

**NATURAL RESOURCES IN ISLAMIC-BASED
SUSTAINABLE DEVELOPMENT:
A CASE STUDY OF NEGARA BRUNEI
DARUSSALAM**

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DARUSSALAM**

by

RAUDHA BINTI MD RAMLI

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In the name of Allāh, the Most Magnificent, the Most Merciful

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LIST OF ABBREVIATIONS

APEC	Asia-Pacific Economic Cooperation
ASEAN	Association of Southeast Asian Nations
BIMP-EAGA	Brunei Darussalam – Indonesia – Malaysia – Philippines East ASEAN Growth Area
BP	British Petroleum
CAQDAS	Computer-Aided Qualitative Data Analysis Software
CETREE	Centre for Education, Training, and Research in Renewable Energy, Energy Efficiency and Green Technology
CFIRST	Centre for <i>Fiqh</i> Research Science and Technology
CGSS	Centre for Global Sustainability Studies
DEPD	Department of Economic Planning and Development
GCC	Gulf Cooperation Council Country
GDP	Gross Domestic Product
GDP PPP	GDP per capita based on Purchasing Power Parity
HDI	Human Development Index
HRD	Human Resource Development
IbD	Islamic-based Development
IbSD	Islamic-based Sustainable Development
ICSU	International Council for Science
ICT	Information and Communications Technology
IMTS	International Merchandise Trade Statistics
IPCC	Intergovernmental Panel on Climate Change
ISSC	International Social Science Council

IUCN	International Union for Conservation of Nature
KBE	Knowledge-based Economy
MDGs	Millennium Development Goals
MIB	<i>Melayu Islam Beraja</i>
OECD	Organisation for Economic Co-operation and Development
OIC	Organisation of Islamic Cooperation
OSPD	Outline of Strategies and Policies for Development
PBUH	Peace Be Upon Him
PPP	Purchasing Power Parity
PPP	Public-Private Partnership
SAW	<i>Ṣalla Allāh ‘alaih wa sallam</i>
SDGs	Sustainable Development Goals
SDSN	Sustainable Development Solutions Network
SLR	Systematic Literature Review
SMEs	Small Medium Enterprises
SWT	<i>Subḥanāhu wa Ta‘ālā</i>
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNCSD	United Nations Conference on Sustainable Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNMEA	United Nations Millennium Ecosystem Assessment
USM	Universiti Sains Malaysia
WCED	World Commission on Environment and Development
WTO	World Trade Organisation

LIST OF APPENDICES

- Appendix A Permission Letter for Undertaking Doctoral Research Fieldwork in Malaysia
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TRANSLITERATION

CONSONANTS	ARABIC LETTER	CONSONANTS	ARABIC LETTER
ṭ	ط	-	ا
ʒ	ظ	b	ب
‘	ع	t	ت
gh	غ	th	ث
f	ف	j	ج
q	ق	ḥ	ح
k	ك	kh	خ
l	ل	d	د
m	م	dh	ذ
n	ن	r	ر
w	و	z	ز
h	هـ	s	س
’	ء	sy	ش
y	ي	ṣ	ص
ṭ	ة	ḍ	ض

SHORT		LONG		DIPHTHONGS	
a	اَ	ā	آ	ay	أَيَّ
i	اِ	ī	إِيَّ	aw	أَوْ
u	اُ	ū	أُوَّ		

Source: *Pedoman Transliterasi Huruf Arab ke Rumi Dewan Bahasa dan Pustaka* (DBP) (1992)

SUMBER ALAM DALAM PEMBANGUNAN LESTARI
BERTERASKAN ISLAM: KAJIAN KES NEGARA BRUNEI DARUSSALAM

ABSTRAK

Sektor minyak dan gas menjadi sumber pendapatan dan penyumbang utama Keluaran Dalam Negara Kasar (KDNK) di Negara Brunei Darussalam (Brunei). Kebergantungan kepada sumber alam tidak boleh diperbaharui mendedahkan Brunei kepada risiko ekonomi seperti penurunan ketara harga minyak global sehingga mengancam kelestarian pembangunan. Justeru, bagaimanakah Brunei dapat mengurangkan kebergantungan kepada sumber minyak dan gas? Memandangkan Brunei meletakkan Islam sebagai falsafah negara yang diterapkan dalam aspirasi dan visi pembangunannya, lantas bagaimanakah falsafah, aspirasi dan visi ini dapat dilaksanakan dalam merangka strategi pembangunan Brunei yang lestari dengan sumber alam yang dimilikinya? Bagaimana pula Islam sebagai teras Brunei dapat diterjemahkan dalam perancangan pembangunannya? Berdasarkan persoalan-persoalan ini, tiga objektif dikemukakan. Objektif pertama mengenalpasti konsep sumber alam yang bersesuaian untuk pembangunan Brunei yang lestari. Objektif kedua menganalisis sumber alam di Brunei berdasarkan konteks Melayu Islam Beraja (MIB), Negara Zikir dan Wawasan Brunei 2035 manakala objektif ketiga mencadangkan strategi pembangunan lestari berteraskan Islam untuk Brunei. Rekabentuk kajian kes dengan pendekatan kualitatif digunakan untuk mengumpulkan data yang terdiri daripada sumber mutlak Islam (*al-Qur'ān* dan *ḥadīth*), sumber primer iaitu temubual separa berstruktur dan sumber sekunder yang terdiri dari bahan bertulis yang diterbitkan. Data dianalisis menggunakan kaedah analisis kandungan tematik. Objektif pertama telah mengenalpasti konsep sumber alam dalam pembangunan lestari

Islam meliputi tujuan penciptaannya kepada manusia (untuk manfaat kepada manusia), jenis (langit dan bumi, tanah-tanah, sumber-sumber di bawah permukaan bumi dan tanah, serta air dan udara) dan konsep teras yang terdiri daripada *taṣawwur*, *al-Tawhīd*, *al-Khalq*, *khalīfat*, *akhlāq* dan *'adāb* serta *Maqāṣid al-Syari'at*. Objektif kedua telah menganalisis sumber alam utama Brunei untuk pembangunan lestari dalam konteks Melayu Islam Beraja (Falsafah Nasional), Negara Zikir (Aspirasi) dan Wawasan Brunei 2035 (Visi Pembangunan Nasional). Sumber alam yang dikenalpasti ialah modal insan, pertanian, perikanan, perhutanan, penternakan, minyak dan gas, serta sumber tenaga boleh diperbaharui. Sumber alam dimanfaatkan untuk rakyat melalui pembangunan ekonomi, peningkatan kualiti hidup serta kesejahteraan rakyat melalui pengurusan sumber alam berdasarkan *akhlāq* dan *'adāb*. Objektif ketiga mencadangkan strategi pembangunan lestari berteraskan Islam di Brunei merangkumi kepelbagaian ekonomi sektor lain seperti sumber tenaga, sumber primer, pelancongan, pelaburan asing, serta perusahaan tempatan. Implikasinya, pelan strategik dan rangka pembangunan Brunei berteraskan Islam dapat dibentuk untuk mencapai pembangunan yang lestari demi mencapai *baldaṭ ṭayyibat wa rabb al-ghafūr* (negara yang aman dan harmoni) dan *Marḍāt Allāh* (keredhaan Allāh SWT).

