUALITY AND THE IMPORTANCE OF CENTRALIZING ZAKAT COLLECTION: A CASE STUDY OF PADANG TERAP DISTRICT OF KEDAH	66
	<i>Lukman Hakim Mahamod</i>	
CHAPTER 9:	THE AWARENESS AND PRACTICES OF 3R AMONG STUDENTS TOWARDS WASTE REDUCTION	75
	<i>Mariana Mohamed Osman and Siti Rohayu Yusof</i>	
CHAPTER 10:	A REVIEW ON SIMULATION MODEL OF CROWD MOVEMENT DURING INGRESS AND EGRESS OF STADIUM	89
	<i>Syahriah Bachok and Zulfadly Azizi Bohari</i>	

CHAPTER 4

MANAGING STORMWATER THROUGH LANDSCAPE DESIGN FOR URBAN SUSTAINABILITY

Mohd Faiz Bin Musa, Ismawi Hj. Zen, and Izawati Tukiman

INTRODUCTION

Flash flood, river pollution and soil erosion are common environmental impacts of stormwater issues in cities. This happens because of alteration of natural hydrology cycle in urban ecosystem, change of pervious cover to impervious cover. Conventional stormwater management is based on conveyance-oriented approach and structural measures are lack with sustainable approach. Instead, there are other sustainable stormwater management can be achieved through landscape design like Low-Impact Development, New Urbanism and TRANSECT. It applies the non-structural measures and focus on green infrastructures and watershed health in order to preserve and mimic the natural hydrology cycle. In this chapter, the discussion is focused on the advantages and disadvantages of various theories in stormwater management. It also discusses the misconception in design and planning of stormwater from multiple angles of environment, social and economic for urban sustainability.

LANDSCAPE DESIGN IN STORMWATER MANAGEMENT

Landscape design in stormwater management is an inventory and analyses processes of understanding the hydrology cycle and its biophysical elements involved during the metabolism processes of landscape's ecosystem. After understand the scientific knowledge of the landscape, concept of design is formulated to detail down the philosophy and principles which will be the general guidelines for stormwater management. Hence, the detail strategies and techniques can be developed sustainably after the related stormwater issues have been identified in the inventory and analysis and the concept of stormwater management has been formulated for the site. This is because every site has different design solution based on its issues and its landscape character as urged by Ferguson (1999). The stormwater management aim in landscape design is to 'mimic predevelopment hydrology'. This means the strategies used in the landscape design will try to 'reproduce the predevelopment hydrology state' as close as possible. This aim is set by renowned landscape architects such as Bruce Ferguson; starting at the source, Mike Breedlove; putting water back in proper contact with the soil and Larry Coffman; micro-scale management techniques as found out by Tunney (2001). Moreover, Day and Dickinson (2008) stated that the goal of stormwater management is to reduce peak flow, reduce runoff volume and remove