**NATURAL RESOURCES IN ISLAMIC-BASED SUSTAINABLE
DEVELOPMENT: A CASE STUDY OF NEGARA BRUNEI DARUSSALAM**

ABSTRACT

The oil and gas industry is the main contributor to the national income and Gross Domestic Product (GDP) of Negara Brunei Darussalam. Brunei's dependence on the oil and gas industry exposes the country to long-term economic risks such as the drastic reduction of global oil prices, which could threaten its sustainable development. Therefore, how can Brunei reduce its dependency on oil and gas resources? Seeing that Brunei has incorporated Islam into its national philosophy and its aspiration and vision of national development, how can this philosophy, aspiration, and vision be executed as part of Brunei's development strategy to ensure the sustainability of the country's natural resources? Furthermore, how then can Islam form the basis for Brunei's development plan? To answer these questions, three research objectives were derived. The first objective is to identify the concept of natural resources that is in line with Brunei's sustainable development. The second objective is to analyse the vital natural resources available for sustainable development in Brunei based on the context of the Malay Islamic Monarchy (MIB), *Zikir* Nation, and Brunei Vision 2035, while the third objective is to propose Islamic-based sustainable development strategies for Brunei. A qualitative-based case study framework was applied to collect three types of data: authentic sources, *al-Qur'ān* and *ḥadīth*; primary sources, semi-structured interviews; and secondary sources, published documents. The data was analysed using thematic content analysis. The first objective identified the natural resource concept in IbSD, including why, were natural resources created for mankind (all of which were created for the benefit of mankind), the types

of natural resources (the heavens and the earth, the soil, the resources beneath the earth's surface and beneath the soil, as well as water and air), and the core Islamic concepts underpinning the natural resources in IbSD is *taṣawwur*, *al-Tawḥīd*, *al-Khalq*, *khalīfat*, *akhlāq* and *'adāb* and *Maqāṣid al-Syarī'at*. The second objective analyses the main natural resource in Brunei that can be sustainably developed based on the context of the Malay Islamic Monarchy (National Philosophy), *Zikir* Nation (Aspiration), and Brunei Vision 2035 (National Vision). The identified natural resources in Brunei are human capital, agriculture, fisheries, forestry, farming, oil and gas, and renewable energy. These natural resources have been managed according to the Islamic core concepts namely *akhlāq* and *'adāb* which could help the economic development, and improve the quality of life, and the wellbeing of the people of Brunei. The third objective proposes Islamic-based sustainable development strategies for Brunei encompassing the economic diversification such as the energy sector, primary sources, tourism, foreign direct investment, and the local industry (micro, small, and medium enterprises). In this way, an Islam-based strategic plan and development framework for Brunei could be developed to achieve sustainable development, *baldaṭ ṭayyibaṭ wa rabb al-ghafūr* (a peaceful, harmonious country), and *Marḍāt Allāh* (the pleasure of *Allāh* SWT).

CHAPTER 1

INTRODUCTION

1.1 Chapter Overview

The central theme of this study is the Islamic concept of natural resources, with a specific focus on sustainable development and how it relates to natural resources based on the Islamic worldview. The substantiated foundation of natural resources according to Islamic-based Sustainable Development (IbSD) was established in this study by emphasising on the philosophical underpinnings of natural resources and IbSD from authentic and absolute Islamic sources, namely *al-Qur'ān* and *ḥadīth*.

This exploratory study focuses on analysing the conceptualisation of natural resources in IbSD for Negara Brunei Darussalam (Brunei) in relation to “*Melayu Islam Beraja*” (Malay Islamic Monarchy),¹ “*Negara Zikir*”² (*Zikir* Nation), and “*Wawasan Brunei 2035*”³ (Brunei Vision 2035) (Department of Economic Planning and Development, 2007). It starts with the identification of natural resources in IbSD from the Islamic perspective, particularly the purpose of natural resource creation, the type of natural resources, and the management of natural resources. Thereafter, this study analyses natural resources in IbSD to conceptualise and examine the contribution of these natural resources in the framework of Brunei’s sustainable development.

¹ The national philosophy of Brunei can be summed up with the term “*Melayu Islam Beraja*” or “Malay Islamic Monarchy”. This term is examined in detail in Section 2.5.3 and is used throughout this thesis.

² The term “*Negara Zikir*”, which literally means a “*Zikir* Nation”, refers to the national concept of Brunei. A “*Zikir* Nation” or “*Negara Zikir*” conscientiously keeps *Allāh* SWT in mind when carrying out daily actions i.e., it translates as “[a] country that praises or remembers God”. The term *Negara Zikir* is scrutinised in Section 2.5.4 and used throughout this thesis.

³ The term “*Wawasan Brunei 2035*” refers to Brunei National Vision 2035. This vision is meant to guide Brunei for the next 15 years and focuses on three key areas, namely, accomplishing the nation’s well-educated and highly skilled people; the quality of life of the people; and a sustainable, dynamic economy. The Ninth National Development Plan of Negara Brunei Darussalam (2007–2012) introduced Brunei Vision 2035. The term *Wawasan Brunei 2035* is analysed in Section 2.5.5 and used throughout this thesis.

This introductory chapter presents a discussion of the research background, the historical evolution of sustainable development, IbSD, and how natural resources intertwine with IbSD. The problem statement, the research objectives, and the research questions indicate the essential objective of this thesis. The operational definitions, the research scope and limitations, the significance of the study, and the contributions of the study are also given in this chapter. This chapter wraps up with an overview of the thesis and the thesis organisation.

1.2 Background of Study

Sustainable development is an interdisciplinary and holistic concept that encompasses long-term economic development, environmental resilience, and social inclusion. The past 50 years have seen a growing demand to pursue national and global policies to attain sustainable development. According to Sachs (2015) and the United Nations (2019a), sustainable development is an essential notion, a normative and scientific concept to understand the world, and a method for analysing and solving global development problems to recommend related policy solutions and improve the well-being of present and upcoming generations.

Therefore, the United Nations Development Programme (1994), calls for the establishment of an integrated development system that is more effective and efficient to support the global move towards sustainability. Elliot (2013) stated that major institutions of the world, including the World Bank, the World Trade Organisation (WTO) and the UN, have set sustainable development as a primary policy goal. Section 1.2.1 below introduces the emergent idea of sustainable development. Various theories concerning sustainability are also considered to provide a new vision for future development (Elliot, 2013).

1.2.1 The History of Sustainable Development

According to Munawar Iqbal (2003), the concept of sustainable development emerged in the 1960s as an extension of the prevalent concepts of growth and development. Initially, this concept arose due to rising concern surrounding the deteriorating environment due to intensified industrial and growth-oriented activities that are the hallmark of the 1950s and 1960s decades of development (Munawar Iqbal, 2003). Man's adverse impact on the environment can be seen scattered throughout the world. For example, the water and air around us are now massively polluted, the biosphere ecology has been thrown off balance, irreplaceable resources are being depleted and destroyed, and people's live and jobs are at stake because of increased stress physically, mentally and socially.

The concept of sustainable development has gone through various channels in the UN system, as shown in Figure 1.1⁴.

⁴ Retrieved from a public talk on a Sustainable Development Series "The Path from MDGs to SDGs: An Outlook and Indicators for Asean and Islamic Countries". Hosted by Centre for Global Sustainability Studies (CGSS), Universiti Sains Malaysia (USM) on 15 March 2016 at SK 3 Hall. The slide can be accessed through https://cgss.usm.my/images/PATH_FROM_MDG_TO_SDG_15.3.2016.pdf

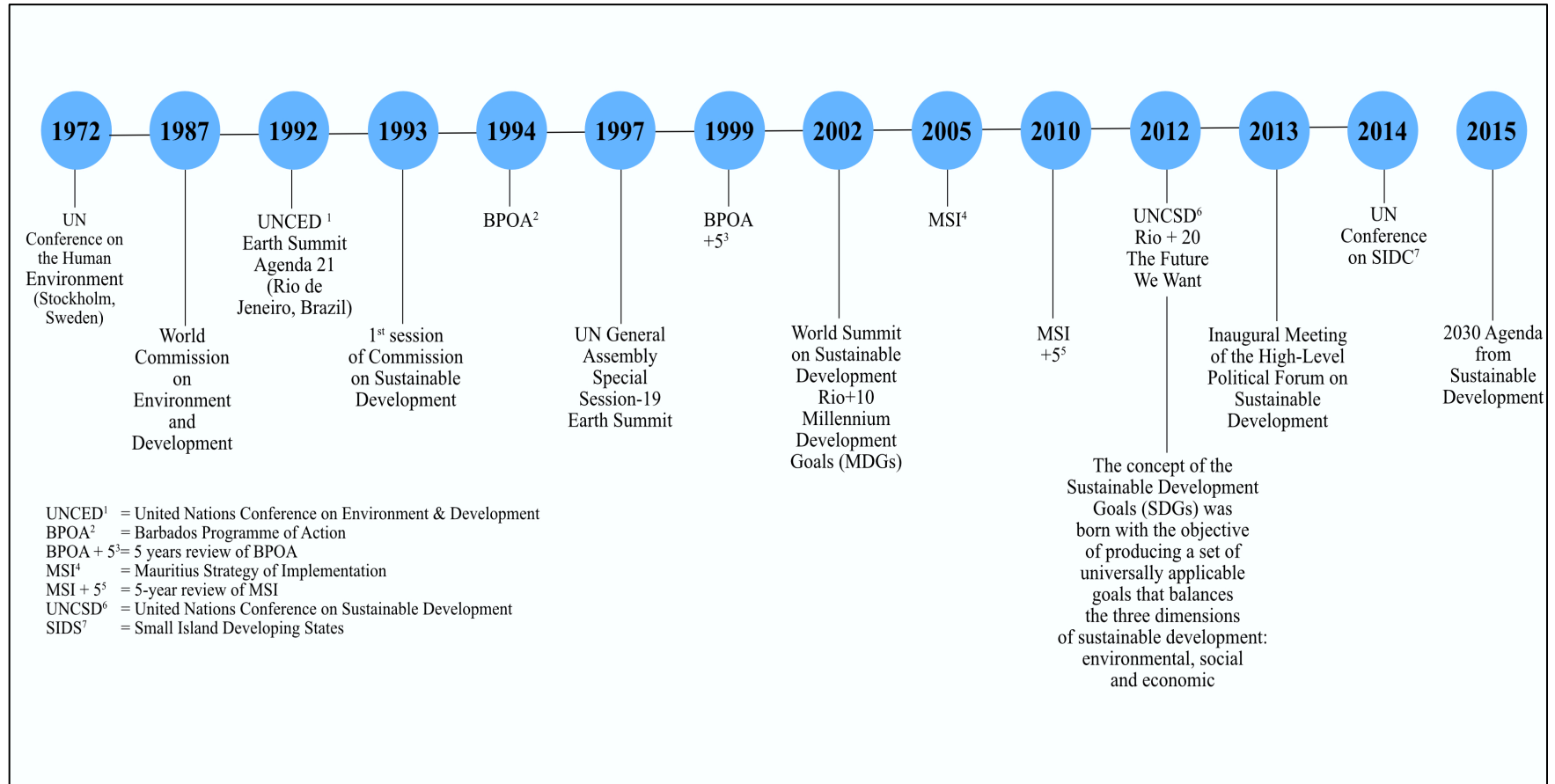


Figure 1.1 The Concept of Sustainable Development in Various Channels in the UN System

Source: Centre for Global Sustainability Studies (CGSS) (2016)

The UN organised the Conference on the Human Environment in Stockholm in June 1972. From this conference, it was agreed that the protection and improvement of the human environment is a major issue that affects the well-being of people and economic development throughout the world. The Stockholm Declaration was then drafted to call upon governments and societies to collectively preserve and improve the human environment so that, both current and future generations will benefit (Munawar Iqbal, 2003).

In 1987, the World Commission on Environment and Development (WCED), another conference organised by the UN, was held. In the WCED, an independent group of 22 people—established by the UN—identified long-term environmental strategies for the international community. This group consisted of member states from both developed and developing countries. As a result, “Our Common Future” (World Commission on Environment and Development, 1987), a report published by the WCED, is now widely acknowledged to have extensively fostered sustainable development in international development thinking. According to Elliot (2013), the WCED had, for the first time, considered environmental concerns arising from development processes from economic, social, and political perspectives instead of solely from science-based perspectives as done in previous studies.

In 1992, Rio de Janeiro hosted The United Nations Conference on Environment and Development (UNCED), subsequently leading to the Earth Summit, also known as the United Nations Conference on the Human Environment. This event signifies the result of several years of conciliation at the highest political levels on environmental issues—biodiversity loss, climate change, deforestation, and sustainable development—to establish new cross-national policies (Conca & Dabelko, 1998; Haas et al., 1992; Jordan, 1994). Although the 1972 Stockholm Conference did not attract

the same overseas participation, media attention or public interest as seen in Rio de Janeiro, the fundamental discussion was the same. The urgent responses to environmental problems economically, politically, and culturally had divided the world. Environmental concerns faced by developed countries, particularly the acidification of the Scandinavian aquatic system, were the major factors that led to the Stockholm Conference (Grubb et al., 1993).

An important development over these decades was the tremendous growth in scientific understanding of environmental problems. While the Stockholm Conference focused on air and water pollution problems, Rio embraced a far broader and complex agenda. This shift was reflected in the changing scientific paradigm and integrated system with complex links among the large-scale ecological systems of oceans, land atmosphere, and biosphere. The discussion at Rio gave birth to an ambitious blueprint known as Agenda 21 in June 1992, with the aim to identify the principles of an agenda for action to achieve sustainable development in the 21st century and beyond, which reflected scientists' capacity to measure, monitor, and develop a complex model of processes of environmental change, combating poverty, changing production and consumption patterns, social justice, financial resources, mechanisms for sustainable development, and capacity building (Conca & Dabelko, 2010; Elliot, 2013; Munawar Iqbal, 2003).

In 2002, Johannesburg saw the 104 heads of state gathering again after ten years at the United Nations World Summit on Sustainable Development to reinvigorate the highest political-level cooperation for achieving sustainable development. According to Seyfang (2003) and Elliot (2013), this summit was the fourth mega conference after Stockholm in 1972 and was considered as the most inclusive summit to date to represent issues of human rights, social justice, and

business accountability. In 2000, the world leaders at the Millennium Summit of the United Nations General Assembly agreed to shape a broader framework and vision for the period of 2000–2015. At the summit, the Member States of the UN adopted the United Nations Millennium Declaration, known as the Millennium Development Goals or MDGs (United Nations Development Programme, 2015a). The eight targets of the MDGs emphasise on holistic development to enhance people’s lives by addressing many concerns in order to attain national sustainable development according to environmental, economic, and social objectives. The MDGs managed to converge the attention of world leaders on the key challenges faced by humanity.

According to the United Nations Development Programme (2015a), the overall outcomes of the MDGs were highly positive. For instance, the last two decades (1995 to 2015), saw a significant decline in the percentage of people facing extreme poverty. Moreover, 1990 to 2015 saw a more than 50 per cent drop in the number of people living in extreme poverty, from 1.9 billion to 836 million. Additionally, the percentage of starving people in developing countries was 23.3 per cent in 1990–1992 but fell by almost half to 12.9 per cent in 2014–2016. In developing regions, the number of children enrolled in primary schools also increased from 83 per cent in 2000 to 91 per cent in 2015, with an increasing number of girls attending school. Access to clean water sources and sanitation improved significantly, and positive progress was recorded in combating HIV/AIDS, tuberculosis, and malaria in the preceding 15 years.

The MDGs played an important role in spurring global community development. The MDGs provided a sustainable framework for action for the developing countries and was a predominant concept for assessing improvements in living standards and the conditions of the poor. Although substantial progress had been made in achieving the MDGs during the preceding 15 years, there remains an

abundance of incomplete initiatives with more modest endeavours for several goals and targets. The experience gained from implementing the MDGs will help guide the world's economic diplomacy in the coming generation besides helping achieve the sustainable development goals (SDGs) by 2030. One of the primary outcomes of the UNCSD in 2012 is an international agreement to set new global goals as a guide for the policy of sustainable development for the next 15 years (Kroll, 2015; Osbon et al., 2015). The ultimate aim of the new set of SDG goals is to end poverty and hunger by 2030 (United Nations Development Programme, 2015b).

According to the International Council for Science and International Social Science Council (2015), the MDGs applied largely to poor countries with donations coming from rich countries, while the SDGs are universally applicable and offer major improvements to the MDGs. The SDGs provide a comprehensive vision and framework for the evolution of all countries in the years ahead. The SDGs have 17 goals and 169 targets and better cover the social, economic and environmental dimensions of sustainable development, including good governance. There are five elements underpinning the SDGs, namely, people, planet, prosperity, partnership, and peace, as depicted in Figure 1.2 (United Nations, 2015).

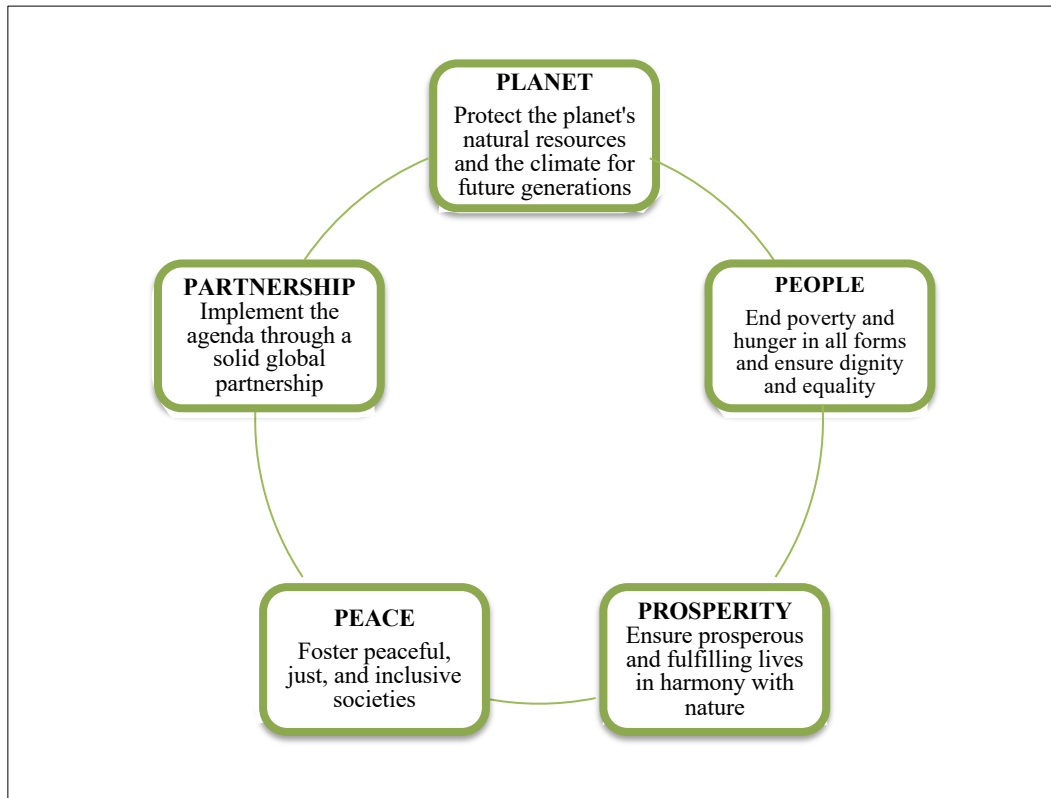


Figure 1.2 The Five Elements Underpinning the SDGs

Source: United Nations (2015)

The objective of the first element—people—is to eliminate all forms and dimensions of poverty and hunger United Nations Development Programme (2015b), Sustainable Development Solutions Network (SDSN) (2015). Another objective of this element is to make sure the full potential of every human being is realised and that each has equal rights and dignity and enjoy a healthy environment in which to live. Prosperity—the second element—underlines that all economic, social, and technological progress should be in harmony with nature and that all human beings can enjoy prosperous and fulfilling lives. In short, it is imperative that the natural resources we have now are preserved for future generations, so the world must shift to sustainable consumption and production patterns.

The third element—peace—is aimed at nurturing societies that are just, inclusive, and peaceful that are not plagued by fear or violence. The fourth element—

partnership—is aimed at achieving a revitalised global partnership based on the spirit of strengthened global solidarity by mobilising the means required to implement the sustainable development agenda, with participation from all countries, stakeholders, and people, and focusing on the needs of the poorest and most vulnerable. Planet—the last element—underlines the protection of the planet, preventing degradation by implementing sustainable natural resource management and sustainable consumption and production, coupled with climate change actions to ensure the needs of present and future generations are met.

Based on the above elements proposed by the UN, this study focuses on economic growth and social development for environmental sustainability. If the scale of environmental pressures is not addressed properly, future prosperity and economic growth will be impacted (Smith et al., 2010). As proposed by the Sustainable Development Solutions Network (SDSN) (2015), the patterns of world production and consumption should change to ensure sustainability for future generations. This idea promotes sustainable production and consumption that do not deplete natural resources (Rockström et al., 2013; Sachs, 2015). The concept of planetary boundaries was thus developed to shape a harmless operating space for humanity that carries a low possibility of harming the life support systems on Earth for the international community, covering international organisations, the private sector, and governments at all levels, including the civil society, as a precondition for sustainable development.

1.2.2 Global Population, Production, and Consumption

All countries in the world need to simultaneously accomplish three goals to achieve sustainable development, namely, economic growth, social inclusion, and environmental sustainability (United Nations, 2015). The world economy has become very large relative to the finite planetary resources (Sachs, 2015). According to the

ecological view, humanity is pushing against the limits of the environment and is exceeding the planetary boundaries in several critical areas. Thomas Robert Malthus wrote the seminal work “An Essay on the Principle of Population” in 1798, warning that population pressures would undermine improvements in standards of living. The World3 simulation proposed by Meadows et al. (2004) highlights that the economy will stop growing when it reaches its limits. Resources will decline and deteriorate with overuse, as shown in Figure 1.3.

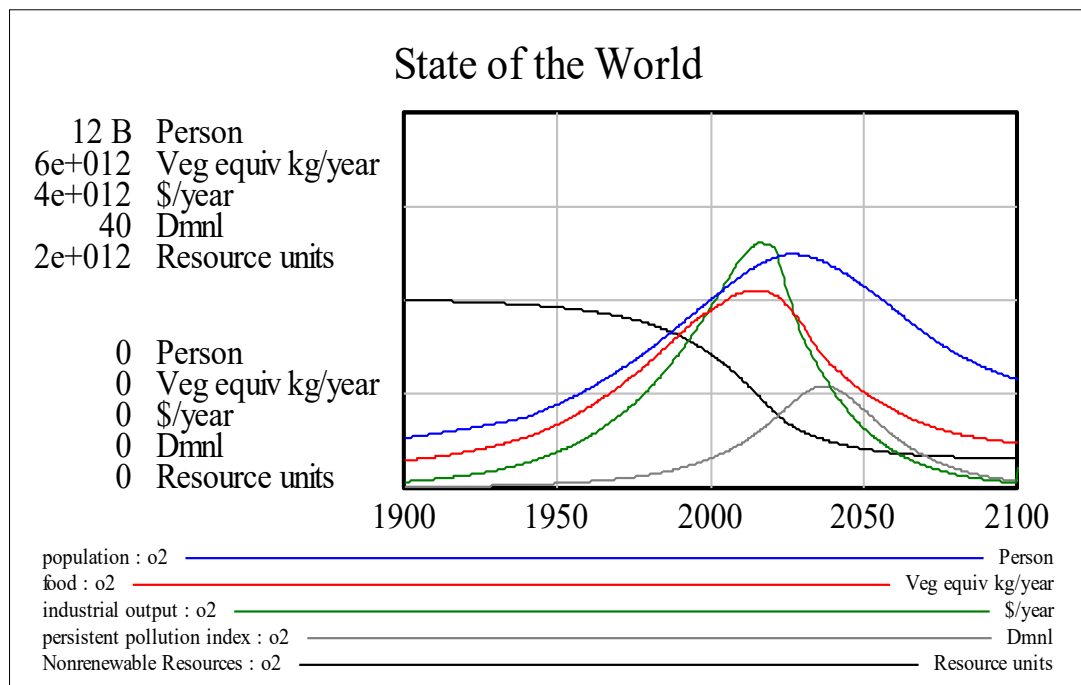


Figure 1.3 The Dynamics of Growth in a Finite World

Source: Meadows et al. (2004)

Based on Figure 1.3, it is anticipated that by 2030, the population is expected to increase to over 7 billion people. Together with this growth, industrial production, energy consumption, such as non-renewable resources, and pollution are expected to rise significantly, and the upsurge in food demand to feed a larger world population will also reduce food supply. Furthermore, this scenario will lead to the depletion of non-renewable resources, which will, in turn, affect economic development, and also

future generations, especially if the consumption of non-renewable resources (in the simulated world) continues to increase and is not efficiently managed. However, the plunge in non-renewable resource production and consumption requires substantial capital to find, extract, and refine continuous efforts to foster growth and development (Meadows et al., 2004). This model demonstrates the importance of understanding sustainable development that integrates the elements of economics and environmental and social development for future generations.

The global consumption of primary resources in the energy sector namely oil, natural gas, coal, renewable energy, and hydro energy grew to 1.3 percent in 2018 (BP Statistics, 2020). According to BP Statistics (2020), consumption increased for all types of energy except coal while global oil production slowed down by 60,000 barrels per day in US output. This phenomenon was triggered by global CO₂ emissions from energy, which experienced the lowest growth rate since 1998. Emerging economies accounted for all of the net growth in energy consumption over the past few decades, with China chronicling the world's largest growth in main energy consumption for the fourteenth consecutive year. The development of energy in the global world is discussed in Section 1.2.2 (a).

1.2.2(a) Energy Development in the Global World

Energy has been the main driver of economic growth, sustainable development, and human well-being in recent years. It contributes to approximately 70 per cent of the world's industrial Gross Domestic Product (GDP) (Vezzoli et al., 2018). Furthermore, one of the SDG goals is to ensure that everyone has access to affordable, sustainable, reliable, and modern energy by 2030. In the SDG progress report published by United Nations (2019b), the world population access to clean cooking fuels and technology has rapidly increased from 57 per cent in 2010 to 61 per cent in

2017. The electrification rate also grew to 89 per cent in 2017 compared to 83 per cent in 2010, specifically in the poorest countries. Interestingly, this report also stated that international clean and renewable energy supply flows in developing countries grew from USD9.9 billion in 2010 to USD18.6 billion in 2016. This figure shows the global increase in energy demand and indicates that energy is increasingly sustainable and widely available.

BP Statistics (2019b) reported that the energy demand is expected to increase substantially from 2020 until 2040 due to the expansion of the global economy, increased prosperity, and a better standard of living. In addition, oil consumption rose to 1112.5 million barrels per day from 2017 to 2018 followed by coal and natural gas, as shown in Table 1.1 and Figure 1.4.

Table 1.1 Primary Energy Consumption by Type of Fuel for Each Region in the World 2017 and 2018 (Thousand Million Per Barrel)

Year	Fuels	North America	S & Cent. America	Europe	CIS	Middle East	Africa	Asia Pacific
2017	Oil	1096.6	317.2	746.2	191.1	412.5	192.1	1651.3
	Natural Gas	804.4	148.4	481.9	472.3	453.2	121.0	660.6
	Coal	365.1	34.8	315.5	126.4	8.2	97.6	2770.8
	Nuclear energy	216.9	4.9	211.8	46.6	1.6	3.6	111.7
	Hydro electric	164.1	163.0	132.3	54.3	4.7	28.2	373.2
	Renew-able Energy	108.4	31.5	162.3	0.5	1.3	6.1	180.2
2018	Oil	1112.5	315.3	742.0	193.5	412.1	191.3	1695.4
	Natural Gas	879.1	144.8	472.0	499.4	475.6	129.0	709.6
	Coal	343.3	36.0	307.1	134.9	7.9	101.4	2841.3
	Nuclear energy	217.9	5.1	212.1	46.7	1.6	2.5	125.3

Hydro electric	160.3	165.5	145.3	55.4	3.4	30.1	388.9
Renew-able Energy	118.8	35.4	172.2	0.6	1.7	7.2	225.4

Source: BP Statistics (2019b)

Table 1.1 lists the world’s primary energy consumption by type including oil, natural gas, coal, nuclear energy, hydroelectric energy, and renewable energy. Based on Table 1.1, the primary energy consumption trend in each region is shown in Figure 1.4. In comparison to other primary energy sources, oil consumption and renewable energy in the Asia Pacific continuously rose by 2.4 per cent in 2018. The rising percentage of renewable energy consumption indicates that this sector has the potential to accelerate developing trends and create chances for the world to shift towards a more sustainable path.

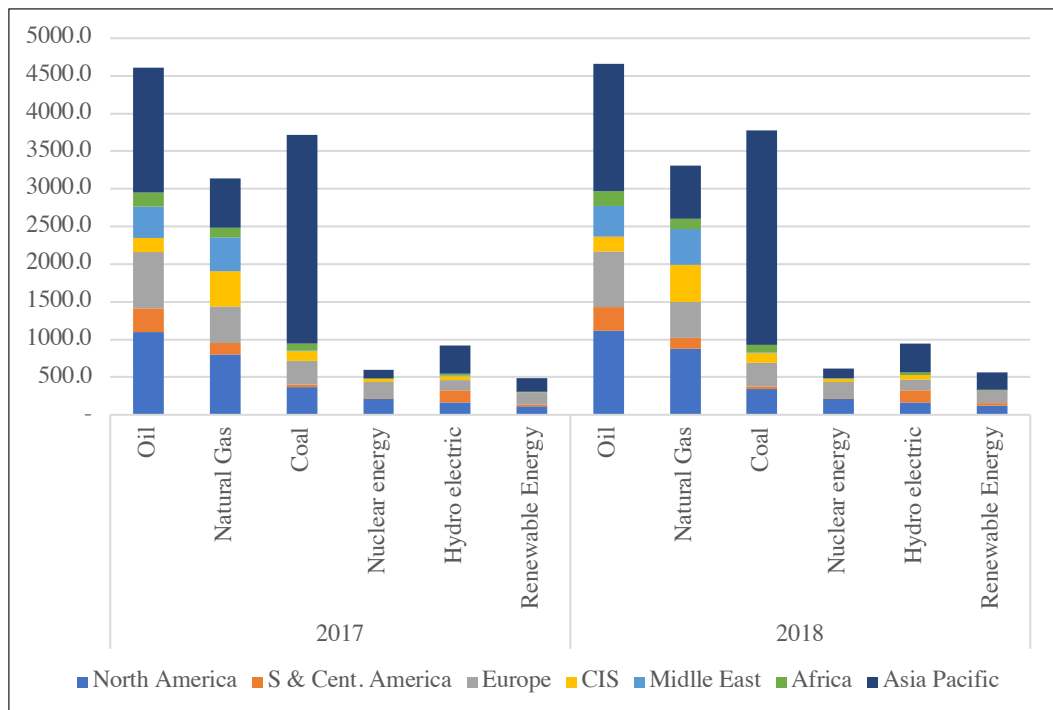


Figure 1.4 Primary Energy Consumption by Type of Fuel for each Region in the World 2017 and 2018 (Thousand Million Per Barrel)

Source: BP Statistics (2019b)

Historically, oil is the world’s most popular fuel, dominating 32.6 per cent of the global energy consumption in 2018. The global oil consumption increased by 2.2 million barrels per day in 2018 with the U.S. and China consuming the largest amounts, at 500,000 million barrels per day and 680,000 million barrels per day, respectively (BP Statistics, 2019b). According to BP Statistics (2019b), the huge demand in the energy sector had led to an increase in carbon emissions by 2.0 per cent in 2019, which is the fastest growth in seven years. Figure 1.5 shows the trends of global crude oil consumption and production, which had led to an increase in global carbon emissions from 1965 until 2018.

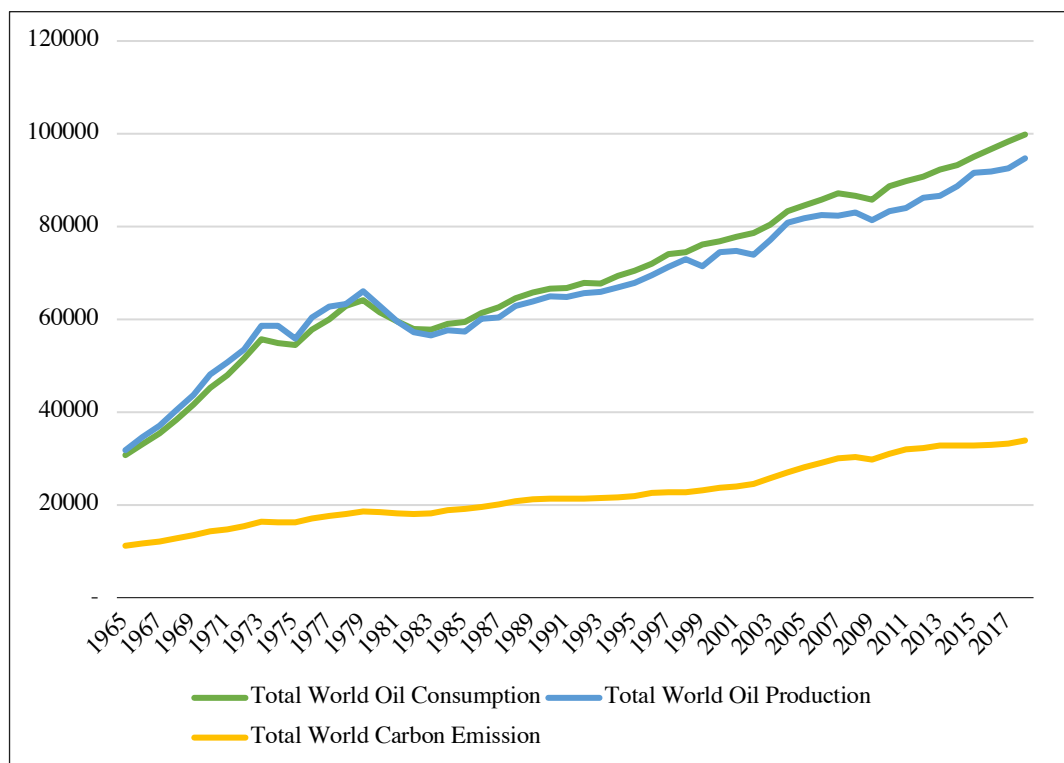


Figure 1.5 Trends of Global Crude Oil Consumption and Production and Global Carbon Emission 1965–2018 (Million tonnes of carbon dioxide)

Source: BP Statistics (2019b)

According to BP Statistics (2019b), the global energy demand grew by 1.5 per cent in 2018, leading to an increase in carbon emissions by 2.0 per cent in the same

year. The increase in world energy consumption and production, as well as carbon emissions, is alarming and requires attention from all parties and stakeholders. However, the U.S. Energy Information Administration (2020) expects global carbon emissions to decline by 2.2 per cent in 2020 and 0.4 per cent by 2021 due to lower levels of energy consumption and demand. Carbon emission related to the energy sector has a substantial impact on climate change, energy prices, and economic growth. In line with this discussion, the following Section 1.2.2 (b) provides in-depth reports on global oil reserves, consumption, and production.

1.2.2(b) Global Oil Reserves, Consumption, and Production

The total global oil reserves stood at 1729.7 thousand million barrels in 2018, which is higher than the 1493.8 thousand million barrels recorded in 2008 (an increase of 0.1 per cent in 2018 and 1.9 per cent per annum between 2007 and 2017). The highest levels of oil reserves can be seen in Middle Eastern countries, namely the United Arab Emirates, Syria, Yemen, Iraq, Oman, Kuwait, Saudi Arabia, Iran, and Qatar, and even increased 0.1 per cent rate per annum from 2007 until 2017. In contrast, oil reserves in the Asia Pacific region, namely Australia, Brunei, China, India, Indonesia, Malaysia, Thailand, Vietnam, and other Asia Pacific countries, declined slightly by 0.2 per cent in 2018. However, this region recorded oil reserves growth of 0.5 per cent per annum from 2007 until 2017. Figure 1.6 shows the oil reserves trends in thousand million barrels for each region of the world (BP Statistics, 2019b).

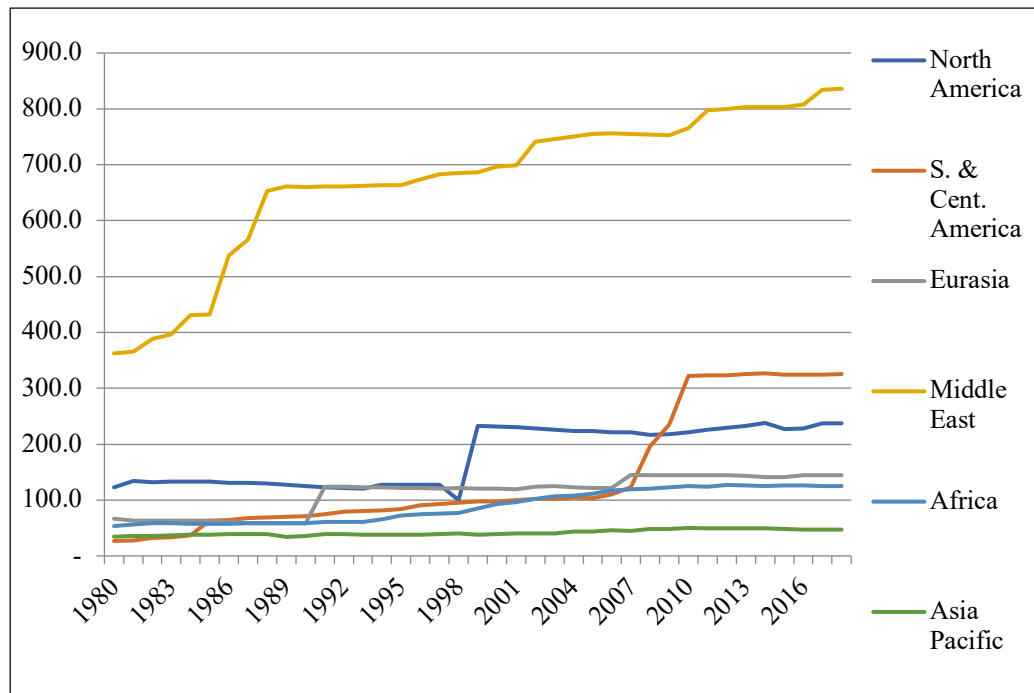


Figure 1.6 Oil Reserves by Region (Thousand Million Barrels) 1980–2018

Source: BP Statistics (2019b)

According to a BP Statistics (2019b) report, the global oil consumption increased by 1.4 million barrels per day or 2.9 per cent in 2018, which is stronger than the 1.1 million barrels per day increase in 2008. The relative strength of the economy and oil consumption was driven by the Organisation for Economic Co-operation and Development (OECD) countries. However, the OECD countries' oil consumption dropped by 0.2 per cent in 2018. Asia Pacific countries, specifically China, reported the highest oil consumption of 3273.5 thousand barrels per day in 2018 (an increase of 4.3 per cent), followed by the U.S. (North America), with 2300.6 thousand barrels per day (an increase of 3.5 per cent). Figure 1.7 shows the total oil consumption by regions of the world between 1965 and 2018. The U.S. Energy Information Administration (2020) predicted that global oil consumption would be 99.1 million barrels per day on average in the first quarter of 2020. This lower demand for petroleum consumption is due to a decline in global economic growth, in addition to the dampening on global travel due to the novel Coronavirus disease (COVID-19).

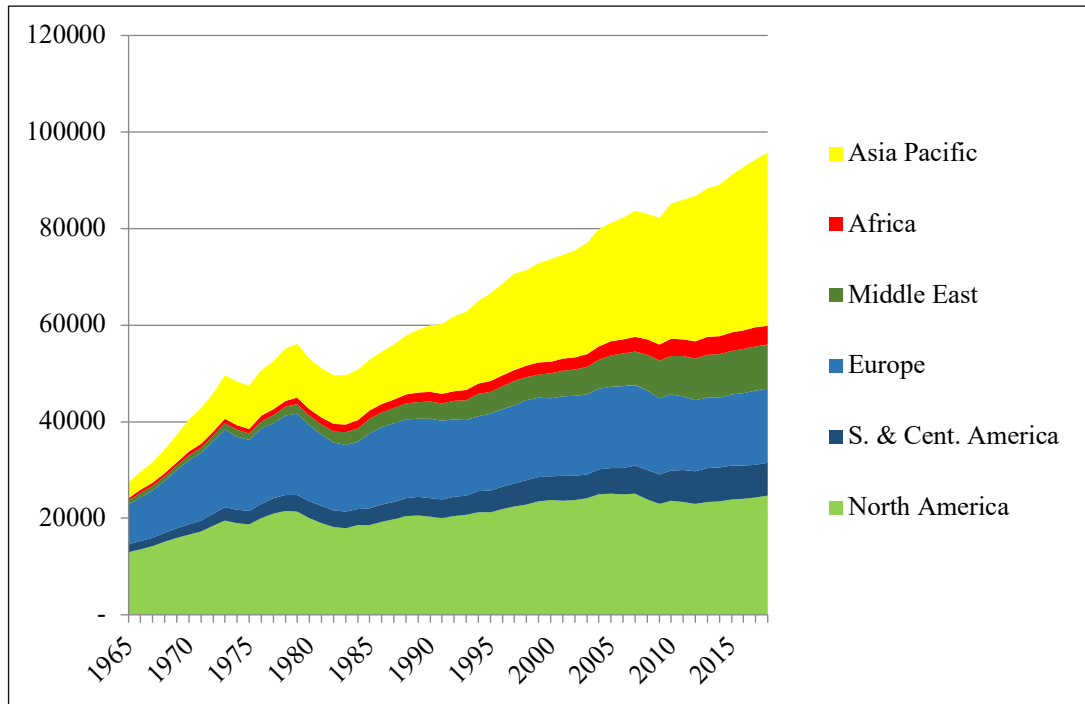


Figure 1.7 Oil Consumption (Thousand Million Barrels) from 1965 to 2018

Source: BP Statistics (2019b)

Canada and Saudi Arabia drove the increase in production by the Organisation of the Petroleum Exporting Countries (OPEC) from 1.6 million barrels per day to 38.2 million barrels per day in 2018. The U.S. Energy Information Administration (2020) predicted that the average crude oil production by OPEC will be 29.2 million barrels per day from April to December 2020 and will grow to an average of 29.4 million barrels per day in 2021. However, the U.S. Energy Information Administration (2020) forecasted that the average crude oil production by the U.S. will fall to 12.7 million barrels per day in 2021 due to lower oil prices.

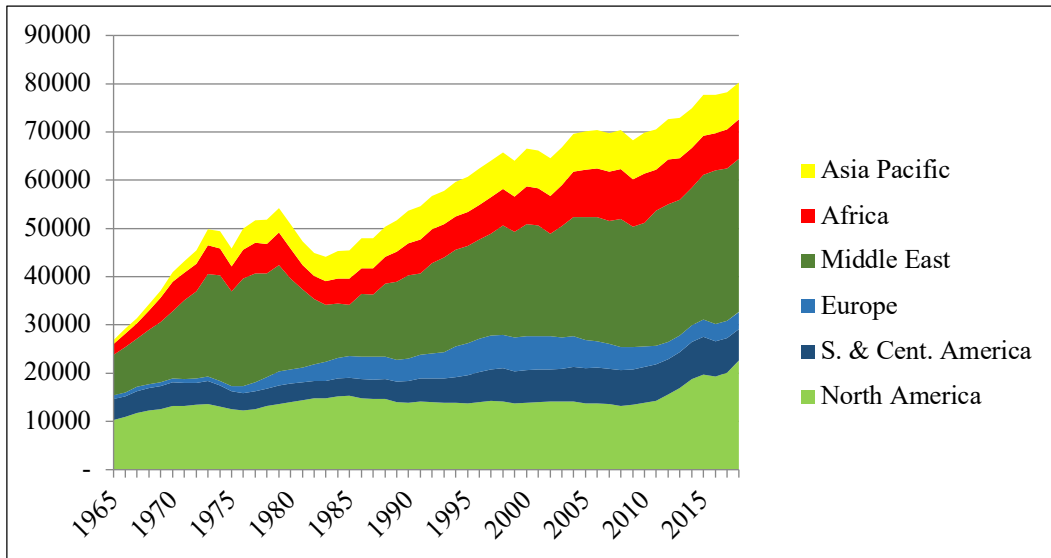


Figure 1.8 Oil Production (Thousand Million Barrels) from 1965 until 2018

Source: BP Statistics (2019b)

Based on the trends in oil production and consumption from 1965 until 2018, the exports and imports of oil products, as well as exports and imports of crude oil, are illustrated in Figure 1.9.

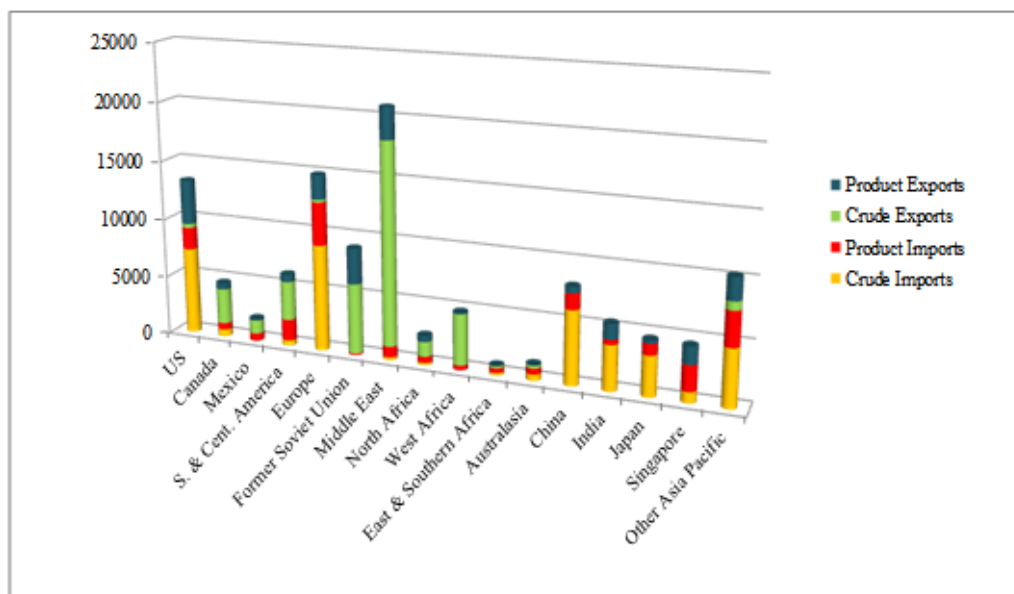


Figure 1.9 Product and Crude Exports and Imports for Selected Countries (Thousand Million Barrel)

Sources: BP Statistics (2016) and BP Statistics (2015)

The world crude oil export increased by more than threefold from the previous decade's average growth of 1.8 million barrels per day (2.3 per cent). Global refinery use increased by 82.1 per cent in 2018, recording the fastest growth in five years. The global trade of crude oil and refined products grew by 5.2 per cent in 2015, showing the largest increase since 1993. Next, Section 1.2.3 focuses on the natural resources and development trends in Islamic countries. Specifically, economic development based on Gross Domestic Product Purchasing Power Parity (GDP PPP), the total percentage of natural resource rent to GDP, oil-resource countries, oil reserves, consumption, and production for development are discussed in more depth.

1.2.3 Natural Resources and Economic Development Trends in Islamic Countries

Some Islamic countries are blessed with productive resources, specifically natural resources and human capital. The efficient use of these productive resources will lead to sustainable development, economic growth, and societal well-being, while inefficient management will adversely affect growth rates and income. According to a report by the Statistical Economic and Social Research and Training Centre for Islamic Countries (2019), although Islamic countries have vast natural resources, some of these countries are still listed as less developed countries, with issues of income inequality, socio-economic problems, poverty, and high unemployment rates. As such, these countries clearly have unsustainable (Moerenhout & Luciani, 2021) long-term growth, unlike developed countries. This is because most Islamic countries depend highly on natural resource exploitation and have limited domestic diversification (Statistical Economic and Social Research and Training Centre for Islamic Countries, 2019).

Nevertheless, Islamic countries can maximise the contribution of their natural resources by enhancing their capacity to extract natural resources and further expand the added value of these natural resources through appropriate policies and investments that will foster economic development and growth. For instance, Saudi Arabia has recorded the largest economic growth among the Middle East and North Africa (MENA) countries. Saudi Arabia's economy shrunk by 0.7 per cent in 2017 and grew by 2.2 per cent in 2018, and it was expected to moderate at 1.8 per cent in 2019 and expedite marginally at 2.1 per cent in 2020. This fluctuation in economic growth is largely due to the decline in oil production (Statistical Economic and Social Research and Training Centre for Islamic Countries, 2019).

Due to the significance of oil sources in the socio-economic development of the majority of Islamic countries, Section 1.2.3 (a) presents the relationship between resource endowment and the trend of economic growth in selected Islamic countries.

1.2.3(a) Economic Growth and Productivity Trend in Selected Islamic Countries

This section scrutinises economic growth and productivity, measured by GDP per capita based on Purchasing Power Parity (PPP)⁵ time series data for selected Islamic countries from 2000 to 2018. This section aims to investigate the effect of natural resources on the productivity of these Islamic countries. According to Abdul-Mumin Abdulai and Elmira Shamshiry (2014), GDP per capita PPP is largely used as its calculations include non-tradable goods and services for sustaining livelihoods, particularly the livelihood of the poor. In other words, GDP per capita PPP tracks the

⁵ According to the World Bank. (2019). *World development indicator: GDP per capita PPP* <https://data.worldbank.org/indicator/NY.GDP.PCAP.PP.KD>, GDP per capita PPP is the gross domestic product transformed to international dollars by using the rates of purchasing power parity. GDP at consumer price is the total amount of gross value added by all manufacturers in the economy plus any tax product and minus any subsidies that are not included in the value of the product. It is computed without deducting the depreciation of assets or the depreciation and depletion of natural resources.

trend in the standard of living, which renders it superior to nominal GDP per capita, which is often calculated based on foreign exchange and tradable goods and services among the world economies in the world market.

The following Figures 1.10, Figure 1.11, and Figure 1.12 demonstrate the cluster of oil production in the selected OIC countries while maintaining the regional patterns. Natural resources, especially oil production, play a significant role in the socio-economic development of the majority of the world’s economies.

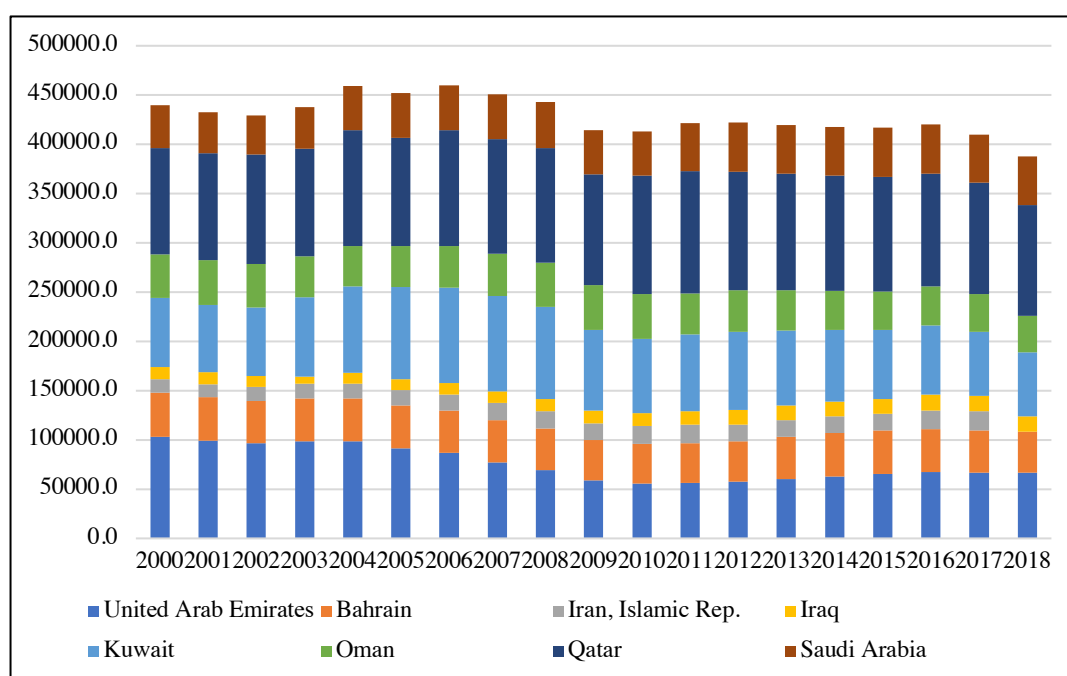


Figure 1.10 Economic Growth and Productivity Trend of Selected Countries in the Middle East Region in GDP Per Capita PPP 2000–2018 (USD)

Source: World Bank (2019)

Figure 1.10 shows the economic growth and productivity of selected countries in the Middle East region in GDP per capita PPP from 2000 until 2018. Six countries from the Middle East region are among the top-ten OIC countries by GDP per capita, namely Qatar, the United Arab Emirates, Kuwait, Saudi Arabia, Bahrain, and Oman. These six countries are considered resource-rich countries. Based on the data provided by the Oxford Business Group (2019b); World Bank (2019), although Qatar is a small-

population country, it is the world's biggest gas exporter. In 2018, Qatar recorded the highest GDP per capita among Islamic countries and was ranked seventh in the world. Qatar's GDP per capita is 18.2 per cent higher than the average for OIC countries. In terms of labour productivity, Qatar reported superior output per worker (USD158, 000) in comparison to Saudi Arabia, Kuwait, and the United Arab Emirates, which recorded USD124, 000, USD116, 000, and USD98, 000, respectively (Statistical Economic and Social Research and Training Centre for Islamic Countries, 2019). However, Qatar encountered an enormous challenge in June 2017 when the governments of Bahrain, Egypt, the United Arab Emirates, and Saudi Arabia severed diplomatic relationships with the country and announced economic encirclement against the country (Oxford Business Group, 2019b).

Figure 1.11 below presents the percentage of natural resources and oil rents in GDP for selected countries in the Middle East region. Although Qatar achieved the highest economic growth of all the Arab Gulf countries, Qatar's dependence on natural resources decreased to 17.9 per cent in 2017 from 42.0 per cent in 2000. A similar trend is seen in the country's percentage of oil rents in GDP, where the percentage dropped to 14.2 per cent in 2017 from 38.8 per cent in 2000 (World Bank, 2019). This is due to Qatar's determination to diversify its economy from only relying on natural resources and fluctuating energy prices to achieve the Qatar National Vision 2030.

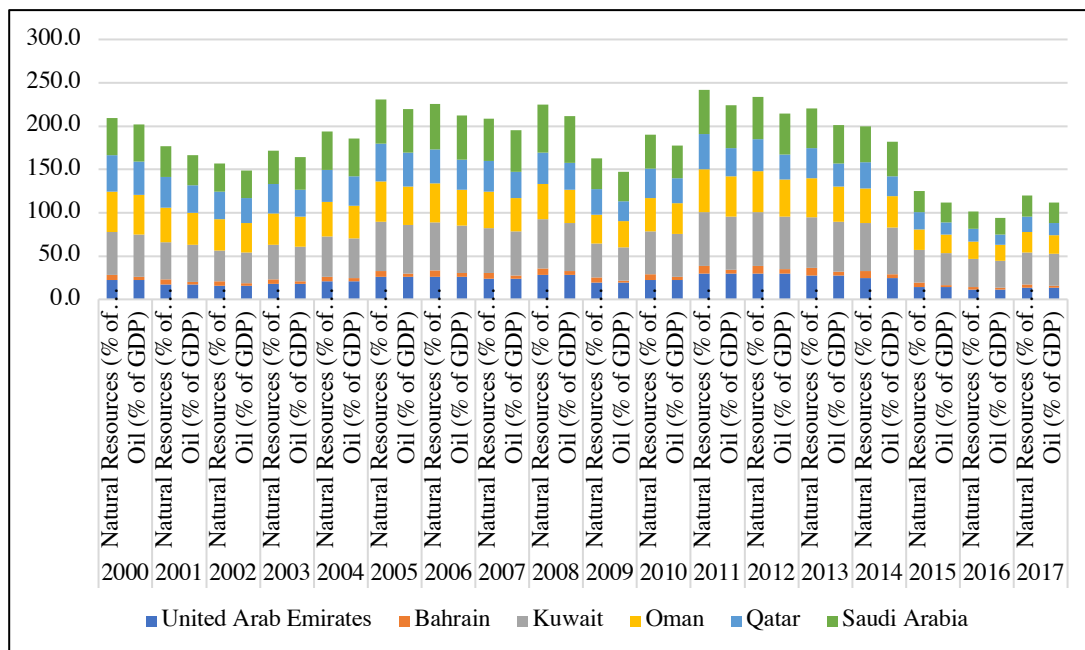


Figure 1.11 Total Natural Resources Rents and Oil Rents in GDP for Selected Countries in the Middle East Region 2000–2017 (% of GDP)

Source: World Bank (2019)

Figure 1.11 shows that Kuwait had the highest percentage of natural resources and oil rents in the Middle East in 2017 at 37.1 per cent, which is a 25.2 per cent decline from the year 2000. According to the Oxford Business Group (2019a), Kuwait holds the sixth-largest oil reserve and hydrocarbon power in the global market. Kuwait’s economy is highly dependent on the country’s oil prosperity. However, the vision of New Kuwait 2035 focuses on diversifying the economy from high utilisation and dependence on the state’s abundant oil. Hence, to improve the business environment, Kuwait endeavours to attract foreign direct investment (FDI) and promote privatisation, which is vital for the diversification of its economy.

Figure 1.12 shows the economic growth and productivity trend in the selected OIC countries within the Southeast Asian region, consisting of Brunei, Malaysia, and Indonesia.